

Eating Habits and Body Image During Pregnancy.

Karen Gough.

University College London.

D. Clin. Psych.

1998

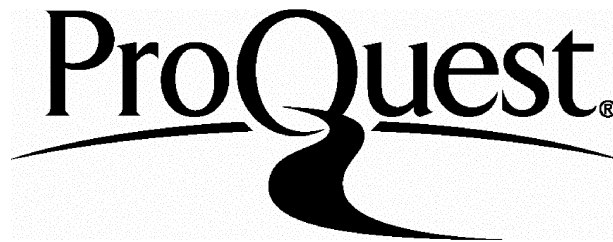
ProQuest Number: 10011131

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10011131

Published by ProQuest LLC(2016). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code.
Microform Edition © ProQuest LLC.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

593678

x28-2695825

CONTENTS

ABSTRACT	1
ACKNOWLEDGEMENTS	2
INTRODUCTION	4
Body Image	4
Dieting	10
Pregnancy	21
Eating Disorders and Pregnancy	31
Recent Research into Eating Habits and Body Image During Pregnancy	34
Clinical Relevance of Research into Eating habits and Body Image During Pregnancy	44
Aims of Present Study	46
METHOD	49
Overview	49
Participants	49
Measures	51
Procedures	58
RESULTS	60
Demographic Information	62
Dieting and Eating Behaviour	63
Background Variables	64

Testing the Hypotheses and Research Questions	73
DISCUSSION	90
Main Findings	91
Interpretation and Discussion of Main Findings	98
Limitations of the Study	110
Implications	113
Future Research	117
Conclusion	119
REFERENCES	120
APPENDICES	133

ACKNOWLEDGEMENTS

I am indebted to my supervisor, Professor Jane Wardle, for her continuing advice and guidance on this study. I would like to acknowledge the Women's Services Department at the Chelsea and Westminster Hospital for giving me access to their ultrasound clinic. My sincere thanks go to all the women who participated in the study. I would also like to thank Professor Glenn Waller for his comments.

I would like to thank my partner, Harry, for his inspiration and continuing support. In addition, I would like to thank my family and friends for their help and support.

ABSTRACT

Recently, research has started to investigate how women who are dissatisfied with their weight and appearance and who attempt to change them by dieting, adjust to the shape changes associated with pregnancy. Two studies have found that women with a history of dieting ('dieters') have a mixed reaction to the shape changes, but in general, it is more negative than that of non-dieters. The present study investigated whether it was a consistent finding that dieters react more negatively than non-dieters to the weight and shape changes that occur in pregnancy, and what variables affect women's reaction to the changes. In addition, the study examined body image, eating habits, and the relationship between these and mood during pregnancy. Body image, eating behaviours, mood, and variables predicted to be associated with how satisfied a woman is with the weight and shape changes during pregnancy, were measured in a group of pregnant women at approximately 20 weeks into pregnancy (n=109), and again when they were approximately 34 weeks pregnant (n=85).

The results indicated that dieters were more dissatisfied than non-dieters with their pregnant bodies and with the weight and shape changes that had occurred. A number of the hypothesised predictor variables were associated with dissatisfaction for weight and shape changes, including perceived dissatisfaction of partner with changes, self-esteem, and whether expectations of weight gain were met. Body image was found to improve, albeit not significantly, and drive for thinness to decrease across the pregnancy. Dissatisfaction with weight and shape changes during pregnancy was associated with cognitive restraint and disinhibited eating patterns, and body

dissatisfaction, dieting, and disinhibition were associated with negative affect. The findings were discussed in terms of implications for health care professionals working with pregnant women.

INTRODUCTION

Many women are dissatisfied with their weight and appearance and attempt to change them by dieting. The majority use sporadic dieting and exercise to regulate their shape while a minority use more extreme measures such as inducing vomiting and misusing laxatives or diuretics. Most women who are unhappy with their bodies are of child-bearing age, but researchers have only recently started to investigate how these women adjust to the shape changes associated with pregnancy.

This study will investigate eating habits and body image during pregnancy in relation to dieting prior to pregnancy. The introduction will review the literature on body image, dieting, pregnancy, and how women at the extreme end of the continuum (i.e. those with eating disorders) are affected by pregnancy. Recent research into eating habits, eating attitudes, and body image during pregnancy, and the clinical relevance of this research will follow and lead to the specific questions of this study.

BODY IMAGE

Body image has been defined as a person's subjective perceptions and attitudes towards his or her physical body (Burritt & Fawcett, 1980). It changes throughout an individual's life in response to internal and external influences. Body image may influence personality, self image identity, and behaviour, and vice-versa (Moore, 1978).

Thompson, Penner, & Altabe (1990) stated that the phrase 'body image' has been used as an umbrella label with its specific meaning depending on an individual researchers

definition. Fisher (1990) expanded on this point and described early use of the term to represent a unidimensional construct as simplistic. Research data indicates that body experience is multi-dimensional, and current research dealing with the body as a psychological object has branched into multiple domains. Fisher describes nine primary typical areas of inquiry the field:

1. Perception and evaluation of one's own body appearance.
2. Accuracy of perception of one's own body size.
3. Accuracy of perception of one's body sensations.
4. Ability to judge the spatial position of one's own body.
5. Feelings about the definiteness and protective value of the body boundaries.
6. Distortions in body sensations and experiences associated with psychopathology and brain damage.
7. Responses to body damage, loss of parts, and surgery.
8. Responses to various procedures designed to 'improve' the body cosmetically.
9. Attitudes and feelings pertinent to the sexual identity of one's body.

Researchers and clinicians have, in general, focused on two aspects of appearance-related body image: a perceptual component, i.e. estimation of body size, and a subjective component which incorporates attitudes toward body size / weight, other body parts, or overall physical appearance (Cash & Brown, 1987). The latter, which is one of the principal themes of this study, will be referred to as 'body dissatisfaction'. Rosen (1990) stated that dissatisfaction can often be traced to particular areas of the body such as width of hips or thighs, or the protrusion of the abdomen; and that dissatisfaction is often expressed by the thoughts and beliefs that the part is ugly,

disgusting, too fat, or lacking in muscle tone. Negative body image can also be accompanied by behaviours that revolve around the individual's physical self-consciousness, e.g. wearing baggy clothes, avoiding intimacy.

Much research has examined body image disturbance in individuals with eating disorders. However, Thompson et al (1990) stated that many non-eating-disordered individuals have some degree of appearance-related, body-image disturbance such as general dissatisfaction, or size perception inaccuracy (particularly over estimation of body sizes). Indeed, body disturbance taken at the extreme form may result in the diagnosis of 'Body Dysmorphic Disorder' (DSM-IV,1994) which is a "preoccupation with some imagined defect in a normal-appearing person".

Cultural And Societal Influences On Appearance-Related Body Image

Sobal (1995) defined culture as the system of categories, rules, and values that governs structures, processes and ideals in society, and stated that culture is "probably the most powerful determinant of body weight because it sets the context for eating and activity and also assigns moral and social meanings to weight". The development of the idea, within Western culture, that thinness is a marker of beauty in women is perceived to be a background factor for the development of body image concerns in women with eating disorders (Rosen, 1990).

Various authors have provided evidence supporting the etiological role of cultural influences on appearance-related, body image disturbance. Garner, Garfinkel, Schwartz, & Thompson (1980) demonstrated that over time, exemplars of female

beauty (e.g. models, beauty contestants) have become significantly thinner, and this change has been accompanied by an apparent increase in eating disorders and more reports of sub-clinical eating and body image disturbances among women. Nasser (1988) highlighted that in non-western cultures, where plumpness is valued (i.e. associated with wealth, fertility), or at least not devalued, eating disorders are rare. Furthermore, Nasser demonstrated that Third World immigrants to industrialised countries have a higher rate of eating disorders than people of the same nationality who remain in their own country.

Society also influences appearance related, body image disturbance. Sobal (1995) stated that gender roles provide socially defined expectations in which women are judged more by their appearance than men, and this has led to greater concern about thinness among women. Similarly, Rosen (1990) cited evidence that women with eating disorders and body dissatisfaction are more likely to have experienced social rejection in connection with their appearance i.e. being teased about their size or weight by other people.

Measures Of Appearance Related Body Image

Assessment of the perceptual component: estimation of size.

Instruments to assess body-size perception (or 'body image distortion') are divided into two categories: body-part and whole body procedures (Cash & Brown, 1987). Methods for estimation of body parts involve subjects matching the width of the distance between two points to their own estimation of the width of a specific body part. The subject's estimation of body widths is then compared with an assessment of

the subject's actual widths and a ratio of over or under estimation is calculated. Examples of body part assessment procedures are: the movable calliper technique (Slade & Russell, 1973), where subjects adjust the width between two lights on a horizontal bar: and, the Body Image Detection Device (Ruff & Barrios, 1986), which projects a beam of light onto a wall that the subject matches to her estimate to a particular body part. The majority of subjects over estimate all body parts (Thompson et al, 1990).

Procedures to assess perception of whole-body size involve an individual observing a real-life image (e.g. photographic, video, or mirror image) that is modified to be objectively smaller or larger than reality. Subjects select the stimulus image that matches their own conception of their size. Discrepancy between selected image and actual real-life image is a measure of perceptual inaccuracy. Examples of these procedures are: the Distorting Photograph Technique (Garner & Garfinkle, 1981), where subjects indicate size by adjusting a photograph that is distorted from 20% under to be 20% over actual size; and the Body Build Assessment Programme (Dickson-Pamell, Jones & Braddy, 1987), in which a computer programme allows subjects to create figures.

Assessment of the subjective components: body dissatisfaction.

Instruments to measure subjective component of appearance-related, body-image, address satisfaction, subjective concerns, cognitions, anxiety, and anticipated avoidance of certain situations (Thompson et al, 1990). Fallon & Rozin (1985) developed the Figure Rating Scale, where subjects select their current and ideal body size from nine

figures of various sizes. The discrepancy between the two (often called self-ideal discrepancy) has become one of the most widely used methods of determining an overall rating of size / weight satisfaction. A number of questionnaires also have been developed to measure the subjective component of appearance-related body image. These include the Body Parts Satisfaction Scale (Berscheid, Walster & Bohrnstedt, 1973) which lists 24 body parts that rated on scale from extremely satisfied to extremely dissatisfied; and the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) which has a 'Body Dissatisfaction' scale that largely measures weight-related dissatisfaction.

Body Image Disturbance And Other Variables

Perceptual and subjective body image disturbances have been associated with depression, low self-esteem, and eating disturbance. Taylor & Cooper (1986) found a strong connection between depression and perceptual size over estimation where greater depression was associated with increased levels of inaccuracy. Brodie and Slade (1988) did not find a reliable correlation between perceptual measures of size and depression, but obtained a significant relationship with body satisfaction. Thompson & Thompson (1986) found that women with the greatest over estimation of body size had the lowest self-esteem, and Rosen (1990) found that body satisfaction is closely associated with global feelings of low self-esteem. Keeton, Cash & Brown (1990) obtained significant correlations between a measure of general psychological functioning (SCL-90) and many subjective, but fewer perceptual, measures of body-image disturbance. Dysfunctional eating has been strongly associated with subjective

body-image disturbance (Brodie & Slade, 1988; Keeton et al, 1990) but the relationship with perceptual disturbances is unclear.

Numerous authors have investigated the relationship between body-image disturbance and the development and maintenance of the eating disorders. Fairburn & Garner (1988) proposed that the dysfunctional eating and weight control observed in the eating disorders are secondary to weight and shape dissatisfaction. Gross & Rosen (1988) demonstrated that body satisfaction was a stronger predictor of bulimic eating-attitudes and behaviours in female adolescents than self-esteem, depression, and social anxiety combined. Moreover, the severity of eating and dieting symptoms have been shown to correlate with body dissatisfaction in women with Bulimia Nervosa (Ruderman & Grace, 1988). In conclusion, Rosen (1990) stated that, “there is consistent evidence that negative body image predicts severity of eating and dieting pathology, and does so to a greater extent than other psychological variables”.

DIETING

Dieting is currently a controversial issue (Wilson, 1995). For decades it was viewed as an acceptable and popular thing to do, leading to better health and improved looks. More recently, however, researchers have questioned the effects of dieting. Critics of dieting have proposed that dieting does not make people healthier, is more likely to lead to weight gain rather than weight loss, and makes people unhappier rather than happier. Wilson (1995) sums up that dieting has been accused of being “ineffective at its best and damaging to health at worst”.

Dieters

Between 50% and 75% of all adolescent and adult women in the US have been found to diet at some point in their lives (Attie & Brooks-Gun, 1987). Rosen & Gross (1987) found that dieters were more likely to be white and in higher social class than black and lower class. It is logical to assume that people who are fat / over-weight diet, but research suggests that dieters come in all shapes and sizes. Rosen & Gross (1987) found that almost all the over-weight, two thirds of the normal-weight, and even 18% of the under weight women in their sample were trying to lose weight. Many of us have met fat people who are happy with their size and do not diet, and also people we perceive not to have a weight problem but think that they are fat and consequently diet. Therefore, as Ogden (1992) stated, “Dieters all have one thing in common; they think they are fat and they diet.....Their actual size is immaterial, what motivates dieters is their perceived size”.

Motivation To Diet

Researchers and clinicians have put forward a number of suggestions for factors that motivate people to diet: social and cultural factors; pubertal / developmental factors; personality and adjustment factors; and body-image dissatisfaction. Brownell (1991) suggested that the search for the perfect body is driven by the beliefs, firstly, that the body is malleable and that with the correct diet, physical activity, and personal effort, an individual can achieve the desired ideal body, and secondly, one’s ideal body will lead to significant rewards in terms of health, wealth, happiness, and interpersonal attraction.

Wilfley & Rodin (1995) suggested that being thin and physically fit is the contemporary ideal of female attractiveness, and that in recent decades western cultures have experienced a significant trend to an increasingly thin beauty ideal. To attain this ideal, women have increased their dieting behaviour. Social factors also influence weight and dieting behaviour. Sobal (1995) suggested that the relationship between socio-economic status (SES) and weight operates in a bi-directional manner. The opportunity to diet and control weight is influenced by SES through the availability of resources, lifestyle patterns, and availability of knowledge. In turn, weight influences SES through discrimination against obese people thereby preventing access to the social positions needed for social mobility to attain a higher SES.

Attie, Brooks-Gun, & Peterson (1990) describe how pubertal factors could be linked to dieting behaviour. As girls mature sexually they accumulate large quantities of fat which add an average of 24 pounds to their body weight. This increase in body fat, which is one of the most dramatic physical changes associated with puberty, is related to increased efforts to diet. Personality factors have been used to distinguish dieters and non-dieters and, therefore, have been proposed as related to an individual's decision to diet. In a review of the area, Heatherton & Polivy (1992) found that chronic dieters have lower self-esteem than non-dieters. In addition, they quoted research demonstrating the relationship between dieting and neuroticism, depression, and maladjustment. However, it has not been ascertained whether these variables precede and contribute to the decision to diet or occur as a result of dieting.

Body dissatisfaction appears to be the most likely reason motivating women to diet. Miller, Coffman, & Linke (1980) found that 81% of those reporting dissatisfaction with their weight were dieting. Heatherton (1993) examined body shape preferences, body dissatisfaction, and self-focus between dieters and non-dieters. Dieters were found to be more dissatisfied with their bodies than non-dieters, but they did not have more stringent standards for body shape than non-dieters. The discrepancy between ideal and current body shape was greater for dieters than non-dieters but this could be explained by the fact that dieters were actually heavier. The study found dieters to be highly and negatively self-focused on the Exner Sentence Completion Task, and dieting status was correlated with public rather than private self-consciousness indicating that dieters are concerned with their public image. Heatherton concluded that the study's findings suggest that some women may be motivated to diet in part because of intense self-focus about their current self-perception of being overweight. In sum, it appears that "although physique alone, especially for normal weight individuals, may not predict who diets, body dissatisfaction does" (Heatherton & Polivy, 1992).

Dieting Behaviour

Dieting means attempting to eat fewer calories in an attempt to lose weight. Polivy & Herman (1995) suggested that dieting entails replacing internally regulated (hunger-driven) eating with planned, cognitively-determined, diet approved eating, or dietary-restraint. Therefore, the dieter ignores internal signals of hunger (and satiety) and adheres to a calorically reduced eating plan that is intended to lead to weight loss. Many dieters describe their days in terms of being "good" (dieting) or being "bad" (not following a diet) (Low, 1993). Some dieters, who are at the more extreme end of

desire to be thin scale, use more hazardous strategies for weight loss such as vomiting, laxative abuse, diet pills (amphetamines), smoking, very low calorie diet, and fad diets (e.g. the Beverly Hills Diet).

French & Jefferey (1997) investigated three dimensions of dieting - current dieting, history of dieting, and weight suppression - in relation to dietary restraint, eating behaviours, physical activity, and weight concerns. Weight suppression referred to the successful maintenance of a substantial weight loss for a lengthy duration. The sample of 999 women were divided into non-dieters (692), weight-loss dieters (224), and weight maintenance dieters (83). Weight loss dieters and weight maintenance dieters were more concerned about and attentive to their weight than non-dieters. Current dieters and those with an extensive history of dieting reported a greater number of both healthy and unhealthy dietary practices, while weight maintenance dieters and non-dieters did not differ in their use of healthy and unhealthy practices.

The three groups did not differ significantly for total energy intake, but weight loss dieters received a significantly lower percentage of energy from fat and sweets than non-dieters, whereas weight maintenance dieters were intermediate. Physical activity was only significantly related to weight suppression. Dieting history was unrelated to specific foods or physical activity. The authors concluded that three conceptually distinct dimensions of dieting were related in different ways to weight concerns and dieting practices. Current dieting was closely associated with dietary intake, and weight maintenance was associated with physical activity, while dieting history was less clearly

associated with eating behaviours and physical activity independent of current dieting status and weight suppression.

Observations of clinical populations and self-reports by normal dieters have revealed that chronic dieters (or restrained eaters) differ from non-dieters (or unrestrained eaters) in another aspect of eating behaviour. Unlike unrestrained eaters, dieters are also more likely to report episodes of over-eating, bingeing, or disinhibited eating (Attie et al, 1990; Polivy & Herman, 1995). In situations where a food intake high in calories have been consumed which breaks a dieter's caloric allowance, chronic dieters do not compensate by minimising further eating, as non-dieters do following consumption of a large amount. Instead, dieters eat more following a preload of fattening food. This type of eating pattern (counter-regulatory eating) appears to be mediated by cognitions whereby, irrespective of actual caloric value of initial food eaten, the belief that one has over eaten is sufficient to trigger counter regulatory eating in the highly restrained eater (Polivy, 1976).

Other factors, such as anxiety, depression, and the belief that alcohol has been consumed have also been shown to disinhibit the restrained eater leading to greater food consumption. However, the unrestrained eater responds to affective discomfort or stress by decreasing food consumption (Attie et al, 1990).

Success Of Dieting

It is difficult to evaluate how successful dieting is. Most women diet on their own without help resulting in a lack of records of their success. Heatherton & Polivy (1992)

found that successful dieters are actually a small minority of those who attempt to lose weight, and that typically the dieter initially loses some weight but not as much as was desired. Wilson (1995) described that comprehensive weight control programmes combining dietary modification, increased physical activity, and other life-style changes are effective in producing significant weight loss in persons with mild to moderate obesity. Two thirds of individuals maintain this loss in the short term, but 5 year follow-ups indicate that most revert back to their baseline weights. Garner (1995) reported that long term follow-up studies of dieting in the obese indicate that 90% to 95% of those who lose weight will regain it in several years. Heatherton & Polivy (1992) summed up that even if the dieter loses the intended weight, the lost weight returns quickly and often with a few extra pounds. The high failure rate of dieting is a likely explanation as to why many women are consistently on and off diets.

One proposal for why dieting has a limited impact is the 'set-point' hypothesis which proposes internal regulation of the fat stores. When fat stores become depleted metabolic changes take place to maximise energy conservation (Nisbett, 1972). Consequently, the chronic dieter triggers the body's set point mechanism which results in the system hoarding fat and calories more efficiently with each diet. Evidence in support of this concept is the relative weight stability of some individuals, and the resistance to changes in weight of other individuals (Keesey, 1995). Attie et al (1990) stated that a person's set point may be important in defining who will diet and who will be successful. Individuals who are naturally thin may diet less, and if they gain weight may find it easier to lose.

Consequences Of Dieting

Physical

Dieting and weight loss may be actively harmful to physical health. The major problem is that the majority of people who lose weight gain it back again leading to a pattern of weight-cycling of “yo-yo” dieting. Wilson (1995) reported that the negative effects of weight cycling are reported to include reduction in lean body mass relative to body fat; enhanced metabolic efficiency, making future weight loss harder and leading to greater obesity; and increased risk of cardiovascular disease. Polivy & Thompson (1988) described that many physical ailments appear to be directly related to weight loss and the regimes undertaken to achieve it including, low blood pressure, gallstones, muscular aching, general weakness / fatigue, changes in heart rate, anaemia, oedemia, headaches, and nausea.

Dieting has been shown to diminish the individuals ability to perceive the internal sensations of hunger and satiation. Heatherton, Polivy & Herman (1989) compared eating patterns in restrained and unrestrained eaters following cognitive manipulation of internal state (by telling subjects to expect either sensations of hunger or satiety). Their results indicated that unrestrained eaters are sensitive to internal state whereas restrained eaters rely on cognitive cues and are insensitive to internal state. Indeed, Heatherton & Polivy (1992) stated that, “to be successful at dieting individuals have to ignore the internal sensations of hunger that might otherwise promote (over) eating.

Psychological

The harmful consequences of dieting are not restricted to physical difficulties but also include psychological sequelae. Wilson (1995) stated that cross-sectional studies of adolescent females have shown that, independent of the effects of body weight itself, dietary restraint is significantly associated with feelings of failure, lowered self-esteem, and depressive symptoms.

Restrained eaters are well known for having low self-esteem (Polivy, Heatherton, & Herman, 1988). Indeed, there is evidence that therapeutic intentions designed to stop dieting behaviours lead to increased self-esteem (Ciliska, 1990). However, it is difficult to state with certainty in which direction the relationship between dieting and self-esteem goes i.e. low self esteem leads to dieting or vice-versa. Heatherton & Polivy (1992) explain the relationship between dieting and self-esteem using a spiral model. To commence dieting an individual must feel inadequate in her present form, and dieting success or failure has important effects on self-esteem. Dietary failure lowers self-esteem and lower self-esteem, in turn, makes dietary failure more likely. The chronic dieter may enter “a spiral in which each failure at dieting produces greater negative effect and precludes either successful acceptance or successful alteration of their bodies”.

Restrained eaters have been shown to be more depressed and anxious than non-dieters (Rosen, Gross & Vara, 1987). Garfinkle & Garner (1982) described irritability, poor concentration, depression, anxiety, apathy, and emotional lability as a consequence of dieting. Polivy & Thompson (1988) stated that the majority of the literature indicates that dieting causes emotional discomfort.

The Relationship Between Dieting And Eating Disorders

Anorexia Nervosa is characterised by weight loss, an intense fear of gaining weight or becoming fat, and disturbance in the way in which one's body weight, size, or shape is experienced (i.e. 'feeling fat'). Bulimia Nervosa is characterised by recurrent episodes of binge-eating and a morbid fear of becoming fat. Authors have discussed the similarities, differences, and the relationship between dieting and eating-disorders (Garner, Olmstead, Polivy & Garfinkle, 1984; Heatherton & Polivy, 1992; & Polivy & Herman, 1995).

Many of the similarities between dieters and eating disorder individuals concern food, eating or body weight. Individuals with Anorexia Nervosa and dieters both restrict their food intake although anorexics are more successful at losing weight and maintaining their diets than most normal dieters. Both dieters and individuals with Bulimia Nervosa alternately restrict their intake and over-eat, and often in response to similar triggers - emotional events, perceived diet-breaking, or disinhibition (such as alcohol). Restrained eaters and eating disordered individuals are also psychologically similar. Both exhibit low self-esteem, body-image dissatisfaction, increased compliance, heightened emotionality, and lack of internal sensitivity. Moreover, there are similarities in the thinking patterns of both groups which include cognitive distortions such as irrationality, and dichotomous thinking (Polivy & Herman, 1995).

However, those with Anorexia Nervosa and Bulimia Nervosa are not perceived to be "super-restrained individuals" and there is not a continuum existing between dieting and

eating-disorders (Heatherton & Polivy, 1992). A number of important differences exist between the two groups. The low self-esteem of the dieters is not equivalent to the sense of worthlessness and ineffectiveness that characterises the eating disordered individual. Moreover, the dichotomous thinking of the dieter appears confined to food and eating, whereas for the individual with an eating-disorder it extends to all areas of her life (Polivy & Herman, 1995). But the essential differences between dieters and those with eating disorders are related to levels of psychopathology that are independent of eating (Heatherton & Polivy, 1992). Individuals with eating disorders exhibit maturity fears, interpersonal distrust, clinical affective disorders, substance abuse, familiar and relationship problems, and the presence of ego-deficits that are not seen in normal dieters (Garner et al, 1984; Polivy & Herman, 1995).

Heatherton & Polivy (1992) expanded their spiral model to discuss the path between dietary restraint and eating disorders. According to this model, chronic dieters enter a spiral in which self-esteem is lowered following each diet failure leading to dysphoria and negative affect. With time self-esteem becomes increasingly damaged, and negative-affect and maladjustment so ingrained that eating disorders may develop. In anorexics, who do manage to lose weight, the sense of failure may come from inability to attain extreme goals.

Dieting And Pregnancy

The Institute of Medicine (IOM) (1990), made up of a number of US Committees examining nutrition and weight gain during pregnancy, strongly discouraged dieting during pregnancy, even among obese women. The IOM Report 'Nutrition During

Pregnancy' (1990) recommended a minimum of at least 6.8kg weight gain during pregnancy among women with a body mass index of >29. A low energy intake during pregnancy may result in ketosis and thereby pose a threat to the developing foetus (Dewey & McCrory, 1994).

PREGNANCY

Pregnancy is a time in the women's life characterised by significant alterations in appearance and body function. Weight gain is disproportionately centred around the trunk of the body, and the abdomen enlarges as the weight increases. Movement becomes progressively more limited as the pregnancy continues and the woman develops a "waddling" gait.

Appetite changes during pregnancy are significant. Women often experience preoccupation with food, cravings, and aversions during pregnancy. Fairburn, Stein, & Jones (1992) prospectively studied 100 primigravid women to describe the changes in eating that occur during pregnancy. Eighty percent of subjects reported strong aversions to specific foods, drinks, or smells which began early in pregnancy (2 - 12 weeks). The most common reported aversions were to coffee, tea, fried or fatty foods, and highly spiced. Specific dietary cravings occurred in 53% of subjects. On average they began at nine weeks gestation and lasted for 10 weeks. The most commonly craved foods were chocolate, citrus fruits, and savoury foods (e.g. pickles, crisps).

During pregnancy the body needs additional energy to cope with added maternal tissue and growth of the foetus and placenta. Reiff & Reiff (1992) give the example that if a

mother gains 27.5 lbs and has given birth to a 7.3 lb baby, the estimated total energy cost is 80,000 calories. Therefore, it is recommended that, in general, in the first trimester a pregnant woman should eat the same number of calories as she did prior to pregnancy, but she should increase her daily intake by 300 calories at the beginning of the second trimester and sustain this higher level throughout the remainder of the pregnancy (Reiff & Reiff, 1992).

Weight Gain During And After Pregnancy

Weight gain practices have changed across the twentieth century. During the first half of the century the emphasis was on restricted weight gain. The rationale behind this was that it reduced head circumference which facilitated delivery and reduced complications associated with childbirth. During the 1950's the practice of restricting weight gain during pregnancy was challenged by data linking low birth weight (LBW) in neonates with increased infant morbidity and mortality. In addition, the smaller head circumference of LBW increased the possibility of suboptimal brain development. Consequently, the removal of pregnancy weight gain restrictions was advocated. (Moore & Greenwood, 1995)

The Institute of Medicine Report (1990) reviewed the scientific literature and proposed guidelines for maternal weight gain. The IOM guidelines were based on the pre-pregnancy body mass index (BMI) of the mother. The recommendations were that, underweight women (BMI less than 19.8) should gain between 28 - 40 pounds during pregnancy; normal-weight women (BMI 19.8 - 26.0) should gain between 25 - 35 pounds; overweight women (BMI 26.0 - 29.0) should gain 15 - 25 pounds; and women

who are obese (BMI greater than 29.0) should gain a minimum of 15 pounds but not much more. Women carrying twins were advised to gain 35 - 45 pounds.

The relationship between maternal weight gain and pregnancy outcome has been examined. The IOM committee concluded that maternal weight gain at the time of birth was an important determinant of foetal growth. Low maternal weight gain was found to be associated with low birth weight infants, and high weight gain during pregnancy was discouraged due to the complications that occur with the delivery of very large infants. Abrams & Laros (1986) found a significant linear relationship between maternal weight gain during pregnancy and infant birth weight for women who are not overweight. However, weight gain during pregnancy had no effect on birth weight for very over weight women.

Furthermore, Abrams & Parker (1990) investigated the relationship between maternal weight gain and good pregnancy outcome in a cohort of 4674 women. Good pregnancy outcome was defined as vaginal birth, between 37 - 42 weeks, appropriate birth weight for age, and without congenital anomalies. The results showed that the mean maternal weight gain associated with good outcome was 15kg (33lbs). Fifty percent of the women who had a good outcome gained between 12 - 18 kg (26 - 40 lbs), and 80% of the cohort who had a good outcome gained between 10 - 21 kg (22 - 46 lbs). However, only 10% of the women in the cohort with a good pregnancy outcome gained less than 10kg (22lbs). The authors concluded that there is "great variation in weight gain at term among healthy women who experience good reproductive performance".

Recently, research has focused on weight retention following pregnancy. Ohlin & Rossner (1990) stated that 40% - 50% of severely obese women who attended their obesity unit said that their excessive weight gain was initiated by previous pregnancies. Lederman (1993) reviewed the literature published during the previous decade on weight changes related to pregnancy and parity in women from developed countries. The results showed that the estimated post-partum weight retained in association with pregnancy was less than 1.5kg (3lbs). The study concluded that factors other than pregnancy (i.e. ageing) are likely to explain the majority of weight gain attributed to reproduction. In addition, Lederman described the main methodological problem of most studies examining weight retention following pregnancy, which is the inaccuracy of consistently low self-reported values for pre-pregnancy body weight. Consequently, under estimation of the pre-pregnancy body weight, which is greater for over-weight women leads to over estimation of weight gained during pregnancy and weight retention.

Moreover, a further study investigating the impact of pregnancy on the long-term weight gain primiparous women in England was performed by Harris, Ellison, Holliday & Lucassen (1997). The study examined the change in maternal body weight, from the beginning of the first successful pregnancy to the beginning of the second, in 243 mothers who had been weighed in the first trimester of both pregnancies, and who had at least 12 months between birth of first child and conception of second. Measurements were taken in the first trimester because objective data was provided rather than self reported (i.e. weights recorded at the ante-natal clinic) and previous analysis had shown

no significant increase in weight during the first trimester of pregnancy in the same group of women. The results demonstrated that, after accounting for the effect of ageing, there was no significant increase in mean maternal body weight following the first pregnancy (70% gained 1.0 kg or less). Women with higher BMI's at the beginning of the first pregnancy, who gained more weight during pregnancy, gained significantly more weight from first to second pregnancy. The authors concluded that pregnancy has little impact on the mean weight gain on primiparous women from England, who have a low prevalence of obesity. But pregnancy may be associated with a permanent increase in maternal body weight because some women gain excessive weight at this time. Moreover, other factors, such as pre-pregnancy BMI, actually determine whether long term weight gain and retention actually occurs.

Jenkin & Tiggemann (1997) carried out a prospective study of the effect of weight retained after pregnancy on weight satisfaction, self-esteem, and depressive effect. Self-report data was collected from 115 women who were in the last month of pregnancy, and then again one month following the birth. On average, women were 4.8kg (9.6lbs) heavier four weeks after birth than prior pregnancy. This was slightly higher than they expected. Post-natal weight was negatively correlated with weight satisfaction, and shape satisfaction, and positively correlated with depressive affect. Self-esteem was not associated with post-natal weight. These results indicate that the heavier a women is post-natally, the less satisfied she is with her weight and shape, and the lower her mood.

Post-natal dieting was also examined in the study. Of the 92 women who completed the second questionnaire, 16% of the sample stated that they had dieted since the birth

of the baby and a further 18% indicated that they were currently dieting. Women who had dieted had lower weight and shape satisfaction than women who had not dieted since the birth of the baby. Moreover, intention to diet in the next 6 months was related to post-natal weight and shape satisfaction, and dieting prior to pregnancy also correlated with intention to diet post-natally. From the study, Jenkin & Tiggemann concluded that maternal post-natal weight was related to psychological well-being following childbirth. However, the authors acknowledged the major limitation of this study which is the short post-natal period (one month). It is possible that women may realise that their expectations of weight loss soon after child birth were unrealistic, and therefore accept their weight retention. But, if women are heavier than expected at six months or a year following childbirth their self-esteem and level of depression may be significantly affected, particularly if their attempts to lose weight over this period have failed. Jenkin & Tiggemann (1997) recommend a further study into psychological effects of weight retention following pregnancy with a much longer post-natal follow-up.

Physiological And Psychological Changes During Pregnancy

A survey of women's experiences of body change during normal pregnancy was performed by Richardson (1990). Using a semi-structured interview, 63 pregnant women were asked to describe and evaluate their weight, appetite, activity, and mood experiences. The data was coded according to (i) the time during the pregnancy at which experiences were reported, and (ii) whether body experiences were changing or stable, satisfactory or worrisome, and for changing body experiences whether the

change was considered a gain or loss. Log-linear procedures were used to analyse the data.

A total of 436 body experiences were reported for the whole sample: 70% indicated body changes, and 30% indicated stable body experiences. Of the total 305 changes reported, 51% were described as body gains and 49% were described as body losses. Weight changes were more frequently reported as gains; appetite changes, as both gains and losses; and, changes in activity and mood were more often described as losses. Over three-quarters (76%) of the body changes were described as satisfactory, and the remainder (24%) were described as worrisome. Body gains were more frequently evaluated as satisfactory than were body losses. Of the 156 gains reported 88% were satisfactory and 12% were worrisome, whereas of the 149 losses reported 64% were satisfactory and 36% were worrisome.

From the results of the study Richardson identified that the pregnant women's body changes varied according to four definite time frames. The 'Reduction Phase' occurred between the time the woman first became aware of pregnancy to the time of quickening, and was characterised by satisfactory body losses (weight and activity) but also some gains (appetite). Women appear to observe their bodies closely for evidence of the baby's living presence. The 'Expansion Phase', between the 21st - 26th week of pregnancy, was characterised by satisfactory body gains (weight, appetite, and activity) and worrisome losses (mood). Women indulged their appetite during this phase. The 'Tension Phase' occurred between the 27th-32nd week of pregnancy and was characterised by worrisome body gains. Weight was the most frequently reported body

gain, and many women were concerned about having gained more weight than they had anticipated. The tension phase was also characterised by losses in mood and activity. The 'Stabilisation Phase', in the late weeks (33+) of the women's pregnancies, was defined by satisfactory body gains (weight, mood) and worrisome body losses (activity). At this time women were more comfortable with their cumbersome bodies possibly due to the realisation that delivery was near.

It was noted that the women in the study were extremely tolerant of the body changes they experienced during their pregnancies (i.e. the majority perceived the body changes as satisfactory). Richardson proposed two explanations for women's tolerance of the body changes. Firstly, women viewed the changes as transient and unique to the childbearing endeavour. This reflected the flexible and plastic body schema of a woman experiencing a normal pregnancy. However, Richardson adds that as women may have expected the changes, they were less worrying (i.e. it is usually unexpected changes in body experience that are threatening). Secondly, Richardson proposes that an "equilibrium tendency" between body gains and body losses may have been related to the women's tolerance of the changes. In other words, when considered together the body changes did not result in a "net gain" nor a "net loss" during pregnancy and therefore the body schema may have been exempted from accommodating significant demands on it.

The study findings highlight the reduction phase and the tension phase as critical periods during pregnancy. Body changes during these two phases stressed the significance of the women's ability to cope with or manage body uncertainties.

Richardson (1990) concludes that pregnancy is characterised by complex patterns of body change, and that “the woman who experiences a normal pregnancy has a flexible body schema which assimilates, without undue stress, the transitory, diverse, and even occasionally disconcerting experiences of body change.”

Bailey & Hailey (1986) performed a study on the psychological experience of pregnancy with a view to substantiating the assertion that pregnant women have different psychological experiences and emotional needs than non-pregnant women. In their study, a group of 19 women experiencing their first pregnancy were compared to a non-pregnant control group on a variety of objective personality measures. The results indicated that pregnant women were more focused on their inner world than their outer world and pregnant women scored significantly lower on “self-acceptance” than the non-pregnant women. The authors speculated that the increased introversion of the pregnant group may be related to the unfinished nature of pregnancy where a preoccupation with the coming birth and the inevitable physical changes encourage focus upon “possibilities”, rather than “concrete reality”. Despite the limitations of this study (a small sample size drawn from a specific population) it is possible that these findings, i.e. pregnant women’s focus on their inner world and decreased self-acceptance, could be related to how women feel about themselves physically, in addition to being concerned with the new life growing inside them.

There is evidence suggesting considerable variation in women’s self perception during pregnancy. In a self-administered questionnaire survey (N=891), Hofmeyr, Marcos, & Butchart (1990) found that only one fifth (19%) of women felt more attractive during

pregnancy, whereas over half (53%) felt less attractive than usual, and the remainder (28%) experienced no difference in how attractive they felt. Price (1996) states that pregnancy poses a significant challenge to the woman's perception of her body, not only because of radical change in the physical dimensions as pregnancy develops, but also because of changes in body function. He points out the long list of physiological changes that could easily affect body image during pregnancy : nausea and/or vomiting; tender breasts; constipation / flatus; anaemia; fatigue; backache associated with postural changes; weight gain; foetus pressure on the bladder increasing frequency of micturition; disturbed sleep.

Other authors have proposed that women's dissatisfaction with their bodies increases as pregnancy progresses (Moore, 1978; Strang & Sullivan, 1985). Jessner et al (1970) found that women often expressed an ambivalent attitude towards their bodies in the third trimester as physical changes occurred more rapidly. This early view appears to be supported by Richardson's (1990) description of the 'tension phase' of pregnancy which occurs at the start of the third trimester.

However, little research has been conducted into which factors affect body image during pregnancy. Shane & Linn (1977) examined whether the husband or the wife viewed the wife's body more positively, and whether the husbands or wives could accurately predict each other's satisfaction or dissatisfaction with the body changes during pregnancy. The results indicated that husbands were more satisfied with their partner's pregnant body than the women were themselves. In addition, the women were unable to predict their husband's level of satisfaction, but the men could

accurately predict their partner's responses. They concluded that the women's anxieties concerning their bodies clouded their perception of their husband's satisfaction. Berk (1993) identified that women who had a more positive body image prior to pregnancy seem to have a more positive attitude to their pregnant bodies than those who had a negative attitude before pregnancy.

A possible factor underlying why women feel less attractive during could be that they over-estimate their body size and shape. In a study investigating awareness of body dimensions during pregnancy, Slade (1977) found that most pregnant women (N=40) over-estimate their body dimensions (face, chest, waist, & hips) at approximately 4 months into the pregnancy. When the sample were subdivided on the basis of a history of weight change over the previous 12 months, it was found that the two groups of women who had a history of either 'weight gain' or 'weight loss' actually over-estimated their body dimensions less than the group who had maintained a relatively stable weight. However, in a follow-up study where 16 of the original sample were re-tested at 8 months into the pregnancy it was found that, despite increasing weight and body dimensions, the tendency to over-estimate was found to be significantly reduced. Slade (1977) concluded that "a recent history of weight change may serve to desensitise women to the bodily changes accompanying pregnancy, this desensitisation effect being reflected in their relatively diminished over-estimation tendency at 4 months."

EATING DISORDERS AND PREGNANCY

When a woman becomes pregnant she is faced with the issues that typically torment people with eating disorders : looking "fat"; loss of control over weight, appetite, and

energy level; comments from other people regarding size and shape; food cravings; and rapid and unpredictable mood fluctuations (Reiff & Reiff, 1992). Therefore, it is useful to examine how women with eating disorders manage pregnancy, particularly in relation to understanding how women with a history of dieting may be affected by or cope with pregnancy.

Research describing the effects of eating disorders on pregnancy has been published primarily in case reports and in a few retrospective studies. Reports on the effects of anorexia nervosa on pregnancy and childbirth are inconsistent, and reports on the effects of bulimia on pregnancy are also somewhat controversial. Franko & Walton (1993) state that “what is missing in the literature is a prospective study to ascertain the exact course and outcome of both medical and psychological effects of eating disorders in pregnancy and childbirth.”

However, the research does suggest that anorexic and bulimic behaviours during pregnancy may jeopardise maternal and foetal health. Fahy & O’Donoghue (1991) stated that “recent research..raises the possibility that maternal bulimia or strict dieting may constitute a teratogenic risk to the foetus.” Franko & Walton (1993) reported the medical complications of pregnancy and birth for both mother and infant that have been documented throughout the literature (Table 1).

Table 1. Reported Complications Of Pregnancy And Eating Disorders.

	Maternal Complications	Birth Complications
Anorexia Nervosa	Inadequate weight gain Miscarriage Vaginal bleeding Decreased uterine size Hyperemesis	Low birth weight Delayed development Premature birth Prenatal death
Bulimia Nervosa	Increased symptoms Excessive exercise Low and high weight gain Miscarriage Hypertension	Stillbirth Low birth weight Low Apgar scores Breech delivery Cleft palate

In terms of eating-disorder behaviours, retrospective assessment of selected patients supports that, in a majority of cases, binge-eating and purging behaviours improve temporarily during the latter stages of pregnancy, only to relapse after delivery. Lacey & Smith (1987) retrospectively assessed the effects of pregnancy on 20 women with bulimia nervosa who had one or more babies before seeking treatment. It was found that advancing pregnancy was associated with remitting bulimic symptoms. By the third trimester 75% of the sample had stopped binge-eating and vomiting completely, and the others had reduced the intensity and frequency of their bulimic behaviours. However, symptoms frequently returned after delivery and in almost half, eating was more disturbed.

Moreover, Lemberg & Philips (1989) retrospectively studied 43 patients with a history of anorexia nervosa, bulimia nervosa, or mixed symptoms in the 6 months prior to pregnancy. Pregnancy was associated with improvement in eating disorder symptoms for 70% of the subjects, and more than half claimed they were in full remission at some point during pregnancy. Forty percent felt more comfortable with their body image during pregnancy, 25% continued to feel that way one year later.

Information on the effects of pregnancy on a woman with anorexia nervosa is lacking due to the difficulty of recruiting enough cases (Fahy & O'Donoghue, 1991). The results of studies on small numbers of subjects are often contradictory. Stewart, Raskin, Garfinkel, McDonald, & Robinson (1987) found that the majority of anorexic women in his sample experienced a worsening of symptoms during pregnancy. However, in a smaller uncontrolled study, 6 anorexics were found to improve their calorie intake during pregnancy (Namir, Melman, & Yager, 1987).

Edelstein & King (1992), based on the literature and their own clinical experience, postulate that, "to the extent that the eating-disordered woman is primarily driven by equating thinness with success, this rule stops with pregnancy." But does it stop for non-eating-disordered women, and specifically those women with a history of dieting?

RECENT RESEARCH INTO EATING HABITS AND BODY IMAGE DURING PREGNANCY.

Recently, a few studies have investigated eating habits, body image, and attitudes to weight and shape changes during pregnancy.

Wiles (1994) examined the feelings and experiences relating to weight and eating practices during pregnancy in "fat women". (The term "fat" was specifically used as it was viewed as carrying fewer value judgements than "obese" or "overweight".) The definition of fat used in the study was a weight of 90 kg (198 lbs) attained by the thirtieth week of pregnancy. The women (N=37) were interviewed, using a semi-structured questionnaire, between the thirtieth and fortieth week of pregnancy. During

the interview women were asked, how satisfied they were with their pre-pregnancy weight; the extent to which their pre-pregnancy weight affected their view of themselves and their participation in any activities; and to state whether they felt “better”, “worse”, or “the same” about their weight during pregnancy than before pregnancy.

The majority of women (84%) reported a considerable amount of dissatisfaction with their weight before pregnancy. Only eight percent were unconditionally satisfied with their weight, and a further eight percent were satisfied as they had dieted and lost weight immediately before becoming pregnant. Discussion of why women were dissatisfied with their pre-pregnancy weight identified three main areas as presenting difficulties for the women which were viewed as reasons for desired weight loss : firstly, difficulties with buying clothes and personal appearance; secondly, difficulties with participating in sports and social activities; and thirdly, comments from family and others regarding their weight.

However, although all women perceived themselves as fat during pregnancy, the majority of them experienced significant changes in their feelings about their weight during pregnancy from those held prior to pregnancy : 41% described feeling better about their weight during pregnancy; 35% reported feeling worse; and only 24% reported not feeling any different about their weight. The women’s feelings about their weight during pregnancy appeared to be shaped by the greater social acceptability of fatness during pregnancy, i.e. 80% of the women who reported feeling better about their weight during pregnancy stated that they felt this way because they considered it

more socially acceptable to be fat during pregnancy. The social acceptability of fatness during pregnancy was further reinforced in that the three main areas that were identified as problematic for the women in terms of their weight before pregnancy declined in importance for these women during pregnancy

Nonetheless, for some women (all the women that reported feeling the same or worse about their weight during pregnancy) the transitory nature of the social acceptability of fatness encouraged them to be wary of allowing themselves to feel their size was more acceptable. For this group of women the amount of weight they gained during pregnancy was the primary factor in determining their feelings about their weight. Wiles concluded that the greater social acceptability of fatness during pregnancy generally had a positive impact of body image for most of the women in the study

Two studies have compared eating habits, body image, and eating attitudes to weight and shape during pregnancy in women with and without a history of dieting.

Fairburn & Welch (1990) conducted a retrospective study which aimed to : 1) describe the changes in eating habits, and attitudes to shape and weight, which occur in pregnancy; and 2) identify whether a difference exists with regard to these changes between women previously concerned about their shape and weight and those who were not. Fifty women were interviewed within three days of giving birth. The interview examined subjects eating habits and attitudes to shape and weight over three distinct time periods : the three months prior to pregnancy, the pregnancy itself, and the

present (ie. three days after birth). Subjects were divided into two groups ('dieters' and 'non-dieters') on the basis of whether a clear history of dieting in the past was given.

Dieters and non-dieters differed significantly in their attitudes to shape and weight during pregnancy. Three-quarters of the women who were worried about gaining excessive weight were from the dieting group. However, of the 30% who reported a decrease in the intensity of their usual concerns about weight, nearly all of them came from the dieting group too. Overall, the dieting group reacted more negatively than the non-dieting group to the actual changes in their shape. In addition, episodes of substantial over-eating were mostly confined to women in the dieting group, and more women in this group stated an intention to diet to lose weight following childbirth. No difference was found between the two groups in relation to fears of being unable to return to their previous weight, and dieters and non-dieters gained equivalent amounts of weight during pregnancy. Fairburn & Welch concluded that women with a history of dieting have two responses to the increase in weight during pregnancy - either pregnancy provokes fears of excessive weight gain or it reduces concern by absolving the women for responsibility of their weight.

Davies & Wardle (1994) investigated body image, body satisfaction, and body shape ideals in pregnant women, and also compared women with and without a history of dieting prior to pregnancy. Women's experiences and perceptions of body image were assessed whilst they were still pregnant (N=76; mean gestation of 33 weeks), and a control group of non-pregnant women were included (N=97). It was found that non-pregnant women displayed characteristic levels of body dissatisfaction with a significant

discrepancy between their perceived and their ideal body size. Pregnant women, however, were more accurate in their perception of themselves. Moreover, pregnant women were more accepting of their size and had a lower drive for thinness score.

The results of this study also supported a difference between dieters and non-dieters. Pregnant women who were not dieters were more likely to feel pleased about their weight gain while pregnant women with a history of dieting tended to have mixed feelings (although this was not a statistically significant difference). Overall, the study found evidence for reduced weight concern during pregnancy, despite an increase in body size, and supports the view that the role of pregnancy is associated with a relaxation of the pressure to attain the ideal body shape.

Therefore, from these studies it appears that women with a history of dieting react more negatively than non-dieting women to the changes that occur in their shape and weight during pregnancy. However, the reaction to these changes in dieters tends to be mixed with some women becoming very concerned about their weight gain and others viewing pregnancy as a license not to worry about their weight. It is not known what variables affect how a woman with a history of dieting will react to the shape and weight changes that occur in pregnancy.

Changes in body image during pregnancy is still a complex issue. Some authors postulated that body dissatisfaction in women increases during pregnancy (Moore, 1978; Strang & Sullivan, 1985). But more recent research advocated that body image becomes more positive during pregnancy (Davies & Wardle, 1994). One reason for the

ambiguity may relate to the method used in addressing this issue. Research studies have typically compared two groups of subjects - pregnant and non-pregnant women. However, assessing body image prior to and during pregnancy in the same women may provide more information on how body image changes during pregnancy.

To date only one study had examined body image change during pregnancy in the same group of women (Fox & Yamaguchi, 1997). Using a self-administered, free-response questionnaire 76 primigravidas women of at least 30 weeks gestation described their feelings about current appearance and body shape and compared these to their pre-pregnancy feelings. The Body Shape Questionnaire (BSQ) was also administered to respondents to assess current concern with body shape. Women were divided into normal-weight (BMI of 20 - 24.9) and over-weight (BMI of more than 25) groups to analyse the data.

The analysis revealed that for normal-weight women 19% experienced positive change, 62% experienced a negative change, and 19% experienced no change in body image during pregnancy. However, for the over-weight women 62% experienced a positive change, 23% experienced a negative change and 15% experienced no change. Therefore, women who were over-weight before pregnancy were significantly more likely to have had a positive change in body image, and normal-weight women before pregnancy were significantly more likely to have had a negative change in body image during pregnancy. Over-weight women's scores on the BSQ were significantly higher than that of normal-weight women's, indicating greater body shape concerns for the over-weight women despite their more frequent positive changes.

The authors concluded that body image change is common, although not universal, in pregnancy, and that a woman's weight before pregnancy is strongly associated with whether body image change is positive or negative. Moreover, this study suggested that pregnancy brings the body shape concerns of the two groups closer together, i.e. normal-weight women become more concerned, and overweight women become less concerned about body shape. Despite limitations to this study, in that the over-weight group comprised only of grades I and II obesity and only a single measure of body image was used, the results highlight that body image change during pregnancy is likely to be more complicated than first thought.

Not only does pre-pregnancy body size affect body image changes during pregnancy, it also has a strong influence on maternal attitude towards weight gain during pregnancy. Copper & Goldenberg (1995) evaluated the relationship between maternal attitude towards weight gain, actual weight gain and infant birth weight. An 18-item questionnaire was used to assess maternal attitudes of weight gain during pregnancy in 1000 women at a mean of 20 weeks gestation. Composite scores from this questionnaire were compared with weight gain during pregnancy, pre-pregnancy BMI, and infant birth weight. The results revealed that maternal body size, as measured by BMI, was strongly associated with maternal attitude towards weight gain during pregnancy, actual weight gain during pregnancy, and birth weight. Obese women (BMI greater than 26.6) tended to have negative attitudes, the lowest mean weight gain, but the heaviest babies. Thin women (BMI less than 26.6) had significantly more positive attitudes to weight gain and higher mean weight gain than obese women. Positive attitude, however, did not predict appropriate weight gain or birth weight.

Moreover, only one study has taken multiple measures of eating habits and attitudes to shape and weight, but not specifically body image, during pregnancy. Fairburn et al (1992) prospectively studied 100 primigravid women to describe the changes in eating that occur in pregnancy with particular reference to the behaviours and attitudes characteristic of clinical eating disorders. The subjects were interviewed twice using the Eating Disorder Examination which measures restraint, over-eating, eating-concern, shape-concern, and weight-concern. The first interview took place in early-to-middle pregnancy (mean gestation of 15 weeks) but also retrospectively addressed the three months prior to conception, and the second interview occurred in late pregnancy (mean gestation of 32 weeks). Therefore, data were collected covering three time points for each subject.

The results demonstrated significant changes in dietary restraint across pregnancy : a decrease in the level of restraint between prior to conception and early-to-middle pregnancy, but an increase in restraint between early-to-middle and late pregnancy. Concern about body shape changed with a significant increase occurring between early-to-middle and late pregnancy. In addition, concerns about weight changed significantly across pregnancy : there was a decline in the early stages of pregnancy and an increase late in pregnancy. There were no significant changes across pregnancy in the level of over-eating. Fairburn et al propose that the lessening of concerns about weight in early pregnancy was possibly due to subjects feeling less accountable for their weight, while the increase in concerns during late pregnancy may have been related to the fear of not being able to lose the weight being gained. Furthermore, they suggest that the early

decrease in dietary restraint “appeared to result from a desire to eat healthily but the decrease was temporary.”

Fairburn et al's (1992) research illustrates that changes occur in eating habits (i.e. dietary restraint) and attitudes to shape and weight across pregnancy. However, two pertinent questions are unanswered. Firstly, do 'dieters' and 'non-dieters' differ with regard to their eating habits during pregnancy? One would expect 'dieters' to exercise more dietary restraint during pregnancy than 'non-dieters'. Secondly, does the woman's reaction to the changes in her body shape and weight affect her eating habits during pregnancy? Pregnant women with a history of dieting who react negatively to the weight gain and changes in shape may attempt to eat less to minimise the impact of the pregnancy. Evidence for this assumption can be drawn from the study by Fairburn & Welch (1990) who found that three women, in their sample of 50 women, chose to diet during pregnancy, to limit weight gain, and these women all belonged to the group of pre-pregnancy dieters. In addition, women who are dissatisfied with the changes in shape and weight may eat more, perhaps as a means of coping with the changes.

Further research investigating eating behaviours and attitudes towards weight and shape changes during pregnancy was conducted by Abraham, King, & Llewellyn-Jones (1994). One hundred women completed an 'eating questionnaire' in the 3-5 days after giving birth. Seventy-three women who had used weight control measures before pregnancy continued to use them, and nine discontinued their use. Three women adopted weight control measures for the first time during pregnancy. Sixteen women reported a worsening, compared to pre-pregnancy, of binge-eating and feeling out of

control of their eating and weight. During pregnancy nine women used at least one potentially dangerous method of weight control including vomiting, laxatives, starvation, and excessive exercise. However, it is important to note that 24 of the women in the sample reported previous problems with 'disordered eating' including 15 who had contact with a health professional.

In the study the women were asked to state their preferred weight gain during pregnancy. The majority of women actually gained between 28-35 pounds. Fifty-nine women would have preferred to have a smaller or much smaller weight gain; thirty-four were satisfied with their actual weight gain; and seven stated a preference for a larger weight gain. With regard to expectations of how long it would take a woman to return to her pre-pregnancy weight it was found that 44% of women thought the 'average woman' would take 3 months or less, 39% thought it would take between 3 and 6 months, and 12% did not know. It is possible to speculate that these preferences and expectations may affect how a woman copes with the weight and shape changes during pregnancy. A woman who gains more weight than she wants to or expects to, for example, may be more likely to be dissatisfied with her weight gain and shape changes during pregnancy. Or, women may be increasingly dissatisfied with their body shape during pregnancy the longer they expect it to take them to regain their pre-pregnancy weight

Abraham et al (1994) acknowledge that as their study was retrospective it is limited in that subjects' recollections may be inaccurate. However, they conclude that pregnant women appear to need more information about : a healthy range of weight gain to

expect during pregnancy; healthy methods of weight control during pregnancy; and the expected length of time to return to their pre-pregnancy weight.

An area that has particular clinical relevance is the relationship between mood and eating habits, body image, and attitudes to weight gain / body shape changes during pregnancy. However, this area has received very little investigation. Stevens-Simon, Nakashima, & Andrews (1993) investigated weight-gain attitudes among pregnant adolescents (N=99; age range 13-18 years). It was found that respondents who expressed negative attitudes towards pregnancy weight gain scored significantly higher on a depression scale than those who expressed positive attitudes. But it is not known if this relationship exists for a non-adolescent population, or if other emotions (e.g. anxiety) are associated with poor body image or a negative attitude towards weight gain during pregnancy.

CLINICAL RELEVANCE OF RESEARCH INTO EATING HABITS AND BODY IMAGE DURING PREGNANCY

In essence, there are three clinically relevant reasons for further understanding eating habits and body image during pregnancy :

1) Body image dissatisfaction is associated with general psychological distress, and this could prejudice a woman's enjoyment of her pregnancy and might even prove to be aversive to the mother and baby during pregnancy. Berk (1993) identified that connection between mind and body is gaining more attention, and in obstetrics, "the way a pregnant women feels about herself can directly affect the health of the baby."

This is supported by prospective studies demonstrating a relationship between high levels of psychologic stress in pregnancy and longer labours, pre-term labours, and poor infant outcomes including foetal distress and low birth weight (Curry, 1990). Moreover, increased negative affect, associated with body dissatisfaction, may place demands upon the mother which in addition to the pregnancy itself may be difficult for the mother to cope with.

2) Dissatisfaction with weight gain and body shape changes during pregnancy may lead to compensatory behaviours that are damaging to maternal and / or foetal health. Women may attempt to control their weight gain by under-eating or other more harmful methods. Alternatively women may over-eat, possibly as a coping mechanism, and this may further exacerbate the body dissatisfaction. Either of these behaviours could lead to physical problems e.g. low birth weight babies due to under-eating, or excessive weight gain, difficulty during labour, due to over-eating. Furthermore, long term difficulties may arise with over-eating during pregnancy; over-eating could lead to greater weight gain during and increased weight retention after pregnancy, and consequently raise the risk of obesity.

3) At a deeper level Moore (1978) suggested that by not accepting herself, due to body image dissatisfaction, the mother may have difficulty accepting the role of pregnancy, motherhood, and even the child. This view is supported by Berk (1993) who stated that, "during pregnancy, the ability of a woman to develop a positive maternal identity has a great impact on her ability to accept the maternal role postpartum....(and)..one of the key aspects to developing a healthy maternal identity is body image acceptance."

Evidence to substantiate this proposal is provided by Foster, Slade, & Wilson (1996) who found that body dissatisfaction during pregnancy is associated with intention to bottle feed, which is in turn associated with lower maternal foetal attachment. Women planning to breast feed were more satisfied with their bodies during pregnancy and had a higher maternal-foetal attachment.

AIMS OF PRESENT STUDY

Firstly, this study aims to establish whether it is a consistent finding that women with a history of dieting react more negatively than non-dieting women to the changes in weight and body shape that occur during pregnancy. It is predicted that this hypothesis will be supported.

Secondly, this study aims to provide further information on the subject of eating habits and body image during pregnancy, and answers questions arising from the current literature, which are as follows :

- a. *What variables affect how a woman will react to the changes in shape and weight that occur during pregnancy?* From the literature it is predicted that degree of previous dieting, pre-pregnancy body dissatisfaction, pre-pregnancy BMI, self-esteem, and perceived dissatisfaction of partner with the physical changes will correlate with women's dissatisfaction with the changes in weight and shape that occur. This study will test out the prediction that expected weight gain during pregnancy, and length of time to return to pre-pregnancy weight will also affect how a woman reacts to the weight and shape changes.

- b. *How does body image change for dieters and non-dieters during pregnancy?* The contradictory and complicated findings in the literature relating to body image during pregnancy makes a prediction for this question difficult. Nonetheless, it is expected that body image will improve slightly from pre-pregnancy to late pregnancy due to the social acceptability of the physical changes during pregnancy.
- c. *Is there a relationship between women's reaction to the physical changes and eating habits?* This study will test out the prediction that dissatisfaction with the physical changes is associated with dietary restraint and disinhibited eating as a means of coping with the changes.
- d. *How do 'dieters' and 'non-dieters' differ with regard to their eating habits across pregnancy?* As dieters are more likely to be dissatisfied with the weight and shape changes during pregnancy it is predicted that dieters will exercise more dietary restraint than non-dieters during pregnancy to limit the weight gain and shape changes. But, with pregnancy and dieting being incompatible, it is predicted that levels of dietary restraint will decrease across the pregnancy for both groups. Moreover, as the literature indicates that dieters become more disinhibited when their diets are broken, it is predicted that dieters will exhibit more disinhibition than non-dieters as a consequence of being unable to keep to a diet during pregnancy.
- e. *What is the relationship between body dissatisfaction and eating habits during pregnancy and mood?* Similar to the literature on adolescent pregnancy, it is predicted that body dissatisfaction will be associated with negative affect (anxiety and / or depression), For eating habits, it is predicted that increased cognitive restraint and disinhibition will be associated with higher anxiety and depression levels. This prediction is based on incongruence for women who are trying to

restrict food intake during pregnancy when they will be aware that they should not be dieting at this time; and, for disinhibited eating, negative affect is expected to be higher due to the lack of control that typically accompanies this type of eating.

In brief, this investigation will be carried out by studying body image and eating behaviour in a group of pregnant women at approximately 20 weeks into pregnancy, and again at approximately 34 weeks. The study will measure the following : previous dietary restraint and body image; current body image and eating habits; actual body size; self-esteem; satisfaction with the physical changes of pregnancy; subjects' perception of partners' satisfaction with the physical changes of pregnancy; expectations of weight gain during pregnancy; beliefs about returning to pre-pregnancy weight; weight gain in previous pregnancies; levels of anxiety and depression; level of concern for the baby; and demographic information.

METHOD

OVERVIEW

This study examined eating habits and body image during pregnancy, and specifically compared women with and without a history of dieting prior to pregnancy.

This chapter has three main sections : participants; measures; and procedure.

PARTICIPANTS

Participants were pregnant women who attended the Chelsea & Westminster Hospital for their routine 20-week ultra-sound scan. The inclusion criteria were : a single pregnancy (i.e. women carrying twins or triplets were excluded); fluency in English; and a gestation period between 18-22 weeks inclusive.

One hundred and thirty-five women who fulfilled the inclusion criteria, were approached by the researcher and asked if they would like to participate in the study. Eleven women stated that they did not want to participate. Approximately half of the women who agreed to the study did not have time to complete the first questionnaire at the hospital and these women were given a stamped addressed envelope to return the completed questionnaires. Fifteen women who took questionnaires away with them did not return them. Therefore, a total of 109 women completed the first questionnaire which is a response rate of 81%.

The mean age of the 109 women who completed the first questionnaire was 31 years (range 18-41 years). Ninety-eight (89.9%) described their ethnic background as

'white'; 3 (2.8%) as 'asian'; 6 (5.5%) as 'black'; 1 (0.9%) as 'other'; and 1 (0.9%) did not wish to state their ethnic background. Eighty-three (76%) of women were married; 22 (20%) described themselves as cohabiting; 2 (2%) were in a relationship but not living with their partner; and 2 (2%) of the women were not in a relationship.

For 72 (66%) of the women this was their first pregnancy. Thirty women (27.5%) were having their second pregnancy; 6 (5.5%) were on their third pregnancy; and for 1 (0.9%) woman it was her fourth pregnancy. At the time of completing the first questionnaire, 65 (60%) of the women were 20 weeks into their pregnancy; 8 (7%) of the women were 18-19 weeks into their pregnancy; and 36 (33%) of the women were 21-22 weeks into their pregnancy.

Ethical Considerations

Ethical approval for the study was granted by the Riverside Research Ethics Committee (refer to Appendix A for the approval letter).

Participants read an information sheet before they agreed to take part in the study (refer to Appendix B). The information sheet gave a brief description of the project and stated that participants would be asked to complete a questionnaire twice. Reassurance was given that the project was not connected to the antenatal care the women were receiving, that no information from the questionnaire would be passed onto doctors or midwives, and that additional information concerning participants would not be obtained from the hospital. The information sheet stated that the responses given by the participants would be strictly confidential, and that participants had the right to

withdraw from the study at any time. After reading the information sheet participants were given the opportunity to ask any questions they had about the study. Participants signed a consent form (refer to Appendix C) before completing the questionnaire.

MEASURES

Initial Questionnaire

Four standardised questionnaires and additional questions were administered to participants. Questions covered the following areas : eating behaviours; body dissatisfaction; psychological well-being; beliefs and expectations of pregnancy; demographic information; and, other questions.

Eating Behaviours

Three Factor Eating Questionnaire (TFEQ), (Stunkard & Messick ,1985).

The TFEQ is a 51-item questionnaire designed to measure three dimensions of eating behaviour : 1) cognitive restraint of eating (dieting); 2) disinhibition of control over eating; and 3) hunger. The first 36 items on the TFEQ require a 'true' or 'false' response to each statement; the remaining questions require the respondent to indicate how often certain eating behaviours apply to them by selecting one of four responses (with the exception of one question which has five response choices).

Examples of items measuring cognitive restraint of eating are :

* I do not eat some foods because they make me fat. True False

* How often are you dieting in a conscious effort to control your weight?

rarely

sometimes

usually

always

Examples of items measuring disinhibition of control over eating are :

* When I feel anxious, I find myself eating. True False

* Do you go on eating binges though you are not really hungry?

rarely sometimes usually at least once a week

Examples of items measuring hunger are :

* I often feel so hungry that I just have to eat something. True False

* How often do you feel hungry?

only at mealtimes sometimes between mealtimes often between mealtimes almost always

Stunkard & Messick (1985) demonstrated that the 'cognitive restraint' and 'disinhibition' scales discriminate significantly between dieters and free-eaters beyond the 0.001 level. In addition, the authors quoted good levels of reliability and validity for the scale. Other authors have found the TFEQ to be a conceptually sound, internally consistent self-report measure of the regulation and disinhibition of eating (Collins, Lapp, Helder, & Saltzberg, 1992), and substantiated the questionnaire's usefulness for studying the multi-faceted construct of eating restraint (Laessle, Tuschl, Kotthaus, & Pirke, 1989).

Current eating patterns were assessed using an abbreviated version of the TFEQ. The full version was considered too long to be incorporated in the present questionnaire. Therefore, eighteen questions that were considered inappropriate to pregnancy or complicated were removed. The abbreviated version contained 14 questions measuring cognitive restraint of eating, 10 questions measuring disinhibition of control over eating, and 9 questions measuring hunger.

Degree of previous dieting behaviour was assessed with an abbreviated, retrospective version of the TFEQ Cognitive-Restraint sub-scale (using 12 of the original 21 items). Items were chosen on the basis of being most indicative of dieting behaviour, and easy to understand. Participants were asked to respond to these dietary restraint items in terms of their behaviour in the 12 months before they became pregnant. To categorise participants as 'dieters' and 'non-dieters' they were asked whether or not they had been on a diet during this period. Frequency of binge-eating prior to pregnancy was assessed using a retrospectively completed question taken from the TFEQ Disinhibition sub-scale.

Body Dissatisfaction

Eating Disorder Inventory (EDI), (Garner, Olmstead, & Polivy,1983).

The EDI is a 64-item, self-report, multi-scale measure developed for the assessment of psychological and behavioural traits common in the eating-disorders. The present study used only 2 of the 8 sub-scales on the EDI : the 'Drive for Thinness' scale (7 items), and the 'Body Dissatisfaction' scale (9 items). The 'Drive for Thinness' scale indicates "excessive concern with dieting, preoccupation with weight, and entrenchment in an extreme pursuit of thinness" (Garner et al , 1983). The belief that specific body parts (e.g. buttocks, thighs, & hips) are too large is reflected in the 'Body Dissatisfaction' scale. An example of an item measuring 'Drive for Thinness' is, 'I am preoccupied with the desire to be thinner'; and, an example of an item measuring 'Body Dissatisfaction' is, 'I think that my thighs are too large'.

The EDI has a six-point, forced-choice format where respondents rate whether each item applies to them “always”, “usually”, “often”, “sometimes”, “rarely”, or “never”.

Garner et al (1983) describe the scoring as involving the most extreme ‘anorexic’ response (always or never depending on question direction) receiving a score of 3, the adjacent response 2; and the next response 1. No score is given to the three choices opposite to the most ‘anorexic’ response. Scale scores are obtained by adding items within each scale.

Garner et al (1983) demonstrate good levels of reliability for all sub-scales of the EDI, and present several indices of validity. The EDI has an acceptable level of internal consistency and the factorial integrity of the instrument is supported (Raciti & Norcross, 1987).

Current body image was measured using the Drive For Thinness and Body Dissatisfaction sub-scales of the EDI.

Participants were also asked to state how satisfied they were with the physical changes that have occurred in their weight and body shape (stomach; breasts; hips/thighs; face) since becoming pregnant. These questions were rated on a five point scale from very satisfied to very dissatisfied.

Body dissatisfaction prior to pregnancy was assessed by participants retrospectively completing the Body Dissatisfaction sub-scale of the EDI. Subjects were asked to

respond to these questions in terms of how they felt about their body in the 12 months prior to pregnancy.

Psychological Well-Being

Hospital Anxiety & Depression Scale (HAD), (Zigmond & Snaith ,1983).

The HAD is a 14-item, self-assessment scale designed to measure anxiety (7 items) and depression (7 items). Responses are made on a 4-point scale (scored 0-3) with higher scores indicative of greater mood disturbance. To interpret the scores, Zigmond & Snaith (1983) suggest that scores of 8-10 represent borderline levels of anxiety and depression, and scores of 11 or more represent clinical levels of anxiety and depression.

An example of an item measuring anxiety is, 'I get sudden feelings of panic' which is rated from 'very often indeed' (3) to 'not at all' (0); and, an example of a depression item is, 'I feel cheerful' which is rated from 'not at all' (3) to 'most of the time' (0).

Many instruments are available to measure anxiety and depression, but the HAD was chosen because it does not include physical symptoms. Pregnant women frequently experience some of the physical symptoms associated with anxiety and depression, and therefore a measure excluding these was considered necessary to obtain an accurate reflection of mood in this client group.

Rosenberg Self-Esteem Scale, (Rosenbeg ,1989).

This measure of self-esteem is a 10-item, Guttman scale which was constructed according to 4 practical and theoretical considerations : ease of administration:

economy of time; unidimensionality; and face validity (Rosenberg, 1989). Respondents are asked to strongly agree, agree, disagree, or strongly disagree with 10 statements. Both 'positive' and 'negative' items are presented in order to reduce the effect of respondent set. Examples of items of this scale are : 'I feel that I have a number of good qualities' and 'I certainly feel useless at times'. The scale is scored using a 0-3 system where higher scores are indicative of low self-esteem. Rosenberg (1989) defines low self-esteem as implying self-rejection, self-dissatisfaction, and self-contempt, where the individual lacks respect for the self he observes.

Despite being one of the most widely used measures of self-esteem there has been very little investigation into the reliability and validity of the scale. However, Rosenberg (1989) quoted the scale's high reproducibility figure (93%) as evidence of the internal reliability of the scale. In addition, Rosenberg demonstrated that face validity of the scale by showing that subjects with characteristics of low self-esteem obtain scores indicative of low self-esteem on this scale.

Beliefs and Expectations about Pregnancy

The following questions related to participant's beliefs and expectations concerning weight and shape changes during pregnancy :

- * Perceptions of how satisfied / dissatisfied their partner is with the changes in weight and shape (stomach; breasts; hips/thighs; face) that have occurred. These questions were rated on a five point scale from very satisfied to very dissatisfied.
- * Whether they think that they will have to diet and/or exercise to regain their pre-

pregnancy figure.

- * The length of time they think that it will take them to regain their pre-pregnancy figure.
- * Whether they expect to return to their pre-pregnancy weight, and if not, how much heavier they expect to be.
- * Whether their weight gain at the current stage of pregnancy is more, less, or about the same as they expected.
- * How much weight they expect to gain over the entire pregnancy.
- * Whether they had been told by their GP or midwife how much weight they should gain over the pregnancy.

Demographic Information

The following demographic information was collected : occupation; partner's occupation; ethnic background; marital status; number of children; whether there have been any medical complications over the course of the pregnancy; and number of weeks into the pregnancy.

Participants were asked three questions on body size : height; pre-pregnancy weight; and current weight. Information on weight gain and breast-feeding in any previous pregnancies was obtained.

Other

Smoking before and during pregnancy was assessed as a measure of health-related behaviours.

Participants level of concern over the safety of the baby during pregnancy was assessed using a five-point scale.

This initial questionnaire, administered at approximately 20 weeks into the pregnancy, is shown in Appendix D.

Follow-Up Questionnaire

The follow-up questionnaire, administered at approximately 34 weeks into the pregnancy, was the same as the initial questionnaire with the exception that the retrospective questions, examining dieting behaviour and body image in the 12 months prior to pregnancy, were removed (refer to Appendix E).

PROCEDURE

Women attending the Chelsea & Westminster Hospital for their 20-week ultra-sound scan were approached by the researcher and asked if they would take part in a research study on 'eating habits and body image during pregnancy'. They were given a brief description of the study, an information sheet to read, and the opportunity to ask questions before signing a consent form.

Subjects were asked to complete the questionnaire at the hospital if possible. The questionnaire took approximately 15-20 minutes to complete. The researcher was on hand to answer questions that arose whilst participants completed the questionnaire. Only 5 women required further clarification of the meaning of a question from the researcher. Approximately half of the women stated that they did not have time to

complete the full questionnaire in the hospital and these women were given a stamped addressed envelope to return the questionnaire. At the end of the questionnaire participants were asked to give their names and addresses if they agreed to complete the follow-up questionnaire.

Participants were sent a letter, follow-up questionnaire, and a stamped addressed envelope (to the researcher) at approximately 34 weeks into their pregnancy. The letter (refer to Appendix F) thanked participants for their assistance with the research, emphasised the confidentiality of their answers, and gave the researcher's name and contact number in case of queries with the follow-up questionnaire. Participants completed the follow-up questionnaire between 32 and 36 weeks into their pregnancy and returned the questionnaires to the researcher.

The initial and follow-up data was scored, coded, and entered onto SPSS-X (Windows) for analysis. The distribution of the data was found to be normal allowing parametric statistics to be used.

RESULTS

The total number of participants in this study was 109. Seven participants withdrew from the study after completing the first questionnaire, and therefore 102 women supplied their names and addresses for the follow-up questionnaire. Eighty-five completed follow-up questionnaires were received giving a follow-up response rate of 78%.

Participants were divided into dieters and non-dieters in terms of whether they said that they had been on a diet in the 12 months prior to becoming pregnant (question 14, section 1). This question identified 30 as previous dieters and 79 as previous non-dieters.

Two checks were made to evaluate this method of dividing the sample. Firstly, overall degree of dieting behaviour in the 12 months prior to pregnancy was compared for the two groups by performing an independent t-test on the retrospective TFEQ cognitive-restraint sub-scale scores. The mean score for cognitive-restraint in the 12 months before pregnancy for the dieters was 12.26 (s.d. 4.52), and for the non-dieters the mean score was 6.87 (s.d. 4.63). This was a significant difference ($t=5.24$; $df=102$; $p<0.001$).

Secondly, the frequency of dieting in the 12 months prior to pregnancy was compared for the two groups by performing a Chi-Squared analysis on responses to one particular TFEQ question, "how often did you diet in a conscious effort to control your weight?"

Table 1 : Chi-Squared Analysis of Frequency of Dieting in Dieters and Non-

Dieters.

	Rarely	Sometimes	Usually	Always
Non-dieters	62 78.5%	13 16.5%	3 3.8%	1 .09%
Dieters	3 10%	23 76.7%	2 6.7%	2 6.7%
Column Total	65 59.6%	36 33%	5 4.6%	3 2.7%

The analysis indicated that 78.5% of non-dieters and 10% of dieters rarely dieted, whereas 16.5% of non-dieters and 76.7% of dieters sometimes dieted. The chi-square analysis indicated this to be significant result ($\chi^2(4)=47$; $p<0.001$) indicating that participants who identified themselves as dieters were also more frequently on a diet than those in the non-dieting group.

However, the inclusion of 13 women who 'some-times' diet in the non-dieting sample should be commented upon. As presented in the introduction, between 50-75% of women are considered to have dieted at some point in their lives. The 13 women in the non-dieting sample are likely to be women who have not dieted recently or regularly but who have attempted it in the past, perhaps for a special occasion such as a wedding.

The proportion of dieters and non-dieters completing follow-up questionnaires was approximately the same : 61 (77%) non-dieters and 24 (80%) dieters.

DEMOGRAPHIC INFORMATION

The two groups were compared for differences in age, marital status, ethnicity, number of children, occupation, and accommodation. A full breakdown of this information is presented in table 2.

Table 2 : Demographic Information.

Variables	Dieters n=30	Non-dieters n=79	Analysis
Age (mean)	30 (18-39; s.d. 4.8)	31 (19-41; s.d. 4.1)	t=0.93; df=105; ns
Marital Status			
married	26 (86.7%)	57 (72.2%)	$\chi^2=3.08$; df=3; ns
cohabiting	4 (13.3%)	18 (22.8%)	
relationship	-	2 (2.5%)	
no relationship	-	2 (2.5%)	
Ethnicity			
white	26 (86.7%)	72 (91.1%)	$\chi^2=3.21$; df=4; non-sig.
asian	1 (3.3%)	2 (2.5%)	
black	2 (6.7%)	4 (5.1%)	
other	1 (3.3%)	-	
not stated	-	1 (1.3%)	
No of Children			
0	22 (73.3%)	50 (63.3%)	$\chi^2=1.66$; df=3; ns
1	6 (20%)	24 (30.4%)	
2	2 (6.7%)	4 (5.1%)	
3	-	1 (1.3%)	
4	-	-	
Occupation			
I. Professional	8 (28.6%)	16 (20.8%)	$\chi^2=3.16$; df=5; ns
II. Managerial / Technical	11 (39.3%)	27 (35.1%)	
III (N) Skilled - Non-manual	4 (14.3%)	12 (15.6%)	
III (M) Skilled - Manual	2 (7.1%)	3 (3.9%)	
IV Partly skilled	1 (3.6%)	4 (5.2%)	
V Unskilled	2 (7.1%)	15 (19.5%)	
Accommodation			
Own	19 (63.3%)	58 (74.4%)	$\chi^2=1.28$; df=1; ns
Rent	11 (36.7%)	20 (25.6%)	

A chi-square analysis of the demographic information indicated that there were no significant differences in age, marital status, ethnicity, number of children, and accommodation between dieters and non-dieters. In addition, participants reported occupations were classified in accordance with the coding methodology provided by the 'Standard Occupational Classification' system (Office of Population Censuses and Surveys, 1991). This classification system enables one of five 'Social Class' groupings to be assigned. There were no significant differences between dieters and non-dieters for social class.

DIETING AND EATING BEHAVIOUR

To check on the reliability and validity of the questions used in this study associations between variables that would be expected to correlate significantly were examined. Body dissatisfaction at 20 weeks significantly correlated with : pre-pregnancy body dissatisfaction ($r=0.83$; 104 df; $p<0.001$); body dissatisfaction at 34 weeks ($r=0.69$; 84 df; $p<0.001$); and drive for thinness at 20 weeks ($r=0.31$; 102 df; $p<0.01$).

Frequency of pre-pregnancy binge-eating and disinhibited eating at 20 weeks were significantly correlated ($r=0.58$; 106 df; $p<0.001$). Anxiety and depression levels at 20 weeks into the pregnancy, as measured by the HAD, were significantly correlated ($r=0.60$; 107 df; $p<0.001$).

These highly significant correlations support the reliability and validity of the questions used to assess the variables examined in this study.

BACKGROUND VARIABLES

Differences Between Respondents and Non-Respondents to the Follow-Up Questionnaire.

The background variables of participants who responded to the follow-up questionnaire and those who did not were compared for differences. Eighty-five women completed the follow-up questionnaire; seven did not agree to the follow-up questionnaire; and 24 women agreed to the follow-up questionnaire but did not return it to the researcher.

Table 3 : Background Differences Between Responders and Non-Responders to the Follow-Up Questionnaire.

Variable	Respondents N=85	Non-Respondents N=24	Difference
Age	31 (3.8)	29 (5.5)	t=1.98; df=105; p=0.05
Ethnicity			$\chi^2=22.29$; df=4; p<0.001
white	82 (96.5%)	16 (66.7%)	
asian	1 (1.2%)	2 (8.3%)	
black	1 (1.2%)	5 (20.8%)	
other	1 (1.2%)	-	
not stated	-	1 (4.2%)	
Pre-pregnancy BMI	22.24 (2.6)	21.50 (2.0)	t=1.29; df=102; ns
Pre-pregnancy Body Dissatisfaction	8.15 (6.6)	7.59 (5.8)	t=0.36; df=105; ns

The results of this analysis revealed that respondents and non-respondents to the follow-up questionnaire differed significantly in their ethnic background : more of the respondents than non-respondents described themselves as white, and more of the non-respondents than respondents described themselves as non-white. In addition, respondents to the follow-up questionnaire were older than non-respondents and this difference reached the significance level. However, there was no significant differences

between the two groups for pre-pregnancy BMI and pre-pregnancy body dissatisfaction.

Pre-pregnancy Characteristics

The two groups were examined to identify differences in pre-pregnancy weight, body mass index (BMI), body dissatisfaction, and smoking behaviour.

Table 4: Pre-pregnancy Characteristics of Dieters and Non-dieters.

Variable	Whole Sample N=109	Dieters n=30	Non-dieters n=79	Difference
Pre-pregnancy body weight.	131 lb (14.6)	138 lb (17.8)	129 lb (12.6)	t=2.64; df=106; p<0.01
Pre-pregnancy BMI.	22.08 (2.46)	23.24 (3.45)	21.66 (1.83)	t=2.31; df=33; p<0.05
Pre-pregnancy Body Dissatisfaction	8.04 (6.45)	10.9 (6.2)	6.97 (6.2)	t=2.89; df=105; p<0.01
Percentage of Smokers	24 (22.9%)	7 (25%)	17 (22%)	$\chi^2=0.99$; df=1; ns.

Before pregnancy the dieting group were significantly heavier than the non-dieting group with a higher BMI. There was also a significant difference between the two groups for body dissatisfaction, as measured by the EDI Body Dissatisfaction sub-scale completed retrospectively; dieters were more dissatisfied than non-dieters with their pre-pregnancy bodies. There was no significant difference between the two groups regarding pre-pregnancy smoking behaviour.

Health Related Variables at Twenty Weeks into the Pregnancy

The two groups were compared to identify differences in health related variables (both physical and psychological) at 20 weeks into the pregnancy. The results of these comparisons are presented in table 5.

Table 5 : Comparison of Health Related Variables at Twenty Weeks.

Variable	Dieters	Non-dieters	Analysis
Weight gained at 20 weeks (lbs)	10.6lb (6.8)	11.2lb (4.9)	t=0.41; df=85; ns.
Self-esteem	8.9 (4.3)	6.6 (4.5)	t=2.31; df=105; p<0.05
Anxiety	7.4 (s.d. 3.9)	6.2 (s.d. 3.1)	t=1.6; df=107; ns.
Depression	4.0 (3.1)	3.7 (2.8)	t=0.57; df=107; ns.
Frequency of medical complications.	4 (13.3%)	13 (16.7%)	$\chi^2=0.18$; df=1; ns.
Participants smoking during pregnancy	2 (7%)	5 (6%)	$\chi^2=0.001$; df=1; ns.

The two groups were extremely comparable on most of the health related variables examined. The average weight gained at 20 weeks into the pregnancy was virtually the same for dieters and non-dieters. There were no significant differences between the two groups in terms of anxiety and depression. Furthermore, the groups did not differ significantly on frequency of medical complications and smoking behaviour during pregnancy. However, the two groups did differ significantly on the measure of self-esteem. Dieters had a significantly higher self-esteem score at 20 weeks compared to non-dieters which is indicative of lower self-esteem.

Health Related Variables at Thirty -Four Weeks into Pregnancy

Dieters and non-dieters were also compared on weight gained, self-esteem, anxiety, and depression at 34 weeks into the pregnancy using the follow-up data. The results of these comparisons are presented in table 6.

Table 6 : Comparison of Health Related Variables at Thirty-Four Weeks.

Variable	Dieters	Non-dieters	Analysis
Weight gained at 34 weeks (lbs)	26lb (10.4)	26.7lb (10.8)	t=0.23; df=68; ns.
Self-esteem	8.9 (3.8)	6.8 (5.0)	t=1.77; df=83; ns.
Anxiety	7.4 (4.1)	6.5 (3.1)	t=0.92; df=34.35; ns
Depression	5.12 (3.0)	4.42 (2.6)	t=1.04; df=83; ns

Similar to 20 weeks into the pregnancy, dieters and non-dieters had gained the same amount of weight at 34 weeks. There was no significant difference between the two groups in levels of anxiety and depression at this stage of the pregnancy. At 34 weeks dieters still have higher self-esteem scores than non-dieters indicating lower self-esteem. Despite the self-esteem scores for each group being relatively unchanged from 20 weeks, due to the smaller N the difference fails to meet the significance level.

Changes in Health Related Variables Across Pregnancy.

From the mean self-esteem, anxiety, and depression scores at 20 and 34 weeks it appeared that these variables had not significantly changed across pregnancy. Paired t-tests were performed to clarify this view. The results of these analyses are presented in table 7.

Table 7 : Paired t-tests for Self-Esteem, Anxiety, and Depression Levels Across Pregnancy.

	t	df	Significance
Self-esteem	1.28	83	ns
Anxiety	1.42	84	ns
Depression	3.29	84	p<0.001

The analysis indicated that self-esteem and anxiety levels did not significantly change across pregnancy. However, participants were significantly lower in mood at 34 weeks into the pregnancy than at 20 weeks.

Beliefs and Expectations of Participants Across Pregnancy

The following beliefs and expectations of dieters and non-dieters were compared :

- a) whether they think they will have to diet and/or exercise to regain their pre-pregnancy figure; b) the length of time they expect it to take them to regain their pre-pregnancy figure; c) whether they expect to return to their pre-pregnancy weight; d) whether their weight gain at both time points was more, less , or about the same as they expected; e) how much weight they expect to gain over the entire pregnancy; f) how satisfied they think their partners are with the weight and shape changes that have occurred in them during pregnancy.

a) Do they think they will have to diet and/or exercise to regain their pre-pregnancy figure?

At 20 weeks into the pregnancy 100% of the dieters and 91% of the non-dieters think that they will have to diet and/or exercise to regain their pre-pregnancy figure. Chi-square analysis indicated that the two groups were not significantly different in their

beliefs($\chi^2(1)=2.86$; ns). However, at 34 weeks into the pregnancy dieters are more likely to think they will have to diet and/or exercise to regain their pre-pregnancy figure ($\chi^2(1)=4.03$; $p<0.05$); at this stage 100% of the dieters but only 85% of the non-dieters think they will have to diet and/or exercise after their pregnancy.

b) How long do dieters and non-dieters expect it to take them to regain their pre-pregnancy figure?

There was no significant difference in the expectations of dieters and non-dieters for the length of time to regain their pre-pregnancy figure at both 20 weeks ($\chi^2(5)=7.01$; ns) and 34 weeks ($\chi^2(5)=3.55$; ns). At 20 weeks into the pregnancy 26% of dieters and 50% of non-dieters expected to regain their pre-pregnancy figure in one to three months. The majority of the remaining women anticipated this to take up to six months (41% of dieters and 30% of non-dieters). However, at the latter stage of pregnancy more women expected to regain their pre-pregnancy figure in one to three months (83% of dieters and 72% of non-dieters).

c) Do they expect to return to their pre-pregnancy weight?

At 20 weeks into the pregnancy 93% of dieters and 93% of non-dieters expect to return to their pre-pregnancy weight. At 34 weeks into the pregnancy the numbers were similar : 97% of non-dieters and 92% of dieters expected to return to their pre-pregnancy weight (not a significant difference).

d) Did they gain more, less or about the same weight as they expected to?

Dieters and non-dieters did not differ significantly in the extent to which their expectations of weight gain were met at 20 weeks ($\chi^2(2)=3.27$; ns) and 34 weeks ($\chi^2(2)=2.99$; ns). However, as can be seen from table 8 a greater percentage of dieters than non-dieters gained either more or less weight than they expected at both time points in the pregnancy, whereas the majority of the non-dieters gained the weight they expected to.

Table 8 : Expectations of Weight Gain at 20 and 34 Weeks into the Pregnancy.

	More weight than expected.	Expected weight.	Less weight than expected.
20 wks Dieters	38.4%	38.5%	23.1%
Non-dieters	23%	58.1%	18.9%
34 wks Dieters	30.4%	39.1%	30.4%
Non-dieters	17%	59.3%	23.7%

e) How much weight do dieters and non-dieters expect to gain across the entire pregnancy?

The range of weight participants expected to gain across the pregnancy was between 12 and 44 pounds when asked at 20 weeks, and 11 and 59 pounds at 34 weeks into the pregnancy. Dieters and non-dieters did not differ significantly in their expectations of total weight gain for the entire pregnancy at either 20 weeks ($t=0.79$; 80df) or 34 weeks ($t=0.59$; 71df). The mean expected total weight gain for dieters at 20 weeks was 26.3lbs and for non-dieters it was 25lbs. However, both groups revised their expectations of total weight gain for the pregnancy and expected to gain more when asked at 34 weeks (30lbs for dieters and 28.7lbs for non-dieters).

f) *How satisfied do dieters and non-dieters think their partners are with the changes in weight and shape that have occurred during pregnancy?*

A two (dieter vs non-dieter) by two (ratings of satisfaction: dissatisfied v satisfied / neither) chi-square analysis was performed for each change (weight; stomach; breasts; hips/thighs; face) to compare the two groups perceptions of how satisfied their partners are with the changes at both time points. Tables 9 and 10 present the results of this analysis together with the percentage of dieters and non-dieters who perceive their partners to be dissatisfied with the physical changes.

Table 9 : Participants Perceptions of Partners Dissatisfaction with Weight and Shape Changes at Twenty Weeks.

Dissatisfied With Changes In :	Dieters	Non-Dieters	Difference
Weight	3.9%	0%	$\chi^2=1.2$; df=1; ns
Stomach	6.6%	1.3%	$\chi^2=0.52$; df=1; ns
Breasts	6.9%	0%	$\chi^2=5.41$; df=1; p<0.05
Hips/Thighs	3.6%	6.6%	$\chi^2=0.34$; df=1; ns
Face	3.7%	1.4%	$\chi^2=2.17$; df=1; ns

At 20 weeks into pregnancy, significantly more dieters than non-dieters perceived their partners to be dissatisfied with the changes in their breasts. However, no significant differences were found between the two groups relating to perceived dissatisfaction of partners for changes in their weight, stomach, hips/thighs, and face. Dieters considered their partners to be more dissatisfied with the changes that had taken place in their breasts, whereas non-dieters considered their partners to be more dissatisfied with the changes that had taken place in their hips/thighs.

Table 10 : Participants Perceptions of Partners Dissatisfaction with Weight and Shape Changes at Thirty-Four Weeks.

Dissatisfied With Changes In :	Dieters	Non-Dieters	Difference
Weight	4.2%	3.3%	$\chi^2=0.03$; df=1; ns
Stomach	0%	8.3%	$\chi^2=2.12$; df=1; ns
Breasts	8.7%	3.3%	$\chi^2=1.04$; df=1; ns
Hips/Thighs	8.4%	12.1%	$\chi^2=0.24$; df=1; ns
Face	0%	1.7%	◇

◇ Statistical analysis cannot be carried out due to the lack of data. Virtually all the women indicated that no changes had taken place in their face during pregnancy, and therefore, satisfaction with changes in face was non-applicable.

At 34 weeks into pregnancy, there was no significant differences between dieters and non-dieters in terms of how dissatisfied they perceived their partners to be with the physical changes that had taken place during pregnancy. However, similar to 20 weeks, dieters viewed their breasts and non-dieters viewed their hips/thighs to be the area that their partners were most dissatisfied with the changes in.

Other Variables

Level Of Concern Over The Safety Of The Baby During Pregnancy.

At 20 weeks into the pregnancy, non-dieters were significantly more concerned than dieters over the safety of the baby ($t=2.65$; $df=102$; $p,0.01$). However, there was no significant difference between the two groups for level of concern at 34 weeks into the pregnancy.

Advice from GP Or Midwife Re Weight Gain.

Advice on weight gain from the GP or midwife was given to 15% of dieters and 17% of non-dieters. A chi-square analysis confirmed that neither group were more likely to

receive advice from a health professional on how much weight to gain during pregnancy.

TESTING THE HYPOTHESES AND RESEARCH QUESTIONS

It is necessary to comment that a large number of statistical tests were carried out to answer the research questions, and this may increase the probability of chance findings. To overcome this problem the tests were hypothesis-driven. Nevertheless, adjustment to the level of significance should be considered when reviewing the results, i.e. those at $p < 0.01$ are very unlikely to be chance findings due to the large number of statistical tests carried out.

(1) Women with a history of dieting will react more negatively than non-dieting women to the changes in body weight and shape that occur during pregnancy.

Factor analysis was carried out on the dissatisfaction with the changes in weight, stomach, breasts, hips / thighs, and face variables in order to reduce the data as it was suspected that these variables were all related.

The method used in the factor analysis was :

1. A matrix of correlation coefficients was generated for all the variable combinations.

The correlation coefficients within the matrix were greater than 0.3 indicating that the variables were indeed related to each other.

2. From the correlation matrix one factor was extracted, which was able to account satisfactorily for the correlations within the matrix. This factor represented dissatisfaction with the overall changes in weight and shape.

3. Factor rotation, to maximise the relationships between the variables and the factors, was unnecessary as only one factor was extracted.

4. Factor scores were calculated for each participant to represent individual dissatisfaction with overall changes in weight and shape.

The use of factor analysis is limited by small sample size. The Kaiser-Meyer-Olkin (KMO) is a measure of sampling adequacy which should be greater than 0.5 for factor analysis to proceed. In the present analysis the KMO figure came to 0.77 indicating that the sample was adequate for factor analysis. In addition, Bartlett's Test of Sphericity was checked and found to be non-significant (<0.001) which ruled out the possibility of the correlation matrix being an identity matrix.

Factor scores were calculated for each participant at both 20 and 34 weeks into the pregnancy. The mean factor scores (representing dissatisfaction with overall weight and shape changes) were: at 20 weeks, 0.53 (0.86) for dieters and -0.18 (0.9) for non-dieters, and at 34 weeks, 0.55 (0.89) for dieters and -0.20 (0.97) for non-dieters.

Independent t tests were performed on these factor scores to examine whether a significant difference existed between dieters and non-dieters for dissatisfaction with overall weight and shape changes. The results indicated that dieters were more dissatisfied than non-dieters with the overall changes that occurred in their weight and shape at both 20 weeks ($t=3.24, 97df, p<0.01$) and 34 weeks ($t=3.17; 79df; p<0.01$).

To identify exactly where differences existed a two (dieters vs non-dieters) by two (ratings of satisfaction: dissatisfied v satisfied / neither) chi-square analysis was performed for each change (weight; stomach; breasts; hips/thighs; face) at both time points in the pregnancy. Tables 11 and 12 present the results of this analysis together with the percentage of dieters and non-dieters that were dissatisfied with the changes in their weight and shape.

Table 11 : Dieters and Non-Dieters Dissatisfaction with the Changes in Their Weight and Shape at Twenty Weeks.

Dissatisfied With Changes In :	Dieters	Non-Dieters	Difference
Weight	26.6%	2.5%	$\chi^2=15.19$; df=1; p<0.001
Stomach	24.1%	10.1%	$\chi^2=3.48$; df=1; ns
Breasts	41.3%	20.2%	$\chi^2=4.92$; df=1; p<0.05
Hips/Thighs	60.7%	20.8%	$\chi^2=15.19$; df=1; p<0.001
Face	14.8%	13.3%	$\chi^2=0.03$; df=1; ns

The analysis demonstrated that dieters were more dissatisfied than non-dieters with the changes that occurred in their weight, breasts, and hips/thighs at 20 weeks into the pregnancy. (These differences are illustrated in figures 1 to 3.) However, dieters and non-dieters did not differ significantly in their satisfaction with the changes that took place in their stomach and face.

3. Factor rotation, to maximise the relationships between the variables and the factors, was unnecessary as only one factor was extracted.
4. Factor scores were calculated for each participant to represent individual dissatisfaction with overall changes in weight and shape.

The use of factor analysis is limited by small sample size. The Kaiser-Meyer-Olkin (KMO) is a measure of sampling adequacy which should be greater than 0.5 for factor analysis to proceed. In the present analysis the KMO figure came to 0.77 indicating that the sample was adequate for factor analysis. In addition, Bartlett's Test of Sphericity was checked and found to be non-significant (<0.001) which ruled out the possibility of the correlation matrix being an identity matrix.

Factor scores were calculated for each participant at both 20 and 34 weeks into the pregnancy. The mean factor scores (representing dissatisfaction with overall weight and shape changes) were: at 20 weeks, 0.53 (0.86) for dieters and -0.18 (0.9) for non-dieters, and at 34 weeks, 0.55 (0.89) for dieters and -0.20 (0.97) for non-dieters.

Independent t tests were performed on these factor scores to examine whether a significant difference existed between dieters and non-dieters for dissatisfaction with overall weight and shape changes. The results indicated that dieters were more dissatisfied than non-dieters with the overall changes that occurred in their weight and shape at both 20 weeks ($t=3.24$, 97df, $p<0.01$) and 34 weeks ($t=3.17$; 79df; $p<0.01$).

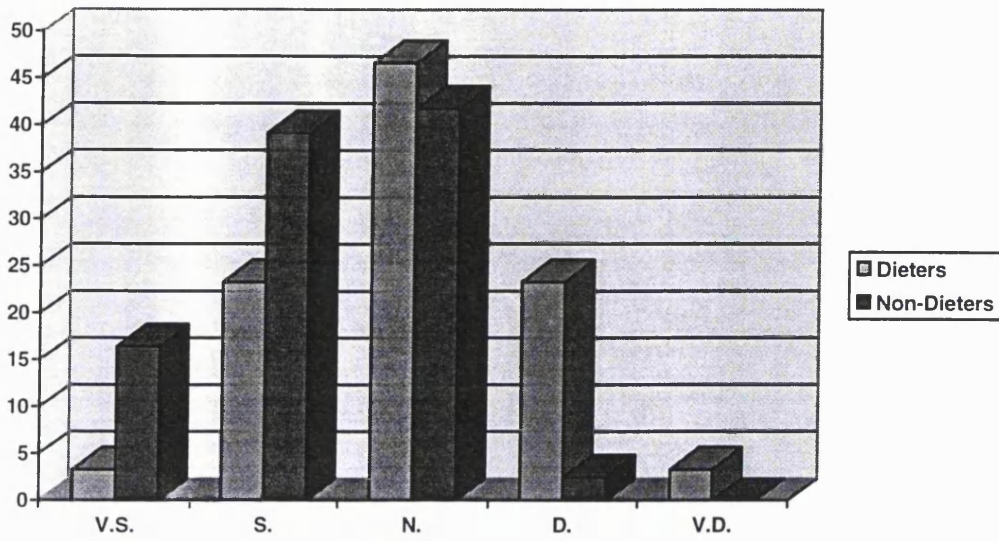
To identify exactly where differences existed a two (dieters vs non-dieters) by two (ratings of satisfaction: dissatisfied v satisfied / neither) chi-square analysis was performed for each change (weight; stomach; breasts; hips/thighs; face) at both time points in the pregnancy. Tables 11 and 12 present the results of this analysis together with the percentage of dieters and non-dieters that were dissatisfied with the changes in their weight and shape.

Table 11 : Dieters and Non-Dieters Dissatisfaction with the Changes in Their Weight and Shape at Twenty Weeks.

Dissatisfied With Changes In :	Dieters	Non-Dieters	Difference
Weight	26.6%	2.5%	$\chi^2=15.19$; df=1; p<0.001
Stomach	24.1%	10.1%	$\chi^2=3.48$; df=1; ns
Breasts	41.3%	20.2%	$\chi^2=4.92$; df=1; p<0.05
Hips/Thighs	60.7%	20.8%	$\chi^2=15.19$; df=1; p<0.001
Face	14.8%	13.3%	$\chi^2=0.03$; df=1;ns

The analysis demonstrated that dieters were more dissatisfied than non-dieters with the changes that occurred in their weight, breasts, and hips/thighs at 20 weeks into the pregnancy. (These differences are illustrated in figures 1 to 3.) However, dieters and non-dieters did not differ significantly in their satisfaction with the changes that took place in their stomach and face.

Figure 1 : Percentage of Dieters and Non-Dieters Satisfied / Dissatisfied with the Changes in Their Weight at Twenty Weeks into the Pregnancy.



Key : V.S. = Very satisfied; S. = Satisfied; N. = Neither Satisfied Or Dissatisfied;
D. = Dissatisfied; V.D. = Very Dissatisfied.

Figure 2 : Percentage of Dieters and Non-Dieters Satisfied / Dissatisfied with the Changes in Their Breasts at Twenty Weeks into Pregnancy.

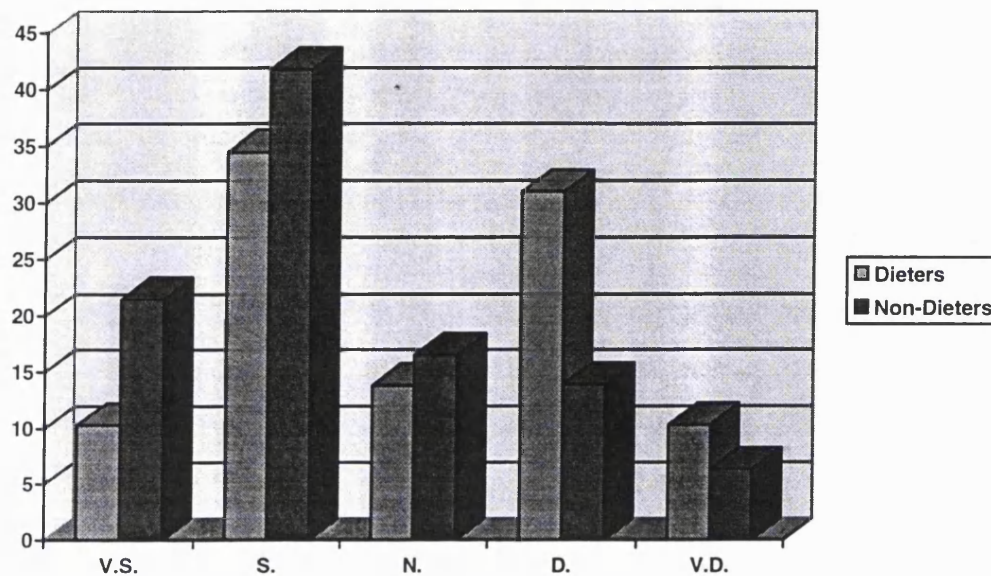
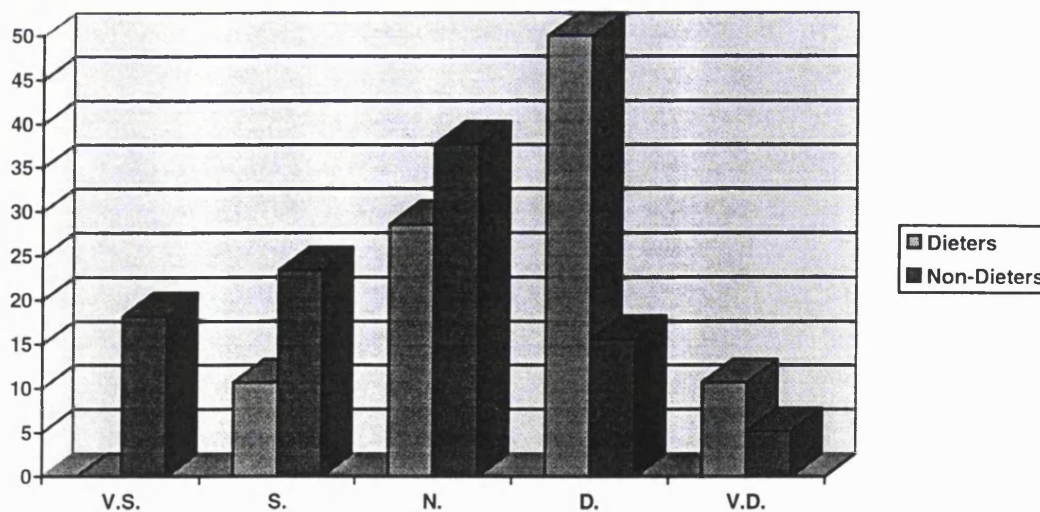


Figure 3 : Percentage of Dieters and Non-Dieters Satisfied / Dissatisfied with the Changes in Their Hips/Thighs at Twenty Weeks into Pregnancy.



Key : V.S. = Very Satisfied; S. = Satisfied; N. = Neither Satisfied Or Dissatisfied;
 D. = Dissatisfied; V.D. = Very Dissatisfied.

Table 12 : Dieters and Non-Dieters Dissatisfaction with the Changes in Their Weight and Shape at Thirty-Four Weeks.

Dissatisfied With Changes In :	Dieters	Non-Dieters	Difference
Weight	21.7%	8.2%	$\chi^2=2.92$; df=1; ns
Stomach	16.6%	4.9%	$\chi^2=3.14$; df=1; ns
Breasts	39.1%	18.1%	$\chi^2=4.09$; df=1; p<0.05
Hips/Thighs	58.3%	23.3%	$\chi^2=9.45$; df=1; p<0.01
Face	4.2%	11.9%	$\chi^2=1.16$; df=1; ns

At 34 weeks into the pregnancy satisfaction with weight and body shape changes between the two groups was similar to 20 weeks. Dieters were significantly more dissatisfied with the changes in their breasts and hips/thigh than non-dieters, but the two groups did not differ significantly on satisfaction with the changes that occurred in their weight, stomach, and faces at that time. (These differences are illustrated in figures 4 and 5.)

However, it should be noted that considerably more dieters than non-dieters were dissatisfied with the changes in their weight and stomach at 34 weeks into the pregnancy. Moreover, these two differences were close to the level of significance : for weight $\chi^2(1)=2.92$, p<0.08, and for stomach $\chi^2(1)=3.14$, p<0.07.

Figure 4 : Percentage of Dieters and Non-Dieters Satisfied / Dissatisfied with Changes in Their Breasts at Thirty-Four Weeks into Pregnancy.

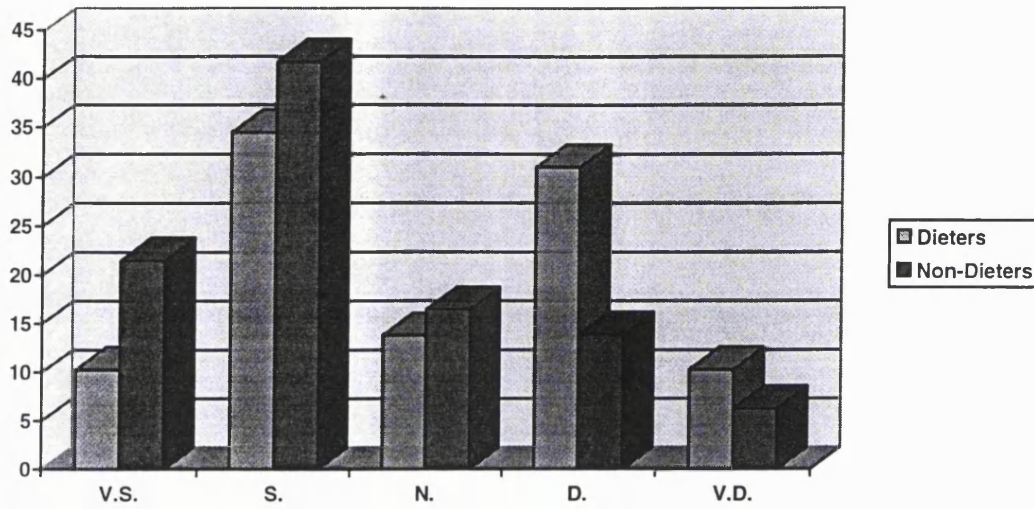
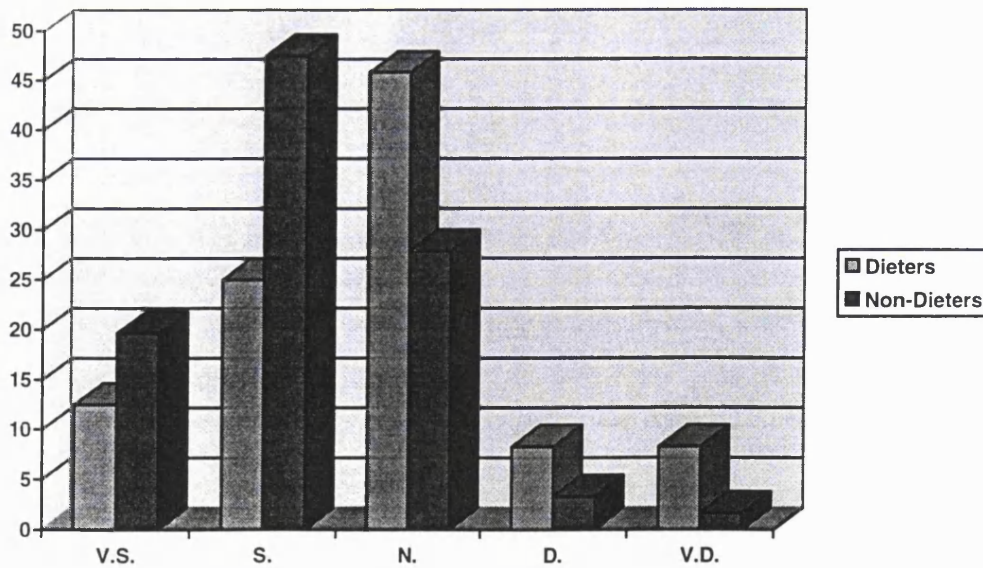


Figure 5 : Percentage of Dieters and Non-Dieters Satisfied / Dissatisfied with Changes in Their Hips / Thighs at Thirty-Four Weeks into Pregnancy.



Key : V.S. = Very satisfied; S. = Satisfied; N. = Neither Satisfied Or Dissatisfied;

D. = Dissatisfied; V.D. = Very Dissatisfied.

(2) What variables affect how a woman reacts to the changes in body weight and shape that occur during pregnancy?

The following variables were included on the questionnaire as possibly affecting how a woman reacts to the changes in weight and shape that occur during pregnancy : length of time to regain pre-pregnancy figure; expected weight gain at current stage of pregnancy (more, less, or about the same as expected); women's perceptions of how satisfied their partners are with the weight and shape changes; level of concern over safety of the baby; self-esteem; pre-pregnancy BMI; and, degree of previous dieting behaviour.

These variables were correlated with participants factor scores indexing dissatisfaction with overall weight and shape changes. In addition, two other variables, pre-pregnancy body dissatisfaction and actual weight gained, were correlated with the factor scores to examine their relationship with dissatisfaction for overall weight and shape changes. Two sets of correlations were performed examining the relationship between these variables at 20 and 34 weeks into the pregnancy. The results of this analysis are presented in table 13 for 20 weeks and in table 14 for 34 weeks into pregnancy.

Table 13 : Variables Associated with Dissatisfaction for Overall Weight and Shape Changes at Twenty Weeks into Pregnancy.

Variables	Dissatisfaction With Overall Changes		
	r	df	sig.
Length of time to regain pre-preg. figure.	0.38	95	p<0.001
Expected weight gain.	-0.26	92	p<0.05
Perceived dissatisfaction of partner with changes in :			
Weight	0.48	97	p<0.001
Stomach	0.48	97	p<0.001
Breasts	0.42	97	p<0.001
Hips/Thighs	0.50	97	p<0.001
Face	0.56	97	p<0.001
Level of concern over safety of baby.	-0.18	95	ns
Self-esteem	0.29	97	p<0.01
Pre-pregnancy BMI.	0.26	94	p<0.05
Degree of previous dieting behaviour.	0.27	95	p<0.01
Pre-pregnancy body dissatisfaction.	0.42	97	p<0.001
Actual weight gained at 20 weeks.	0.09	80	ns

Table 14 : Relationship Between Dissatisfaction With Overall Weight And Shape Changes At Thirty-Four Weeks And Potential Mediating Variables.

Potential Mediating Variable	Dissatisfaction With Overall Changes		
	r	df	sig.
Length of time to regain pre-preg. figure.	0.08	81	ns
Expected weight gain.	-0.28	79	p<0.05
Perceived dissatisfaction of partner with changes in :			
Weight	0.57	80	p<0.001
Stomach	0.40	80	p<0.001
Breasts	0.34	80	p<0.01
Hips/Thighs	0.40	79	p<0.001
Face	0.51	80	p<0.001
Level of concern over safety of baby.	0.10	81	ns
Self-esteem	0.36	81	p<0.001
Pre-pregnancy BMI.	0.16	77	ns
Degree of previous dieting behaviour.	0.19	77	ns
Pre-pregnancy body dissatisfaction.	0.15	77	ns
Actual weight gained at 34 weeks.	0.19	67	ns

The variables that are most strongly correlated with dissatisfaction with overall weight and shape changes at 20 weeks are self-esteem and how dissatisfied participants perceive their partners to be with the physical changes. A negative correlation was found for expected weight gain indicating that participants were more dissatisfied with the changes if they gained more weight than they were expecting to at that stage. Length of time to regain pre-pregnancy figure was also correlated with dissatisfaction with overall changes, i.e. the longer participants expected it to take them to regain their pre-pregnancy figure the more dissatisfied they were with the changes. Dissatisfaction with changes at 20 weeks was additionally correlated with pre-pregnancy values for BMI, body dissatisfaction, and degree of dieting behaviour.

At 34 weeks into the pregnancy, the pattern of inter-correlations was very similar although some values were not statistically significant. The variables most strongly associated with dissatisfaction are still self-esteem and participants perception of partners dissatisfaction with the changes. In addition, participants who gained more weight than they expected to at that stage were more likely to be dissatisfied.

To assess whether these variables independently predict dissatisfaction a linear regression analysis was performed. Variables significantly correlating with dissatisfaction for overall weight and shape changes were included in a stepwise linear regression analysis. (To reduce the number of variables included in this, a factor score representing perceived dissatisfaction of partner for overall weight and shape changes was calculated for each subject using factor analysis). The full results of this analysis are presented in table 15.

Table 15 : Stepwise Multiple Regression Examining Variables That Predict

Dissatisfaction for Overall Weight and Shape Changes at Twenty Weeks.

Variables	β	T	P
Perceived dissatisfaction of partner for overall changes in weight and shape.	0.46	5.25	p<0.001
Pre-pregnancy body dissatisfaction	0.24	2.89	p<0.01
Extent to which expectations of weight gain met.	-0.22	-2.74	p<0.01
Pre-pregnancy dieting behaviour.	0.20	2.53	p<0.05
Self-esteem.	0.14	1.67	ns
Length of time to regain pre-pregnancy figure.	0.12	1.40	ns
Pre-pregnancy BMI.	0.06	0.66	ns

In the final equation, four variables (perceived dissatisfaction of partner for overall changes in weight and shape; pre-pregnancy body dissatisfaction; the extent to which expectations of weight gain were met; and, degree of dieting behaviour prior to pregnancy) contributed independently to the prediction of dissatisfaction with weight and shape changes at 20 weeks and accounted for 51% of the variance.

(3) How does body image change over pregnancy?

This study assessed body image in the same group of women at three time points before and during pregnancy : pre-pregnancy; 20 weeks into pregnancy; and 34 weeks into pregnancy. A two (dieters vs non-dieters) by three (body dissatisfaction at three time points) repeated measures MANOVA was conducted to assess whether the two groups differed in their body dissatisfaction across pregnancy. The results of this analysis are presented in table 16.

Table 16 : Body Dissatisfaction of Dieters and Non-Dieters at Pre-Pregnancy, Twenty Weeks, and Thirty-Four Weeks into Pregnancy.

	Pre-Pregnancy	20 Weeks	34 Weeks
Dieters	11.33 (5.8)	10.83 (7.1)	10.37 (6.4)
Non-dieters	6.90 (6.5)	6.50 (6.2)	5.72 (5.5)
Overall	8.15 (6.6)	7.73 (6.7)	7.03 (6.1)

Body image was measured using the Body Dissatisfaction sub-scale of the EDI. The results indicated a significant between-subjects effect ($F[82,1]=11.08$; $p<0.001$). Therefore, dieters have significantly greater body dissatisfaction than non-dieters. However, no significant within-subjects effect was obtained, indicating that body dissatisfaction did not significantly change across pregnancy; and the interaction (dieter/non-dieter x time across pregnancy) was not significant. It should be noted, nonetheless, that the body dissatisfaction scores of both dieters and non-dieters did improve slightly across pregnancy from pre-pregnancy levels.

Drive for thinness is another measure of body image. Therefore, a two (dieter vs non-dieter) by two (drive for thinness at 20 and 34 weeks into pregnancy) repeated measures MANOVA was performed to assess whether the groups differed on this variable across pregnancy. The mean scores for each group at both time points are presented in table 17.

Table 17 : Drive For Thinness Scores of Dieters and Non-Dieters Across Pregnancy.

	20 Weeks	34 Weeks
Dieters	2.97 (3.96)	2.33 (3.13)
Non-Dieters	1.61 (2.72)	0.90 (1.59)
Overall	1.98 (3.14)	1.31 (2.21)

The results showed a significant between subjects effect ($F[82,1]=7.29$; $p<0.01$) and a significant within subjects effect ($F[82,1]=11.04$; $p<0.001$), but not a significant interaction. Therefore, dieters have a higher drive for thinness during pregnancy than non-dieters, and both groups experience a decrease in their drive for thinness as pregnancy progresses.

(4) What is the relationship between reaction to weight / shape changes and eating habits?

This relationship was examined by correlating the factor scores indexing dissatisfaction with overall weight / shape changes with the scores from the cognitive restraint, disinhibition, and hunger sub-scales of the TFEQ. At 20 weeks into pregnancy, dissatisfaction for overall changes in weight and shape significantly correlated with cognitive restraint ($r=0.32$; 96 df; $p<0.001$) and disinhibition ($r=0.41$; 96 df; $p<0.001$). The same results were found at 34 weeks into pregnancy : dissatisfaction for overall changes significantly correlated with cognitive restraint ($r=0.35$; 81 df; $p<0.001$) and disinhibition ($r=0.39$; 81 df; $p<0.001$). No association was found for hunger and dissatisfaction for overall changes.

(5) How do dieters and non-dieters differ with regard to their eating habits across pregnancy?

The TFEQ was used to measure patterns of cognitive restraint, disinhibition, and hunger in participants at 20 and 34 weeks into pregnancy. A two (dieter vs non-dieter) by two (20 and 34 weeks) repeated measures MANOVA for each eating pattern was

performed to assess whether the two groups differed in these across pregnancy. The results of this analysis are presented in table 18.

Table 18 : Eating Habits Across Pregnancy in Dieters and Non-Dieters.

Variable	Group	Stage In 20 Weeks	Pregnancy 34 Weeks	ANOVA		
				Stage F	Group F	S x G F
Restraint	Dieters	10.36 (3.99)	8.58 (4.3)	14.06***	15.75***	5.29*
	Non-Dieters	6.54 (3.79)	5.98 (3.58)			
Disinhibited Eating	Dieters	4.59 (3.2)	4.79 (3.27)	0.40	8.53**	0.65
	Non-Dieters	2.83 (2.7)	3.10 (2.68)			
Hunger	Dieters	4.97 (2.56)	4.75 (2.75)	1.44	0.01	0.34
	Non-Dieters	5.12 (2.53)	4.87 (2.40)			

* p<0.05

** p<0.01

*** p<0.001

For cognitive restraint scores the analysis indicated a significant between subjects effect, a significant within subjects effect, and a significant interaction. Dieters have significantly higher cognitive restraint scores than non-dieters, and cognitive restraint scores for both groups decrease across pregnancy. The significant interaction effect indicated that the change in cognitive restraint scores across pregnancy was different for dieters and non-dieters. Paired t-tests of cognitive restraint scores at 20 and 34 weeks into pregnancy were performed for each group to look at this difference. The results showed that dieters experience a significantly greater decrease in cognitive restraint across pregnancy ($t=3.54$; 22df; $p<0.01$) than non-dieters do ($t=1.38$; 59 df; ns).

For disinhibition scores the analysis revealed a significant between subjects effect indicating that dieters were more disinhibited in their eating than non-dieters. However,

the within subjects and interaction effects were non-significant. No significant effects for hunger were found.

In sum, dieters exhibit more cognitive restraint and disinhibited eating during pregnancy than non-dieters, but restrictive behaviour decreases with advancing pregnancy for both groups with dieters experiencing a greater decrease in this behaviour.

(6) What is the relationship between eating habits / body image during pregnancy and mood?

The present study assessed mood in participants at both 20 and 34 weeks into pregnancy using the HAD. Correlational analysis was conducted to determine whether particular eating habits, body image, or satisfaction with weight and shape changes are associated with increased anxiety or depression. Table 19 presents the results of this analysis for 20 weeks into the pregnancy, and table 20 the results relating to 34 weeks into pregnancy.

Table 19 : Relationship Between Mood and Eating Habits / Body Satisfaction at Twenty Weeks into the Pregnancy.

	Anxiety			Depression		
	r	df	sig	r	df	sig
EDI Body Dissatisfaction	0.28	106	p<0.01	0.34	106	p<0.001
EDI Drive For Thinness	0.22	106	p<0.05	0.10	106	ns
TFEQ Cognitive Restraint	0.00	106	ns	0.07	106	ns
TFEQ Disinhibition	0.32	106	p<0.001	0.27	106	p<0.01
TFEQ Hunger	0.15	107	ns	0.26	107	p<0.01
Factor Scores Indexing Dissatisfaction With Body Changes	0.24	99	p<0.05	0.30	99	p<0.01

At 20 weeks into pregnancy body dissatisfaction is correlated with both anxiety and depression, whereas drive for thinness is only correlated with anxiety. Dissatisfaction with the overall changes in weight and shape is correlated with anxiety and depression. For eating habits disinhibition is correlated with anxiety and depression, hunger is correlated with the latter, and cognitive restraint does not correlate with either.

Table 20 : Relationship Between Mood and Eating Habits / Body Satisfaction at Thirty-Four Weeks into the Pregnancy.

	Anxiety			Depression		
	r	df	sig	r	df	sig
EDI Body Dissatisfaction	0.30	85	p<0.01	0.38	85	p<0.001
EDI Drive For Thinness	0.37	85	p<0.001	0.10	85	ns
TFEQ Cognitive Restraint	0.22	85	p<0.05	0.01	85	ns
TFEQ Disinhibition	0.42	85	p<0.001	0.26	85	p<0.05
TFEQ Hunger	0.28	85	p<0.01	0.14	85	ns
Factor Scores Indexing Dissatisfaction With Body Changes	0.38	81	p<0.001	0.29	81	p<0.01

The strongest variable associated with anxiety is disinhibited eating which also correlated with depression. Cognitive restraint and hunger are both correlated with anxiety but not depression. Body dissatisfaction is correlated with both anxiety and depression, but drive for thinness is only correlated with anxiety. Dissatisfaction with overall weight and shape changes is correlated with anxiety and depression.

Additional Analysis

The effect of having a previous pregnancy on body dissatisfaction and dissatisfaction with overall weight and shape changes was examined. The participants were divided into two groups (primigravidas and multi-parous women), and independent t-tests were

performed on EDI body dissatisfaction scores and factor scores indexing dissatisfaction with overall changes. The results of this analysis are presented in table 21.

Table 21 : Differences Between Body Dissatisfaction and Dissatisfaction with Overall Weight / Shape Changes for Primigravidas v Multi-parous Women.

Variable	Group	Means	t	df	p
Body dissatisfaction at 20 weeks.	Primigravidas	9.61	1.75	104	ns
	Multi-parous	7.01			
Body dissatisfaction at 34 weeks.	Primigravidas	8.96	2.07	83	p<0.05
	Multi-parous	6.08			
Dissatisfaction with overall weight and shape changes at 20 weeks.	Primigravidas	0.27	1.93	97	ns
	Multi-parous	-0.13			
Dissatisfaction with overall weight and shape changes at 34 weeks.	Primigravidas	0.24	1.59	79	ns
	Multi-parous	-0.12			

Body dissatisfaction and dissatisfaction with overall weight and shape changes was greater for primigravidas than multi-parous women at both stages of pregnancy. The difference between the two groups at 34 weeks was statistically significant, and the difference for dissatisfaction with overall weight / shape changes at 20 weeks was slightly above the significance level.

However, it is possible that these findings may be related to the number of dieters and non-dieters in each group. The multi-parous group was comprised of 21.6% dieters and 78.4% non-dieters, and with non-dieters having lower body dissatisfaction than dieters this may account for the lower body dissatisfaction in multi-parous women.

DISCUSSION

The present study investigated eating habits and body image during pregnancy in relation to dieting prior to pregnancy.

One hundred and nine women completed a questionnaire at 20 weeks gestation which measured the following : previous dietary restraint and body dissatisfaction; current body image and eating habits; actual body size; self-esteem; satisfaction with the changes in weight and shape; perception of partner's satisfaction with the changes in weight and shape; expectations of weight gain during pregnancy; beliefs about returning to pre-pregnancy weight; levels of anxiety and depression; and level of concern for the safety of the baby. A follow-up questionnaire was sent out to participants at 34 weeks gestation which measured the same variables (with the exception of pre-pregnancy dietary restraint and pre-pregnancy body dissatisfaction). Eighty-five completed follow-up questionnaires were returned. Participants were divided into 'dieters' and 'non-dieters' on the basis of whether they had said that they had been on a diet in the 12 months prior to pregnancy.

The study aimed to test the following predictions :

- (1) Women with a history of dieting will react more negatively than non-dieting women to the changes in weight and body shape that occur during pregnancy.
- (2) How a woman reacts to the changes in weight and shape that occur during pregnancy may be related to the following variables : degree of previous dieting; pre-pregnancy body dissatisfaction; pre-pregnancy BMI; self-esteem; perceived dissatisfaction of partner with the physical changes; extent to which expectations of

weight gain during pregnancy are met; and expected length of time to regain pre-pregnancy weight.

(3) Body image will improve across pregnancy.

(4) Dissatisfaction with the physical changes will be associated with dietary restraint and disinhibited eating.

(5) Dieters will exercise more dietary restraint and show more disinhibited eating than non-dieters; and, levels of dietary restraint will decrease across the pregnancy.

(6) Body dissatisfaction, cognitive restraint, and disinhibited eating will be associated with negative affect (i.e. higher anxiety and depression levels).

This chapter presents : (i) a summary of the main findings; (ii) an interpretation and discussion of the findings; (iii) the limitations of this research study; and (iv) implications for the findings of this research.

MAIN FINDINGS

The 109 participants completing the first questionnaire were divided into 30 dieters and 79 non-dieters on the basis of whether they stated that they had been on a diet in the 12 months before becoming pregnant. The two groups were not significantly different in age, marital status, ethnicity, number of children, and occupational status. The proportion of dieters and non-dieters completing the follow-up questionnaire was approximately the same. Responders and non-responders to the follow-up questionnaire differed slightly in that non-responders were significantly younger and more of them came from the ethnic minorities.

Before pregnancy dieters had been heavier than non-dieters, with a higher BMI. In addition, they were more dissatisfied than with their pre-pregnancy bodies. At 20 and 34 weeks into pregnancy, dieters and non-dieters did not differ significantly on weight gained, anxiety, or depression levels. However, dieters had lower self-esteem than non-dieters at both time points.

Self-esteem and anxiety levels did not change across pregnancy, but all participants were significantly lower in mood at 34 weeks into pregnancy than at 20 weeks. The incidence of medical complications and the number of women smoking during pregnancy did not differ between the two groups.

Only 17% of respondents remembered receiving advice from the GP or midwife on weight gain during pregnancy with no difference between dieters and non-dieters. At 20 weeks into the pregnancy non-dieters were significantly more concerned than dieters over the safety of the baby, but no significant differences existed between the two groups for level of concern at 34 weeks.

Beliefs and expectations of participants across pregnancy.

More of the dieters than non-dieters believed that they would have to diet and/or exercise to regain their pre-pregnancy figure. Indeed, at both time points all the dieters (100%) expected to diet and/or exercise to regain their pre-pregnancy figure, whereas at 20 weeks and 34 weeks 91% and 85% respectively of non-dieters expected to do so. The difference between dieters and non-dieters at 34 weeks was significant. There was no significant difference in the expectations of dieters and non-dieters for the length of

time to regain their pre-pregnancy figure. In addition, the two groups did not differ significantly in their expectations of successfully returning to their pre-pregnancy weight.

Dieters and non-dieters did not differ significantly in their expectations of total weight gain for the entire pregnancy. The expected total weight gain for dieters at 20 weeks was 26 lbs and for non-dieters it was 25 lbs. However, both groups revised their expectations of total weight gain, and expected to gain more when asked at 34 weeks (30 lbs for dieters and 29 lbs for non-dieters). The range of weight participants expected to gain across the entire pregnancy showed considerable variation. At 34 weeks the lowest estimate of total weight gain was 11 lbs whereas the highest estimate was 59 lbs. The majority of non-dieters gained the weight they were expecting at 20 and 34 weeks. In contrast, the majority of dieters gained either more or less weight than they expected to at both time points.

There were few significant differences between dieters and non-dieters in terms of how satisfied they perceived their partners to be with the physical changes that had taken place during pregnancy. Dieters considered their partner to be more dissatisfied with the changes that had taken place in their breasts, whereas non-dieters considered their partner to be more dissatisfied with the changes that had taken place in their hips/thighs, and this was a consistent finding across both time points of the pregnancy.

Reaction of dieters and non-dieters to the changes in body shape and weight that occur during pregnancy.

At 20 weeks into the pregnancy, dieters were significantly more dissatisfied than non-dieters with the changes that occurred in their weight, breasts, and hips/thighs. The percentage of dieters that were dissatisfied with the changes in their stomach was double the percentage of non-dieters but this difference did not reach significance. There was no difference between the two groups for satisfaction with changes in the face. The same pattern of results was obtained at 34 weeks. Dieters were significantly more dissatisfied than non-dieters with the changes in their breasts and hips/thighs. In addition, considerably more dieters than non-dieters were dissatisfied with the changes in their weight and stomach at 34 weeks, but these differences failed to make the level of significance. Dissatisfaction with the changes in the face did not differ significantly between the two groups, but over twice as many non-dieters than dieters were dissatisfied with the changes in their face.

Factor analysis, to reduce the data, was carried out on questions relating to participants' dissatisfaction with the weight and shape changes (stomach; breasts; hips/thighs; face). These variables were found to load onto one factor, and factor scores were calculated for each participant at both 20 and 34 weeks into the pregnancy to provide an index of dissatisfaction with the overall changes. Analysis of factor scores representing dissatisfaction with overall weight and shape changes indicated that dieters were significantly more dissatisfied than non-dieters with the overall changes at both 20 and 34 weeks.

Variables associated with dissatisfaction for overall weight and shape changes.

The relationship between the hypothesised predictor variables and dissatisfaction with weight and shape changes at 20 and 34 weeks was examined using correlational analysis. Seven variables correlated with dissatisfaction for overall changes at 20 weeks : perceived dissatisfaction of partner for overall changes; pre-pregnancy body dissatisfaction; expected length of time to regain pre-pregnancy figure; self-esteem; degree of previous dieting behaviour; whether women gained more weight than they expected to; and pre-pregnancy BMI. At 34 weeks into pregnancy fewer variables correlated with dissatisfaction for weight and shape changes. Those that did were : perceived dissatisfaction of partner for overall changes; self-esteem; and extent to which they gained more weight than expected.

The variables that were significantly correlated with dissatisfaction for overall weight and shape changes at 20 weeks were included in a stepwise linear regression to determine which any of these could independently predict dissatisfaction. The results demonstrated that four variables independently contribute to the prediction of dissatisfaction with weight and shape changes. These variables were : perceived dissatisfaction of partner for overall changes; pre-pregnancy body dissatisfaction; the extent to which expectations of weight gain were met; and degree of dieting behaviour prior to pregnancy. Taken together these variables accounted for 51% of the variance in dissatisfaction with overall changes in weight and shape at 20 weeks.

Changes in body image across pregnancy.

Body dissatisfaction was measured using the EDI Body Dissatisfaction and Drive For Thinness sub-scales. Dieters had significantly higher body dissatisfaction scores than non-dieters at pre-pregnancy, 20 weeks, and 34 weeks into pregnancy. Levels of body dissatisfaction did not significantly change, for either group, from pre-pregnancy to 34 weeks gestation. However, the body dissatisfaction scores of both dieters and non-dieters did improve slightly across the pregnancy. Furthermore, dieters had significantly higher drive for thinness scores than non-dieters, and both groups experienced the same significant decrease in drive for thinness as pregnancy progressed.

Association between women's reaction to the changes in shape / weight and eating habits.

The relationship between women's reaction to the shape / weight changes and eating habits was examined by correlating factor scores indexing dissatisfaction for changes with cognitive restraint, disinhibition, and hunger scores. At both 20 and 34 weeks into pregnancy, the results indicated that dissatisfaction for the overall changes in weight and shape was strongly correlated with cognitive restraint and disinhibited eating.

Eating habits of dieters and non-dieters across pregnancy.

The TFEQ was used to measure patterns of cognitive restraint, disinhibition, and hunger in participants at 20 and 34 weeks into pregnancy. Dieters were found to have significantly higher cognitive restraint and disinhibition scores than non-dieters, but the two groups did not differ with regard to hunger scores. Disinhibition and hunger scores did not significantly change for either group. However, both dieters and non-dieters

experienced a significant decrease in their cognitive-restraint scores across pregnancy. Dieters were found to have a significantly greater decrease in level of cognitive restraint across pregnancy than non-dieters.

Association Between Body Dissatisfaction and Eating Habits with Mood.

Levels of anxiety and depression were assessed in participants at 20 and 34 weeks using the HAD. At 20 weeks into pregnancy body dissatisfaction correlated with both anxiety and depression, whereas drive for thinness only correlated with anxiety. Dissatisfaction with the overall changes in weight and shape also correlated with both anxiety and depression. For eating habits, disinhibition correlated with anxiety and depression, hunger correlated with depression, and cognitive restraint did not correlate with either.

At 34 weeks into pregnancy the strongest variable associated with anxiety is disinhibited eating which also correlated with depression. Cognitive restraint and hunger both correlated with anxiety but not depression. Body dissatisfaction correlated with both anxiety and depression, but drive for thinness only correlated with anxiety. Dissatisfaction with overall weight and shape changes correlated with both anxiety and depression.

The effect of previously experiencing a pregnancy on body dissatisfaction and dissatisfaction with overall weight and shape changes was examined. At both 20 and 34 weeks scores for body dissatisfaction and dissatisfaction with weight and shape changes were higher in women on their first pregnancy than women who had had a previous

pregnancy. The difference between the two groups of women was statistically significant for body dissatisfaction at 34 weeks, and close to the level of significant for dissatisfaction for overall changes at 20 weeks into the pregnancy.

INTERPRETATION AND DISCUSSION OF STUDY FINDINGS

This section will initially present a discussion of the background of the variables.

Notwithstanding the pregnancy status, the group of dieters were found to be significantly heavier than the non-dieters, and had higher BMIs. Other significant differences between the two groups matched those reported in the literature. Similar to Heatherton's (1993) finding, in the present study dieters were significantly more dissatisfied than non-dieters with their pre-pregnancy bodies. In addition, dieters had significantly lower self-esteem than non-dieters and this echoes findings reported by Polivy et al (1988).

Across pregnancy there was no significant difference between the two groups in the amount of weight they gained. Fairburn & Welch (1990) also found that dieters and non-dieters gained equivalent amounts of weight during pregnancy. Therefore, it would appear that a history of dieting does not affect the amount of weight women gain during pregnancy.

Several authors have found that restrained eaters are more anxious and depressed than non-restrained eaters (Garner & Garfinkel, 1982; Rosen et al, 1987). Contrary to these findings, in the present study there were no significant differences between dieters and

non-dieters in levels of anxiety and depression at either 20 or 34 weeks into pregnancy. A possible explanation for this finding is that the experience of pregnancy affects levels of anxiety and depression, i.e. by increasing levels in non-dieters or decreasing levels in dieters.

Very few women in the study (17%) recalled any advice from their GP or midwife regarding how much weight they should gain during pregnancy. This finding fits with current healthcare practice of not advising women on weight gain during pregnancy and not repeatedly weighing them as part of their ante-natal care. For the 17% of participants that did receive advice on weight gain during pregnancy it cannot be determined whether they were given it or they requested it from the healthcare professional. There was no significant difference in the numbers of dieters and non-dieters who received advice on weight gain. This is perhaps a surprising result as it could be assumed that more dieters may seek advice on the basis that their views on food and weight are likely to be distorted by diet rules (e.g. limit calorie intake).

Beliefs and expectations of dieters and non-dieters.

An interesting finding relating to beliefs is that at both 20 and 34 weeks 100% of the dieters believed that they would have to diet and/or exercise after pregnancy to regain their pre-pregnancy figure. In contrast, the number of non-dieters holding this belief fell from 91% at 20 weeks to 85% at 34 weeks. It should be noted that there was a tendency for non-dieters to highlight the 'exercise' part of this question, i.e. their positive response to the question actually reflected a belief that they would have to exercise more rather than diet. It is possible to speculate that as 100% of the dieters, at

both time points, thought that they would have to diet and/or exercise to regain their pre-pregnancy figure, then this could indicate that dieters hold some universal beliefs, e.g. they must always work to achieve their desired weight / figure

A surprising finding was that dieters and non-dieters had remarkably similar expectations for weight gain during pregnancy and regaining their pre-pregnancy figure and/or weight afterwards. Although considerably less dieters (26%) than non-dieters (50%) expected to regain their pre-pregnancy figure in one to three months, there was no significant difference in the overall expectations of dieters and non-dieters for the length of time to regain their pre-pregnancy figure. At 20 weeks into pregnancy 34% of all women expected to regain their pre-pregnancy figure in one to three months, and 33% anticipated this to take up to six months. This is a similar finding to that by Abraham et al (1994). In their study, 44% of women thought it took the “average woman” three months or less to return to her pre-pregnancy weight, and 39% thought it took between three and six months. However, it should be noted that there are two differences between the present study and the study by Abraham et al (1994). The present study asked participants how long they thought it would take themselves to regain their pre-pregnancy figure; in the Abraham et al study participants were asked how long the “average woman” took to regain her pre-pregnancy weight.

In this study dieters and non-dieters did not differ significantly in their expectations of returning to their pre-pregnancy weight. This finding supports that of Fairburn & Welch (1990) who also found that the two groups did not differ significantly in their expectations of returning to their pre-pregnancy weight.

However, an interesting finding of this study was the range of weight participants expected to gain across the entire pregnancy, which showed considerable variation (e.g. 11-59 lbs at 34 weeks). This appeared to reflect a lack of information by some women about appropriate weight gain during pregnancy. In addition, dieters and non-dieters did not differ in their expectations of total weight gain for the entire pregnancy. At 20 and 34 weeks the mean estimates of total weight gain for the whole pregnancy by dieters and non-dieters were within a pound of each other. Therefore, dieters and non-dieters appear to hold several similar beliefs and expectations about weight changes relating to pregnancy.

The two groups did not differ significantly in the extent to which their expectations of weight gain were actually met. Nonetheless, the majority of non-dieters gained the weight they were expecting at 20 and 34 weeks, whereas the majority of dieters gained either more or less weight than they were expecting at both time points. It is possible to speculate on two interpretations for this finding. Firstly, dieters have unrealistic expectations of weight gain during pregnancy compared to non-dieters. But, other findings in this study support the idea that dieters and non-dieters hold similar beliefs and expectations of weight changes during pregnancy. Secondly, dieters gaining more or less weight than expected reflects a mixed response to weight gain. Fairburn & Welch (1990) found that women with a history of dieting have two responses to the increase in weight - either pregnancy provokes a fear of excessive weight gain, or it reduces concern by absolving the women for responsibility of their weight. Therefore, women with the first response may realise that they have gained more weight than they

expected to, and women with the latter response may realise that they have gained less weight than they expected to.

This section will now address the specific aims and predictions of the study.

(1) Women with a history of dieting will react more negatively than non-dieting women to the changes in weight and body shape that occur during pregnancy.

This study found that dieters were more dissatisfied than non-dieters with the overall changes in weight and shape at 20 and 34 weeks into pregnancy. Therefore, the prediction that women with a history of dieting will react more negatively than-dieting women to the pregnancy-related weight and shape changes is upheld. This finding is consistent with those found by Fairburn & Welch (1990) and Davies & Wardle (1994). It is possible to understand why dieters react more negatively than non-dieters to the pregnancy-related changes in weight and shape. Pregnancy violates the rules that women who diet apply to themselves : (1) they have to eat more, and (2) they have to accept a body shape that would typically prompt dieting.

The present study is able to expand on the previous literature by identifying exactly where differences exist between dieters and non-dieters for dissatisfaction with the changes that occur during pregnancy. In general, the data suggests that dieters are more globally dissatisfied with the changes across pregnancy than non-dieters. Specifically, at 20 weeks into pregnancy dieters were significantly more dissatisfied than non-dieters with the changes in their weight, breasts, and hips/thighs; and at 34 weeks into pregnancy, dieters were significantly more dissatisfied with the changes in their

breasts and hips/thighs than non-dieters. Dissatisfaction with the changes in their face did not differ significantly between the two groups, and interestingly, changes in the face was the only area where considerably more non-dieters were dissatisfied than dieters (at 34 weeks).

Richardson's (1990) finding that weight changes during pregnancy are more often viewed positively (i.e. as "gains") is supported by this study. Fewer than a third of participants reported dissatisfaction with the changes in weight at 20 weeks, and the same proportion reported dissatisfaction at 34 weeks. Indeed, at 20 weeks into pregnancy, weight was the area where fewest participants reported dissatisfaction with the changes. Changes in hips and thigh shape caused most dissatisfaction - 81% of all women were dissatisfied with these changes at both 20 and 34 weeks. An explanation for these findings could be that women expected the changes in their weight but did not expect the changes in their hips/thighs, and women were dissatisfied with the latter changes because they were unexpected.

(2) How a woman reacts to the changes in weight and shape that occur during pregnancy may be related to the following variables : degree of previous dieting; pre-pregnancy body dissatisfaction; pre-pregnancy BMI; self-esteem; perceived dissatisfaction of partner with the physical changes; extent to which expectations of weight gain during pregnancy are met; and expected length of time to regain pre-pregnancy figure.

The present study investigated a number of variables that may be related to how a woman will react to changes in weight and shape that occur during pregnancy.

Dissatisfaction for overall weight and shape changes at both 20 and 34 weeks was associated with, perceived dissatisfaction of partner with overall changes, self-esteem, and the extent to which expectations of weight gain are actually met. At 20 weeks into the pregnancy dissatisfaction was associated with pre-pregnancy body dissatisfaction, length of time to regain pre-pregnancy figure, degree of previous dieting behaviour, and pre-pregnancy BMI. Therefore, the variables predicted to be related to how a woman react to the pregnancy-related changes in weight and shape were supported.

Two of these variables fit with the previous literature. Berk (1993) identified that body image prior to pregnancy affects body image during pregnancy. Shane & Linn (1977) reported that women are always concerned about their partner's perception of them during pregnancy. However, in their study Shane & Linn demonstrated that women were unable to predict their husband's satisfaction with their bodies.

Dieters tend to have a mixed response to weight gain during pregnancy which is, in general, more negative than the response of non-dieters (Fairburn & Welch, 1990; Davies & Wardle, 1994). The variables identified in this study as related to dissatisfaction with the weight and shape changes could be used to indicate which dieters will react more negatively. Therefore, women with a larger pre-pregnancy body size (BMI), greater pre-pregnancy body dissatisfaction, more dieting behaviour prior to pregnancy, and lower in self-esteem, are more likely to be dissatisfied with the weight and shape changes that occur during pregnancy. In addition, the longer a woman expects it to take her to regain her pre-pregnancy figure, the more dissatisfied a woman perceives her partner to be with the changes in her, and if a woman gains more weight

than she expected, then the more dissatisfied she will be with the weight and shape changes.

(3) Body image will improve during and across pregnancy.

The findings of this study indicate that, although no significant changes take place, body dissatisfaction does improve from pre-pregnancy to 34 weeks gestation for dieters and non-dieters. Moreover, drive for thinness significantly decreases across pregnancy for both groups. These results are consistent with the findings of Davies & Wardle (1994) who found that during pregnancy women are more accepting of their size and have a lower drive for thinness.

It is feasible to suggest three possible reasons for the finding that body dissatisfaction improves (albeit not significantly) during and across pregnancy. Firstly, increased body size during pregnancy is viewed as socially acceptable (Wiles, 1994). At 34 weeks gestation most women definitely look pregnant, while at 20 weeks it is not always so obvious that a woman is pregnant. Body dissatisfaction may improve during pregnancy as it is socially acceptable to be larger in size and this view may be strengthened the further into pregnancy a woman is.

Women's perception of body size may be related to the finding that body dissatisfaction improves slightly during pregnancy. Slade (1977) demonstrated that the tendency to over-estimate body size decreases at 8 months compared to 4 months into pregnancy. Thus, women in this study may have been less dissatisfied with their bodies at 34 weeks than 20 weeks because their perception of body size was more accurate. Finally, it is

possible to speculate that at the latter stage of pregnancy women are more distracted (i.e. preparing for birth) and less focused on their body dissatisfaction.

(4) Dissatisfaction with the physical changes will be associated with dietary restraint and disinhibited eating.

Women who are dissatisfied with the pregnancy-related changes in weight and shape may change their eating as a way of coping with this dissatisfaction. This is a similar view to Moore (1978) who suggested that, "some women who try and counteract the increasing waistline and weight gain will eat very little." This study predicted that dissatisfaction with weight and shape changes would be associated with higher cognitive restraint and disinhibited eating. Women who are dissatisfied with the changes may use these patterns of eating to cope with the dissatisfaction (i.e. restricting food intake to limit weight gain or disinhibited eating in response to negative emotions triggered by body dissatisfaction). Dissatisfaction with weight and shape changes at both 20 and 34 weeks was strongly correlated with both cognitive restraint and disinhibition, and therefore this prediction was supported. However, it is possible that women who are dissatisfied with the changes during pregnancy were dissatisfied with their bodies before pregnancy and exercised cognitive restraint and disinhibited patterns of eating which continued into pregnancy.

(5) Dieters will exercise more dietary restraint and disinhibited eating than non-dieters; and, levels of dietary restraint will decrease across the pregnancy.

This study predicted that as dieters are more likely to be dissatisfied with the weight and shape changes during pregnancy then they will exercise more dietary restraint than non-

dieters to limit the weight gain and shape changes. But with dieting not being recommended in pregnancy being, it was predicted that overall levels of dietary restraint would decrease across pregnancy. Moreover, as the literature indicated that dieters become more disinhibited when their diets are broken, it was predicted that dieters would exhibit more disinhibition than non-dieters as a consequence of being unable to keep to a diet during pregnancy.

An interesting pattern of results emerged for the eating habits of the two groups at 20 and 34 weeks into pregnancy. Dieters restrained their eating more than non-dieters, but overall levels of restraint decreased across pregnancy for both groups. However, dieters experienced a larger decrease in cognitive restraint across pregnancy than non-dieters. In addition, dieters were more disinhibited in their eating than non-dieters, but the levels of disinhibited eating did not change across pregnancy for either group. Moreover, there were no differences between the two groups for hunger levels, and these did not change across pregnancy.

Therefore, the predictions that dieters will have greater levels of cognitive restraint and disinhibited eating, and that overall levels of cognitive restraint would decrease across pregnancy were supported. However, on a more cautionary note it must be acknowledged that higher cognitive restraint and disinhibition in dieters could be more to do with pre-pregnancy differences rather than in relation to the pregnancy itself. Nonetheless, the most striking feature relating to eating habits during pregnancy is the significant decrease in cognitive restraint for dieters. This finding is more significant when the stability of other eating patterns is considered, i.e. a specific change in eating

patterns for a specific group of women (those with a history of dieting) rather than global changes in eating patterns occurring during pregnancy.

However, the significant decrease in levels of cognitive restraint from 20 to 34 weeks into pregnancy contradicts a finding by Fairburn et al (1992). Cognitive restraint was found to significantly increase from early/middle pregnancy (15 weeks) to late pregnancy (32 weeks) in the prospective study by Fairburn et al. The present study and the study by Fairburn et al measured cognitive restraint at approximately the same time during pregnancy, and therefore it is not clear why contradictory findings were obtained. It is possible to speculate on methodological differences which may explain the different results, for example, the two studies used different measures of restraint (the Eating Disorders Examination versus the Three Factor Eating Questionnaire).

(6) Body dissatisfaction, cognitive restraint, and disinhibition in pregnant women will be associated with negative affect.

In general, the majority of these predictions were supported. Stevens-Simon (1993) found that body dissatisfaction was associated with higher levels of depression in pregnant adolescents. The present study found the same finding for pregnant adults at both 20 and 34 weeks into pregnancy. Body dissatisfaction was also significantly correlated with higher anxiety levels at both time points. In addition, factor scores representing dissatisfaction for overall changes significantly correlated with higher anxiety and depression levels at 20 and 34 weeks. Therefore, the more dissatisfied a woman is with her body during pregnancy or the changes that have occurred in her body, then the more anxious and depressed she will feel. Moreover, drive for thinness

significantly correlated with anxiety but not depression at 20 and 34 weeks. This association could represent the incongruence a woman may feel because drive for thinness and pregnancy are incompatible.

For eating habits, disinhibition was associated with anxiety and depression at 20 and 34 weeks into pregnancy. It is possible that the negative emotions associated with disinhibited eating may have been as a consequence of women being unable to control their eating. A surprising result was the lack of association between cognitive restraint and negative mood states. It was predicted that cognitive restraint would be associated with anxiety and depression. This prediction was based on possible incongruence for women trying to restrict food intake at a time when they know that they should not be dieting. However, cognitive restraint was only significantly correlated with anxiety at 34 weeks.

Women who had previously experienced a pregnancy were less dissatisfied with their body, and less dissatisfied with the overall weight and shape changes, than women who were having their first pregnancy. This finding appears to suggest that, not only does body image improve during pregnancy, it also continues to improve as women move onto their next pregnancy. Unfortunately, there were insufficient numbers to test whether women who were having their third pregnancy had a more positive view of their body than those on their second pregnancy, and so forth. An explanation for this finding could be that women who have experienced a pregnancy know how their body will look and what changes to expect during pregnancy, i.e. they are desensitised to the pregnant body-shape.

However, the uneven distribution of dieters and non-dieters in the primigravidas and multi-parous groups may have confounded this result, i.e. 73% of the dieters were primigravidas and only 27% were multi-parous, whereas 64% of the non-dieters were primigravidas and 36% were multi-parous. Nonetheless, it is an interesting finding in itself that a greater percentage of dieters are primigravidas than non-dieters. A speculative explanation for this could be that women with a history of dieting are more likely to delay having children than non-dieting women.

LIMITATIONS OF THE STUDY

Participants

This study would have benefited from an increased sample size, particularly in relation to the number of women included with a history of dieting. This is likely to have strengthened the significant results obtained and may have made a difference to those that fell just outside the level of significance.

The present study is limited to an extent by its inclusion of both primigravidas and multi-parous women. Many of the studies in the literature use either primigravidas or multi-parous women as their participants and not a sample made up of both. The finding in this study that primigravidas women have higher body dissatisfaction than multi-parous women supports the idea of studying the two groups separately in relation to body dissatisfaction during pregnancy. However, to obtain a large enough sample size it was necessary for this study to include both women on their first pregnancy and those on subsequent pregnancies. The fact that this study does include both

primigravidas and multi-parous women makes comparisons with other studies more difficult.

It is not known whether any of the participants included in this study had eating-disorders or a history of eating-disorders. If such women were included then this may have affected the results, particularly those relating to cognitive restraint, disinhibition, drive for thinness, body dissatisfaction, and self-esteem. Two women disclosed a history of eating disorders when asked to participate in the study and these women were excluded. The inclusion of a question relating to current or previous eating disorders may have overcome this problem.

It is possible that the nature of the pregnancy may have had an effect on the results. Body dissatisfaction may have been greater in women who had either an unplanned or unwanted baby. However, I made the decision that a question examining whether the baby was planned for was unethical. This decision was based on three factors : firstly, whether women had a planned baby or not was an interesting consideration, but not a central theme to the research; secondly, such a question ran the risk of upsetting some women which could have been difficult to contain in a busy ultra-sound clinic setting; and thirdly, such a personal question may have affected the decision of the women to continue with the research and consequently reduced the sample size.

The follow-up results of this study may have been affected by differences between responders and non-responders to the follow-up questionnaire. It was found that non-

responders to the follow-up questionnaire were significantly younger and more likely to come from the ethnic minorities than responders.

Measures

Body dissatisfaction was measured using the EDI body dissatisfaction and drive for thinness sub-scales. However, neither of these scales is designed for use during pregnancy. Indeed, several women wrote “I’m pregnant” next to the question asking them to rate how often the statement “I think that my stomach is too big” applies to them. Therefore, the instructions to these scales should have included some acknowledgement that the participants were pregnant.

Participants were asked whether they thought they would have to diet and/or exercise to regain their pre-pregnancy figure. Some participants made a point of indicating that their positive response reflected an intention to exercise only and not to diet. It would have been preferable to examine beliefs about dieting and exercising individually.

Procedure

Firstly, it is acknowledged that pre-pregnancy dieting behaviour and pre-pregnancy body dissatisfaction were measured retrospectively. Consequently, these data are limited by inaccuracies of memory concerning body image or dieting behaviours before the pregnancy. In addition, it is necessary to state that the questionnaire in this study relied entirely on self-report data which has limitations. The most significant of which is under-reporting, e.g. stating a lower pre-pregnancy weight or less body dissatisfaction, particularly as these are typically sensitive areas for many women. Also, participants

may have given inaccurate information because they were concerned with how they appeared to the researcher.

Data were collected at two time points in pregnancy - 20 weeks (middle pregnancy) and 34 weeks (late pregnancy). Data from early pregnancy would have provided more information on the specific changes in body dissatisfaction and eating habits across pregnancy. However, it was not feasible to collect earlier data as participants did not routinely attend other clinics at an earlier stage of pregnancy.

IMPLICATIONS.

This study demonstrates that women with a history of dieting prior to pregnancy have higher body dissatisfaction during pregnancy and are more dissatisfied with the overall changes in weight and shape than women who do not have a history of dieting. Moreover, dissatisfaction with pregnancy-related weight and shape changes seems to have an impact on women's mood (increasing levels of anxiety and depression) and their eating habits (increasing cognitive restraint and disinhibited eating). The implication from this finding is that pregnant women, particularly those with a history of dieting, may benefit from a discussion of body changes that occur during pregnancy. This is not a new suggestion. Indeed, as far back as 20 years ago, health-care professionals were urged that ante-natal care should include "a discussion on the subject of the changing body and as much positive information as possible aboutbody and appearance should be given" (Moore, 1978). The present study illustrates that this suggestion is even more valid today, and furthermore, a specific group of women (i.e. those with a history of dieting) would particularly benefit from this information.

Consequently, this investigation suggests that by addressing body dissatisfaction during pregnancy healthcare professionals may facilitate women towards a more healthy pregnancy (i.e. by avoiding cognitive restraint and disinhibited eating patterns), and a more enjoyable pregnancy (i.e. by preventing higher anxiety and lower mood associated with body dissatisfaction). Addressing body dissatisfaction during pregnancy may also have an effect on women's choice of feeding. Foster et al (1996) found that body dissatisfaction during pregnancy was associated with intention to bottle feed. Therefore, if healthcare professionals were able to promote satisfaction with the body during pregnancy they may be able to increase the number of women breast feeding.

Furthermore, this study highlights that women should also be given more information on the weight changes that occur in relation to pregnancy. The large variation in the total amount of weight participants expected to gain for the entire pregnancy supports the idea that many women do not have accurate information regarding weight changes during pregnancy. Indeed, only 17% of the women in this study appeared to receive advice about weight gain from their GP or midwife. This study demonstrated that this information does have an effect on how women react to the weight and shape changes i.e. dissatisfaction with the overall changes increases if a woman gains more weight than she expected, and the longer she expects it to take her to regain her pre-pregnancy figure. Therefore, healthcare professionals should give pregnant women more information about the weight changes to prevent them from becoming dissatisfied with their body during pregnancy. Information could be give on the range of weight they could expect to gain, and how long it may take to lose the weight after pregnancy and regain their pre-pregnancy figure.

In a similar vein, pregnant women, particularly those with a history of dieting should be given information on the changes in weight / shape that occur after pregnancy. In this study, all the women with a history of dieting before pregnancy believed that they would have to diet and / or exercise to regain their pre-pregnancy figure. This is similar finding to Fairburn and Welch (1990) who found that more pre-pregnancy dieters planned to diet and exercise to lose weight following the pregnancy than those who did not diet prior to pregnancy. It is possible that such dieting could lead to the development of an eating disorder. Reiff and Reiff (1992) speculated that "such dieting, if vigorously pursued, could lead to the development of an eating disorder, especially since the post-partum period is often stressful, fraught with changes, and characterised by periods of depression". Evidence to support this view has been provided by Stein and Fairburn (1996) who found that there is an overall increase in eating disorder psychopathology in the six months after childbirth. Stein and Fairburn (1996) concluded that education about how to deal with the changes in weight and shape after pregnancy might decrease the risk of developing frank eating disorder pathology.

Healthcare professionals need to alert to the cues that a woman is having a difficult time accepting the changes in her body that accompany pregnancy. The findings of this study can assist practitioners in this task by identifying characteristics of those who are likely to be dissatisfied. Therefore, although some women with a history of dieting have a positive reaction to the weight and shape changes that occur during pregnancy, others do not. The latter are likely to include women who were larger prior to pregnancy, women who were more dissatisfied with their pre-pregnancy body, and

women who exhibited more dieting behaviour before pregnancy. In addition, they are likely to have lower self-esteem. Practitioners need to be aware of these women and their feelings towards their bodies. Moreover, practitioners need to be alert to women who perceive their partner to be dissatisfied with the changes, who gain more weight than they expected, and who expect to take a long time to regain their pre-pregnancy figure.

Body dissatisfaction and dissatisfaction with overall weight and shape changes were associated with lower mood. Jenkin & Tiggemann (1997) found that the more dissatisfied a woman is with her body post-natally, the lower her mood. It is possible to speculate, therefore, that body dissatisfaction may contribute to post-partum depression.

This study demonstrated that body image improves and drive for thinness decreases during pregnancy. Moreover, women with a history of dieting experience a decrease in their level of cognitive restraint over and above that of non-dieting women. These findings have implications for the treatment of the eating-disorders. Pregnancy appears to be a natural window where women who attempt to change their shape by dieting decrease this behaviour and become more positive about the way their perception of their body. This natural window for change could be utilised by clinicians treating women with eating disorders. Thus, if women with eating disorders present for treatment when they are pregnant, they should be treated as a priority, and with the symptomatology naturally decreased, the clinician can work at identifying the underlying causes of the eating disorder.

Having a baby, when there are no medical complications, is perceived to be a momentous, joyful occasion. This attitude is highlighted by the description of women 'glowing' during pregnancy. But for some, those women that have been dissatisfied with their body and attempted to change their shape through dieting, pregnancy can be a difficult time where they react negatively to the physical changes, develop unhealthy eating patterns, and experience greater feelings of anxiety and low mood. Clinical psychologists can play a significant role in helping these women cope with these difficulties. This could be done through individual work, group work, or consultation with midwives / nurses involved in ante-natal care. Moreover, clinical psychologists could also become involved in working with women who have fears about becoming pregnant which are grounded in fears about coping with the physical changes in their body, such women may include those that have over-come an eating-disorder or women who have persistently dieted throughout their adult life.

FUTURE RESEARCH

Further research from this investigation could examine the following :

(i) Ways of helping women with a history of dieting cope with body dissatisfaction during pregnancy. Berk (1993) has found that some strategies, such as support groups and visual imagery, have been effective in helping women to adapt to their changing bodies. Further research could examine how strategies may help women that are more likely to experience body dissatisfaction during pregnancy (i.e. those with a history of dieting prior to pregnancy).

(ii) Pregnancy appears to improve body image, but it not known what aspects of pregnancy contribute to this improvement. Some authors have proposed that it is the social acceptability of fatness during pregnancy (Wiles, 1994), but further research is needed to identify whether this applies to all pregnant women, and whether there are other aspects of pregnancy that contribute to the improved body image.

(iii) Body dissatisfaction during pregnancy has been associated with lower mood in the present study. Further research could examine the link between this and post-partum depression.

(iv) Research could also examine the longer term effects of body dissatisfaction in dieters during pregnancy. Following from the findings of Foster et al (1996) that the more dissatisfied women are with their bodies then the more likely they are to bottle feed, and the less attached they are to their child, research could identify whether dieters are less attached to their babies, and if so, how long this effect lasts.

(v) Research could be carried out to examine whether pregnancy is a natural window for the treatment of eating disorders which could be expanded upon.

(vi) It is not known whether the improvement in body dissatisfaction during pregnancy is transient or persists after pregnancy. Wiles' (1994) research into the impact of pregnancy on fat women's body image proposed that such improvement in body image is transitory. However, having a child means that women take on a new role - as a mother. It is possible that the role of motherhood, and all that it brings, may render

body dissatisfaction less important. Therefore, further research could examine whether improvement in body dissatisfaction during pregnancy is transient or persistent, and if the latter, what is it that maintains the improvement in body dissatisfaction.

CONCLUSION

Women, in general, appear to have a more positive view of themselves during pregnancy. However, women with a history of dieting are less satisfied with their bodies and the changes that occur during pregnancy. These women are more likely to exhibit patterns of cognitive restraint and disinhibited eating, and also experience higher levels of anxiety and depression. Healthcare professionals need to be alert to women who are dissatisfied with their bodies during pregnancy, and provide further information on weight gain during and after pregnancy to help women adjust to the changes.

REFERENCES

- Abraham, S., King, W., & Llwellyn-Jones, D. (1994). Attitudes to body weight, weight gain and eating behaviour in pregnancy. Journal of Psychosomatic Obstetrics Gynecology, 15, 189-195.
- Abrams, B. F., & Laros, R. K. (1986). Pregnancy and weight, weight gain and birth weight. American Journal Obstetrics and Gynecology, 154, 503-509.
- Abrams, B., & Parker, J. D. (1990). Maternal weight gain in women with good pregnancy outcome. Obstetrics & Gynecology, 76, 1-7.
- Attie, I., & Brooks- Gun, J. (1987). Weight concerns as chronic stressors in women. In, Barnett, L., Biener, L., & Baruch, G. K. (Eds), Gender and Stress, The Free Press, New York.
- Attie, I., & Brooks- Gun, J., & Peterson, A. C. (1990). A developmental perspective on eating disorders and eating problems. In, Lewis, M. & Miller, S. M., Handbook in Developmental Psychopathology: Perspectives in Developmental Psychology, Plenum Press, New York.
- Bailey, L. A., & Hailey, B. J. (1986). The psychological experience of pregnancy. International Journal of Psychiatry in Medicine, 16(3), 263-273.

Berk, B. (1993). Body image and pregnancy: bridging the mind-body connection. Journal of Perinatology, 13(4), 300-304.

Berscheid, E., Walster, E., & Bohrnstedt, G. (1973). The happy American body: A survey report. Psychology Today, 11, 119-131.

Brodie, D. A., & Slade, P. D. (1988). The relationship between body-image and body-fat in adult women. Psychological Medicine, 18, 623-631.

Brownell, K. D. (1991). Dieting and the search for the perfect body: where physiology and culture collide. Behaviour Times, 22, 1-12.

Burritt, J., & Fawcett, J. (1980). Body experience during pregnancy. Issues in Health Care of Women, 2, 1-10.

Cash, T. F., & Brown, T. A. (1987). Body image in anorexia nervosa and bulimia nervosa: A review of the literature. Behaviour Modification, 11, 487-521.

Ciliska, D. (1990). Beyond Dieting - Psychoeducational Interventions for Chronically Obese Women: A Non-Dieting Approach, Brunner/Mazel, New York.

Collins, R. C., Lapp, W. M., & Saltzberg, J. A. (1992). Cognitive restraint and impulsive eating: Insights from the three-factor eating questionnaire. Psychology of Addictive Behaviours, 6(1), 47-53.

Copper, R. L., & Goldenberg, R. L. (1995). The relationship of maternal attitude toward weight gain to weight gain during pregnancy and low birth weight. Obstetrics and Gynecology, 85(4), 590-595.

Curry, M.A. (1990) . Stress, social support, and self-esteem during pregnancy. NAACOGS Clinical Issues in Perinatal Womens Health Nursing, 1(3), 303-310.

Davies, K., & Wardle, J. (1994). Body image and dieting in pregnancy. Journal of Psychosomatic Research, 38(8), 787-799.

Dewey, K. G., & McCrory, M. A. (1994). Effects of dieting and physical activity on pregnancy and lactation. American Journal Clinical Nutrition, 59 (Supple), 446S-53S.

Diagnostic and Statistical Manual of mental Disorders (Fourth Edition), (1994). American Psychiatric Association, Washington DC.

Dickson-Parnell, B., Jones, M., & Braddy, D. (1987). Assessment of body image perceptions using a computer program. Behaviour Research Methods, Instruments & Computers, 19, 353-354.

Edelstein, C. K., & King, B. H. (1992). Pregnancy and eating disorders. In, Yager, J., Gwirtsman, H. E., & Edelstein, C. K. (Eds), Special Problems in Managing Eating Disorders, American Psychiatric Press, Washington.

Fahy, T. A., & O'Donoghue, G. (1991). Eating disorders in pregnancy. Psychological Medicine, 21, 577-580.

Fairburn, C. G., & Garner, D. M. (1988). Diagnostic criteria for anorexia nervosa and bulimia nervosa: The importance of attitudes to shape and weight. In, Garner, D. M., & Garfinkel, P. E. (Eds), Diagnostic Issues in Anorexia Nervosa and Bulimia Nervosa, Brunner/Mazel, New York.

Fairburn, C. G., Stein, A., & Jones, R. (1992). Eating habits and eating disorders during pregnancy. Psychosomatic Medicine, 54(6), 665-672.

Fairburn, C. G., Welch, S. L. (1990). The impact of pregnancy on eating habits and attitudes. International Journal of Eating Disorders, 9(2), 153-160.

Fallon, A. E., & Rozin, P., (1985). Sex differences in perception of desirable body shape. Journal of Abnormal Psychology, 94, 102-105.

Fisher, S. (1990). The evolution of psychological concepts about the body. In Cash, T. F., & Pruzinsky, T. (Eds), Body Image: Development, Deviance and Change, Guilford Press, New York.

Foster, S.F., Slade, P., & Wilson, K. (1996). Body image, maternal fetal attachment, and breast feeding. Journal of Psychosomatic Research, 41(2), 181-184.

Fox, P., & Yamaguchi, C. (1997). Body image in pregnancy: A comparison of normal weight and overweight primigravidas. Birth, 24(1), 35-40.

Franko, D. L., & Walton, B. E. (1993). Pregnancy and eating disorders: A review and clinical implications. International Journal of Eating Disorders, 13(1), 41-48.

French, S. A., & Jeffery, R. W. (1997). Current dieting, weight loss history, and weight suppression: Behavioural correlates of three dimensions of dieting. Addictive Behaviours, 22(1), 31-44.

Garfinkel, P. E., & Garner, D. M. (1982). Anorexia Nervosa: A Multidimensional Perspective, Brunner/Mazel, New York.

Garner, D. M. (1995). Defining socially and psychologically desirable body weights and the psychological consequences of weight loss and regain. In, Allison, D. B., & Pi-Sunyer, F. X. (Eds), Obesity Treatment: Establishing Goals, Improving Outcomes, and Reviewing the Research Agenda, Plenum Press, New York.

Garner, D. M., & Garfinkel, P. E. (1981). Body image in anorexia nervosa: Measurement, theory and clinical implications. International Journal of Psychiatry in Medicine, 11, 263-284.

Garner, D. M., Garfinkel, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. Psychological Reports, 47, 483-491.

Garner, D. M., Olmstead, M. A., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15-34.

Garner, D. M., Olmstead, M. A., Polivy, J., & Garfinkel, P. E. (1984). Comparison between weight preoccupied women and anorexia nervosa. Psychosomatic Medicine, 46, 255-266.

Gross, J., & Rosen, J. C. (1988). Bulimia in adolescents: Prevalence and psychosocial correlates. International Journal of Eating Disorders, 7, 51-61.

Harris, H. E., Ellison, G. T. H., Holliday, M., & Lucassen, E. (1997). The impact of pregnancy on the long-term weight gain of primiparous women in England. International Journal of Obesity, 21, 747-755.

Heatherton, T. F. (1993). Body dissatisfaction, self-focus, and dieting status among women. Psychology of Addictive Behaviours, 7(4), 225-231.

Heatherton, T. F., & Polivy, J. (1992). Chronic dieting and eating disorders: A spiral model. In, Crowther, J. H., Tennenbaum, D. L., Hobfoll, S. E., & Stephens, M. A. (Eds), The Etiology of Bulimia Nervosa: The Individual and Familial Context. Series in Applied Psychology: Social Issues and Questions, Hemisphere Publishing Corp, Washington.

Heatherton, T. F., Polivy, J., & Herman, C. D. (1989). Restraint and internal responsiveness: Effects of placebo manipulations of hunger state on eating. Journal of Abnormal Psychology, 98, 89-92.

Hoffmeyer, G. J., Marcos, E. F., & Butchart, A. M. (1990). Pregnant women's perceptions of themselves: A survey. Birth, 17(4), 205-206.

Institute of Medicine, (1990). Nutrition During Pregnancy. National Academy Press, Washington DC.

Jenkin, W., & Tiggemann, M. (1997). Psychological effects of weight retained after pregnancy. Women and Health, 25(1), 89-98.

Jessner, L., Weigert, E., & Foy, J. L. (1970). The development of parental attitudes during pregnancy. In, Anthony, E. J., & Benedek, T. (Eds), Parenthood: Its Psychology and Psychopathology, Little, Brown, Boston.

Keesey, R. E. (1995). A set-point model of body weight regulation. In, Brownell, K. D., & Fairburn, C. G. (Eds). Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Keeton, W. P., Cash, T. F., & Brown, T. A. (1990). Body image or boy images? Comparative multidimensional assessment among college students. Journal of Personality Assessment, 54, 213-230.

Lacey, J. H., & Smith, G. (1987). Bulimia nervosa: the impact of pregnancy on mother and baby. British Journal of Psychiatry, 150, 777-781.

Laessle, R. G., Tuschl, R. J., Kotthaus, B. C., & Pirke, K. (1989). A comparison of the three scales for the assessment of dietary restraint. Journal of Abnormal Psychology, 98, 504-507.

Lederman, S. A. (1993). The effect of pregnancy weight gain on later obesity. Obstetrics and Gynecology, 82, 148-155.

Lemberg, R., & Philips, J. (1989). The impact of pregnancy on anorexia nervosa and bulimia. International Journal of Eating Disorders, 8, 285-295.

Low, M. B. (1993). Women's body image: The nurse's role in promotion of self-acceptance. AWHONN's Clinical Issues, 4(2), 213-219.

Miller, T. M., Coffman, J. G., & Linke, R. A. (1980). Survey of body image, weight and diet of college students. Journal of the American Dietetic Association, 77, 561-566.

Moore, D. S. (1978). The body image in pregnancy. Journal of Nurse-Midwifery, 12(4), 17-27.

Moore, B. J., & Greenwood, M. R. C. (1995). Pregnancy and weight gain. In, Brownell, K. D., & Fairburn, C. G. Eds, Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Namir, S., Melman, K. N., & Yager, J. (1986). Pregnancy in restrictor-type anorexia nervosa: a study of six women. International Journal of Eating Disorders, 5, 837-845.

Nasser, M. (1988). Culture and weight consciousness. Journal of Psychosomatic Research, 32, 573-577.

Nisbett, R. E. (1972). Eating behaviour and obesity in men and animals. Advances in Psychosomatic Medicine, 7, 173-193.

Ogden, J. (1992). Fat Chance: The myth of Dieting Explained. Routledge, London.

Ohlin, A., & Rossner, S. (1990). Maternal body weight development after pregnancy. International Journal of Obesity, 14, 159-173.

Polivy, J. (1976). Caloric perception and regulation of intake in restrained and unrestrained subjects. Addictive Behaviour, 1, 237-243.

Polivy, J., & Herman, C. P. (1995). Dieting and its relation to eating disorders. In, Brownell, K. D., & Fairburn, C. G., Eds, Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Polivy, J., Heatherton, T. F., & Herman, C. P. (1988). Self-esteem, restraint and eating behaviour. Journal of Abnormal Psychology, 97, 354-356.

Polivy, J., & Thomsen, L. (1988). Dieting and other eating disorders. In, Blechman, E. A., & Brownell, K. D. (Eds), Handbook of Behavioural Medicine for women, Pergamon Press, Oxford.

Price, B. (1996). Changing body image. Modern Midwife, 6(4), 12-15.

Reiff, W., & Reiff, K. K. L. (1992). Eating Disorders: Nutrition Therapy in the Recovery Process, Aspen Publishers, US.

Richardson, P. (1990). Women's experiences of body change during normal pregnancy. Maternal-Child Nursing Journal, 19(2), 93-111.

Rosen, J. C. (1990). Body-image disturbances in eating disorders. In, Cash, T. F., & Pruzinsky, T. (Eds), Body Image: Development, Deviance, and Change, Guilford Press, New York.

Rosen, J. C., & Gross, J. (1987). Prevalence of weight reducing and weight gaining in adolescent girls and boys. Health Psychology, 6, 131-147.

Rosen, J. C., Gross, J., & Vara, L. (1987). Psychological adjustment of adolescents attempting to lose or gain weight. Journal of Consulting and Clinical Psychology, 55, 742-747.

Rosenberg, M. (1989). Society and the Adolescent Self-Image (Revised Ed), Wesleyan University Press.

Ruderman, A. J., & Grace, P. S. (1988). Bulimics and restrained eaters: A personality comparison. Addictive Behaviours, 13, 359-367.

Ruff, G. A., & Barrios, B. A. (1986). Realistic assessment of body image. Behavioural Assessment, 8, 237-252.

Shane, R., & Linn, M. W. (1977). The pregnant couple. International Journal of Obstetrics and Gynecology, 15, 231-234.

Slade, P. D., & Russell, G. F. M. (1973). Awareness of body dimensions in anorexia nervosa: Cross-sectional and longitudinal studies. Psychological Medicine, 3, 188-199.

Slade, P. D. (1977). Awareness of body dimensions during pregnancy: an analogue study. Psychological Medicine, 7, 245-252.

Sobal, J. (1995). Social influences on body weight. In, Brownell, K. D., & Fairburn, C. G. (Eds), Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Stevens-Simon, C., Nakashima, I. I., & Andrews, D. (1993). Weight gain attitudes among pregnant adolescents. Journal of Adolescent Health, 14, 369-372.

Stewart, D., Raskin, J., Garfinkel, P.E., McDonald, O., & Robinson, G. E. (1987). Anorexia Nervosa, bulimia, and pregnancy. American Journal of Obstetrics and Gynecology, 157, 1194-1198.

Strang, V. R., & Sullivan, P. L. (1985). Body image attitudes during pregnancy and the postpartum period. Journal of Obstetrics, Gynecological and Neonatal Nursing, 14, 332-336.

Stunkard, A., & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. Journal of Psychosomatic Research, 29(1), 71-83.

Taylor, M. J., & Cooper, P. J. (1986). Body size overestimation and depressed mood. British Journal of Clinical Psychology, 25, 153-154.

Thompson, J. K., Penner, L. A., & Altrabe, M. N. (1990). Procedures, problems and progress in the assessment of body images. In, Cash, T. F., & Pruzinsky, T. (Eds), Body Image: Development, Deviance, and Change, Guilford Press, New York.

Thompson, J. K., & Thompson, C. M. (1986). Body size distortion and self-esteem in asymptomatic, normal weight males and females. International Journal of Eating Disorders, 5, 1061-1068.

Wiles, R. (1994). 'I'm not fat, I'm pregnant': The impact of pregnancy on fat women's body image. In, Wilkinson, S., Kitzinger, C. (Eds), Women and Health: Feminist Perspectives, Taylor and Francis, London.

Wilfrey, D. E., & Rodin, J. (1995). Cultural influences on eating disorders. In Brownell, K. D., & Fairburn, C. G. (Eds), Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Wilson, G. T. (1995). The controversy over dieting. In, Brownell, K. D., & Fairburn, C. G. (Eds), Eating Disorders and Obesity: A Comprehensive Handbook, Guilford Press, New York.

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. Acta Psychiatrica Scandinavica, 67, 361-370.

APPENDICES

APPENDIX A: Ethical approval for study granted by Riverside Ethics Committee.

APPENDIX B: Information sheet.

APPENDIX C: Consent form.

APPENDIX D: Questionnaire administered at 20 weeks into pregnancy.

APPENDIX E: Follow-up questionnaire administered at 34 weeks into pregnancy.

APPENDIX A

RIVERSIDE RESEARCH ETHICS COMMITTEE

Pharmacy Offices Lower Ground Floor
CHELSEA & WESTMINSTER HOSPITAL
369 Fulham Road London SW10 9NH
Tel: 0181-846 6855 Fax: 0181-846 6860

Miss Karen Gough,
Clinical Psychologist in Training,
University College London,
3 The Beeches,
193 Boston Road,
Hanwell,
London,
W7 2JU

Your Ref: KG/--
My Ref: JNH-W/jnh

18th July 1997

Dear Miss Gough,

Eating Habits & Body Image In Pregnant Women's Research Project.

(Ethics submission No: 1383).

Thank you for the Submission of the 25th March 1997 with the Questionnaires, Information Sheet and Consent Form.

Those latter documents need to have the date at their head lest any changes are made in the light of experience.

I have your letter of the 18th June with the modified Questionnaires and your comments on the points I raised following the original Submission.

I appreciate you have reduced the number of questions and that you will be on hand at the clinics to assist in their answering; please remove any "Americanisms" that you can and can you not modify references to Partner to read Husband/Partner?

You must make it clear that the survey is voluntary and no duress must be used to obtain Informed/Consent. Please emphasise that all information given is confidential.

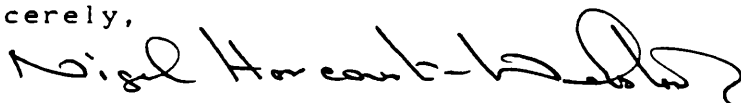
Following the modifications the study is approved and the formal Letter of Approval with such provisos as apply will follow in a few days.

There are a number of postal disputes around so any delay is down to them.

If any difficulties do arise please let me know a.s.a.p.

With kind regards.

Yours sincerely,



J.N. HARCOURT-WEBSTER, MD, FRCPath.

APPENDIX B
INFORMATION SHEET

Project : Eating habits and body image in pregnant women.

Investigator : Miss Karen Gough.
Clinical Psychologist in training.
Dept of Clinical & Health Psychology,
University College London.

Date : August 1997

This project is concerned with the eating habits and body image of women during pregnancy. Specifically, it will be examining the relationship between these issues and previous patterns of eating prior to pregnancy.

The project will also be seeking information on changes in eating habits and body image across the pregnancy, and whether a number of variables have an effect on eating habits and body image during pregnancy.

Women taking part in this study will be asked to complete a set of questionnaires twice:

1. At approximately 4 months pregnant.
Questionnaires will be completed at the scanning or antenatal clinic, with the researcher present to answer any questions.
2. At approximately 8 months pregnant.
Questionnaires will be sent to participants and returned to the investigator via the post.

This project is **not** connected to the antenatal care received by women attending this clinic. No information given on the questionnaires will be passed onto doctors or midwives, nor will the investigator obtain any further information about participants from the clinic.

All information given will be **strictly confidential**. It is necessary for participants to give their names and addresses in order that follow-up data (at 8 months into the pregnancy) can be collected. However, data will be stored on computer with the use of a coded format, and after the follow-up data has been received all forms of identification (ie. names / addresses) will be removed and destroyed. Participants will not be contacted again after the follow-up data has been requested.

Participants have the right to withdraw from the study at any point without giving reason.

Please ask the investigator any questions you have concerning this study.

It is necessary to sign a consent form before participating in this study.

APPENDIX C

CONSENT FORM

Project : Eating habits and body image in pregnant women.

Investigator : Miss Karen Gough.
Clinical Psychologist in training.
Dept of Clinical & Health Psychology,
University College London.

Date : August 1997

Do you understand that participation in this study is voluntary? YES NO

Have you read the information sheet? YES NO

Have you had the opportunity to ask questions and discuss this study? YES NO

Have you received satisfactory answers to all your questions? YES NO

Have you received enough information about the study? YES NO

Who have you spoken to (write name)?

Do you understand that you are free to withdraw from this study at any time without giving reason? YES NO

Do you understand that this study is not connected to the antenatal care you receive? YES NO

Do you agree to take part? YES NO

NAME IN BLOCK LETTERS.....

Signed..... Date.....

APPENDIX D

SECTION ONE

This section is concerned with your eating patterns in the 12 months prior to pregnancy. Please read the following questions and respond to them in terms of your behaviour in the **12 months before you became pregnant**.

- | | | Please circle | |
|---|---|---------------|---|
| 1 | I deliberately took small helpings as a means of controlling my weight. | T | F |
| 2 | I had a pretty good idea of the number of calories in common food. | T | F |
| 3 | I enjoyed eating too much to spoil it by counting calories or worrying about my weight. | T | F |
| 4 | I ate anything I wanted, any time I wanted. | T | F |
| 5 | I counted calories as a conscious way of controlling my weight. | T | F |
| 6 | I did not eat some foods because they made me fat. | T | F |
| 7 | I paid a great deal of attention to the changes in my figure. | T | F |

Please answer the following questions by putting an x in the box under the response that is appropriate to your behaviour in the **12 months prior to your pregnancy**.

- 8 How often did you diet in a conscious effort to control your weight?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| rarely | sometimes | usually | always |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 9 Would a weight fluctuation of 5 lbs have affected the way you lived your life?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| not at all | slightly | moderately | very much |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 10 How likely were you to shop for low calorie foods?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| unlikely | slightly unlikely | moderately likely | very likely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 11 How likely were you to consciously eat less than you want?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| unlikely | slightly unlikely | moderately likely | very likely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- 12 Did you go on eating binges though you were not hungry?
- never rarely sometimes at least once a week
-

- 13 On a scale of 0 to 5, where 0 means no restraint in eating, and 5 means total restraint , what number would you have given yourself?

- 0 Ate whatever you wanted, whenever you wanted it.
 1 Usually ate whatever you wanted, whenever you wanted it.
 2 Often ate whatever you wanted, whenever you wanted it.
 3 Often limited food intake, but often 'gave in'.
 4 Usually limited food intake, but rarely 'gave in'.
 5 Constantly limited food intake, never 'gave in'.

- 14 In the 12 months prior to becoming pregnant, were you on a diet at any stage?
- Yes No

These questions are concerned with how you felt about your body in the **12 months prior to pregnancy**. Please read each statement and place an x under the column which best applies to **how you felt in the 12 months before becoming pregnant**.

		always	usually	often	some times	rarely	never
1	I thought that my stomach is too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	I thought that my thighs are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I thought that my stomach is just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I felt satisfied with the shape of my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I liked the shape of my buttocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I thought my hips are too big	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	I thought my thighs are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	I thought my buttocks are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	I thought that my hips are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION TWO

These questions are concerned with how you think and feel about yourself **at the moment**. Please read each question and place an x under the column which best applies to you **now**.

		always	usually	often	some times	rarely	never
1	I eat sweets & carbohydrates without feeling nervous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2	I think about dieting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I feel extremely guilty after over-eating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I am terrified of gaining weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I exaggerate or magnify the importance of weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I am preoccupied with the desire to be thinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	If I gain a pound, I worry that I will keep gaining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	I think that my stomach is too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	I think that my thighs are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	I think that my stomach is just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	I feel satisfied with the shape of my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	I like the shape of my buttocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	I think my hips are too big	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	I think my thighs are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	I think my buttocks are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	I think that my hips are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION THREE

This section is concerned with **current eating patterns**. Please read each statement and circle the response that is appropriate to your thoughts and behaviour at the moment.

1	I deliberately take small helpings as a means of controlling my weight.	T	F
2	I usually eat too much at social occasions, like picnics and parties.	T	F
3	I am usually so hungry that I eat more than three times a day.	T	F
4	Sometimes things just taste so good that I keep on eating even when I am no longer hungry.	T	F
5	When I feel anxious, I find myself eating.	T	F
6	Life is too short to worry about dieting.	T	F
7	I often feel so hungry that I have to eat something.	T	F
8	When I am with someone who is overeating, I usually overeat too.	T	F
9	Sometimes when I start eating, I just can't seem to stop.	T	F

- | | | | |
|----|--|---|---|
| 10 | It's not difficult for me to leave something on my plate. | T | F |
| 11 | Being with someone who is eating often makes me hungry enough to eat also. | T | F |
| 12 | When I feel sad I often overeat. | T | F |
| 13 | I enjoy eating too much to spoil it by counting calories or watching my weight. | T | F |
| 14 | I often stop eating when I am not really full as a conscious means of limiting the amount I eat. | T | F |
| 15 | I get so hungry that my stomach often seems like a bottomless pit. | T | F |
| 16 | I am always hungry so it's hard for me to stop eating before I finish the food on my plate. | T | F |
| 17 | When I feel lonely, I console myself by eating. | T | F |
| 18 | I consciously hold back at meals in order not to gain weight. | T | F |
| 19 | I sometimes get very hungry late in the evening or at night. | T | F |
| 20 | I eat anything I want, anytime I want. | T | F |
| 21 | I count calories as a conscious means of controlling my weight. | T | F |
| 22 | I do not eat some foods because they make me fat. | T | F |
| 23 | I am always hungry enough to eat at any time. | T | F |

Please answer the following questions by putting an x in the box under the response that is appropriate to you.

24 How often are you dieting in a conscious effort to control your weight?

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| rarely | sometimes | usually | always |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

25 How often do you feel hungry?

- | | | | |
|--------------------------|------------------------------|--------------------------|--------------------------|
| only at meal times | sometimes between meal times | often between meal times | almost always |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

26 How difficult would it be for you to stop eating half way through dinner and not to eat for the next four hours?

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| easy | slightly difficult | moderately difficult | very difficult |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

27 How conscious are you of what you are eating?

not at all	slightly	moderately	extremely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28 How likely are you to shop for low calorie foods?

unlikely	slightly unlikely	moderately likely	very likely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29 Do you eat sensibly in front of others and splurge alone?

never	rarely	often	always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30 How likely are you to consciously eat slowly in order to cut down on how much you eat?

unlikely	slightly likely	moderately likely	very likely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31 How likely are you to consciously eat less than you want?

unlikely	slightly likely	moderately likely	very likely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32 Do you go on eating binges though you are not hungry?

never	rarely	sometimes	at least once a week
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33 On a scale of 0 - 5, where 0 means no restraint in eating, and 5 means total restraint, what number would you give yourself.?

- 0 Eat whatever you want, whenever you want it
- 1 Usually eat whatever you want, whenever you want it
- 2 Often eat whatever you want, whenever you want it
- 3 Often limit food intake, but often 'give in'
- 4 Usually limit food intake, rarely 'give in'
- 5 Constantly limiting food intake, never 'giving in'

SECTION FOUR

1 Please rate how satisfied/dissatisfied **you** are with the changes that have occurred in your **weight** since becoming pregnant:

very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 Please rate how satisfied/dissatisfied **you think your husband / partner** is with the changes that have occurred in **your weight** since you became pregnant:

very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Please rate how satisfied/dissatisfied **you** are with the changes that have taken place in the following **body parts** since becoming pregnant:

	very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied	not applicable
Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hips/Thighs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 Please rate how satisfied/dissatisfied **you think your husband / partner** is with the changes that have taken place in the **following parts of your body** since you became pregnant :

	very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied	not applicable
Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hips/Thighs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION FIVE

1 a) Do you think that you will have to diet and/or exercise to regain your pre- pregnancy figure?.

Yes No

b) How long do you expect it to take to regain your pre-pregnancy figure?.

- 1 month 3 months 6 months
7 - 12 months more than 1 year never

c) Do you expect to return to your pre-pregnancy weight?

- Yes No

d) If no, how much heavier do you expect to be?lbs

2 a) By this stage of the pregnancy, how much weight had you expected to gain?

- Gained much more weight than you expected
Gained more weight than you expected
Gained the weight you had expected
Gained less weight than you had expected
Gained much less than you had expected

b) How much weight do you expect to gain over the entire pregnancy ?

..... lbs

c) Has your GP/midwife told you how much weight you ought to gain over the entire pregnancy?

- Yes lbs No

3 On a scale of 0 - 5 how concerned have you been over the safety of your baby during pregnancy? (Please circle)

1 2 3 4 5

not very
concerned

very concerned

SECTION SIX

These questions are concerned with smoking behaviour.

Are you a smoker? Yes No

If yes, have you continued to smoke during pregnancy?

- Yes No Not Applicable

SECTION SEVEN

Please tick the statement that corresponds most closely to how you feel about yourself.

1 I feel that I am a person of worth,
at least on an equal plane with others.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

2 I feel that I have a number of
good qualities.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3 All in all, I am inclined to feel that I
am a failure.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

4 I am able to do things as well
as most people.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5 I feel I do not have much to be proud of.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

6 I take a positive attitude
towards myself.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

7 On the whole, I am satisfied with myself.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

8 I wish I could have more
respect for myself.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

9 I certainly feel useless at times.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

10 At times I think I am no good
at all.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

SECTION EIGHT

1. What is your height?feet.....inches
2. What was your **weight before you became pregnant**?stone.....pounds
3. What is your **current weight**?stone.....pounds
4. How far into your pregnancy are you?weeks

SECTION NINE

These questions are concerned with how you have been **feeling at the moment**. Read each statement and put a tick in the box opposite the reply that comes closest to how you have been **feeling in the past week**.

I feel tensed or 'wound up:

- Most of the time
- A lot of the time
- Time to time
- Not at all

I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

I still enjoy the things I used to:

- Definitely as much
- Not quite so much
- Only a little
- Hardly at all

I get a sort of frightened feeling like butterflies in my stomach:

- Not at all
- Occasionally
- Quite often
- Very often

I get a sort of frightened feeling as if something awful is about to happen:

- Very definitely & Quite badly
- Yes, but not too badly
- A little but it does not worry me
- Not at all

I have lost interest in my appearance:

- Definitely
- I don't take so much care as I should
- I may not take quite so much care
- I take just as much care

I can laugh & see the funny side of things:

- As much as I always could
- Not quite so much now
- Definitely not as much now
- Not at all

I feel restless as if I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

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

I look forward with enjoyment to things:

- As much as I ever did
- Rather less than I use to
- Definitely less than I use to
- Hardly at all

I feel cheerful:

- Not at all
- Not often
- Sometimes
- Most of the time

I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

I can sit & feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

I can enjoy a good book or radio/TV programme:

- Often
- Sometimes
- Not often
- Very seldom

SECTION TEN

1. What is your age?years

2. What is your occupation?
 What is your partner's occupation?

3. Do you : Own your own home Rent your home

4. What is your ethnic background?
 White Black
 Asian Other
 Do not wish to answer

5. Are you :
 Married Cohabiting
 In a relationship/
 not living together Not in a relationship

6. How many children do you have ?
 0 1 2
 3 4+

7. Have you had any medical complications over the course of your pregnancy?
 Yes No
 If yes, please describe :

8. How much weight did you gain in previous pregnancies? Not applicable

1st pregnancy lbs
 Did you return to your pre-pregnancy weight? Yes No
 If not, how much heavier were you?lbs
 Did you breastfeed following this pregnancy? Yes No

2nd pregnancy lbs
 Did you return to your pre-pregnancy weight? Yes No
 If not, how much heavier were you?lbs
 Did you breastfeed following this pregnancy? Yes No

If you are happy for me to do so, I would like to contact you in approximately 3-4 months to find out how you are feeling then.

Name

Address

.....

.....

Telephone

.....

Thank you very much for completing this questionnaire. Your co-operation in the next stage would be greatly appreciated.

APPENDIX E

SECTION ONE

These questions are concerned with how you think and feel about yourself **at the moment**. Please read each question and place an x under the column which best applies to you **now**.

always usually often some rarely never
times

1	I eat sweets & carbohydrates without feeling nervous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	I think about dieting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I feel extremely guilty after over-eating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I am terrified of gaining weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I exaggerate or magnify the importance of weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I am preoccupied with the desire to be thinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	If I gain a pound, I worry that I will keep gaining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	I think that my stomach is too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	I think that my thighs are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	I think that my stomach is just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	I feel satisfied with the shape of my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	I like the shape of my buttocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	I think my hips are too big	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	I think my thighs are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	I think my buttocks are too large	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	I think that my hips are just the right size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION TWO

This section is concerned with **current eating patterns**. Please read each statement and circle the response that is appropriate to your thoughts and behaviour at the moment.

1	I deliberately take small helpings as a means of controlling my weight.	T	F
2	I usually eat too much at social occasions, like picnics and parties.	T	F
3	I am usually so hungry that I eat more than three times a day.	T	F
4	Sometimes things just taste so good that I keep on eating even when I am no longer hungry.	T	F

5	When I feel anxious, I find myself eating.	T	F
6	Life is too short to worry about dieting.	T	F
7	I often feel so hungry that I have to eat something.	T	F
8	When I am with someone who is overeating, I usually overeat too.	T	F
9	Sometimes when I start eating, I just can't seem to stop.	T	F
10	It's not difficult for me to leave something on my plate.	T	F
11	Being with someone who is eating often makes me hungry enough to eat also.	T	F
12	When I feel sad I often overeat.	T	F
13	I enjoy eating too much to spoil it by counting calories or watching my weight.	T	F
14	I often stop eating when I am not really full as a conscious means of limiting the amount I eat.	T	F
15	I get so hungry that my stomach often seems like a bottomless pit.	T	F
16	I am always hungry so it's hard for me to stop eating before I finish the food on my plate.	T	F
17	When I feel lonely, I console myself by eating.	T	F
18	I consciously hold back at meals in order not to gain weight.	T	F
19	I sometimes get very hungry late in the evening or at night.	T	F
20	I eat anything I want, anytime I want.	T	F
21	I count calories as a conscious means of controlling my weight.	T	F
22	I do not eat some foods because they make me fat.	T	F
23	I am always hungry enough to eat at any time.	T	F

Please answer the following questions by putting an x in the box under the response that is appropriate to you.

24	How often are you dieting in a conscious effort to control your weight?				
	rarely	sometimes	usually	always	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- 25 How often do you feel hungry?
- | | | | |
|--------------------------|------------------------------|--------------------------|--------------------------|
| only at meal times | sometimes between meal times | often between meal times | almost always |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 26 How difficult would it be for you to stop eating half way through dinner and not to eat for the next four hours?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| easy | slightly difficult | moderately difficult | very difficult |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 27 How conscious are you of what you are eating?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| not at all | slightly | moderately | extremely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 28 How likely are you to shop for low calorie foods?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| unlikely | slightly unlikely | moderately likely | very likely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 29 Do you eat sensibly in front of others and splurge alone?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| never | rarely | often | always |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 30 How likely are you to consciously eat slowly in order to cut down on how much you eat?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| unlikely | slightly likely | moderately likely | very likely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 31 How likely are you to consciously eat less than you want?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| unlikely | slightly likely | moderately likely | very likely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 32 Do you go on eating binges though you are not hungry?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| never | rarely | sometimes | at least once a week |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

33 On a scale of 0 - 5, where 0 means no restraint in eating, and 5 means total restraint, what number would you give yourself.?

- 0 Eat whatever you want, whenever you want it
- 1 Usually eat whatever you want, whenever you want it
- 2 Often eat whatever you want, whenever you want it
- 3 Often limit food intake, but often 'give in'
- 4 Usually limit food intake, rarely 'give in'
- 5 Constantly limiting food intake, never 'giving in'

SECTION THREE

1 Please rate how satisfied/dissatisfied **you** are with the changes that have occurred in your **weight** since becoming pregnant:

very satisfied	satisfied	neither satisfied/dissatisfied	dissatisfied	very dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 Please rate how satisfied/dissatisfied **you think your husband / partner** is with the changes that have occurred in **your weight** since you became pregnant:

very satisfied	satisfied	neither satisfied/dissatisfied	dissatisfied	very dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Please rate how satisfied/dissatisfied **you** are with the changes that have taken place in the following **body parts** since becoming pregnant:

	very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied	not applicable
Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hips/Thighs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 Please rate how satisfied/dissatisfied **you think your husband / partner** is with the changes that have taken place in the **following parts of your body** since you became pregnant :

	very satisfied	satisfied	neither satisfied/ dissatisfied	dissatisfied	very dissatisfied	not applicable
Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hips/Thighs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION FOUR

- 1 a) Do you think that you will have to diet and/or exercise to regain your pre- pregnancy figure?.
- Yes No
- b) How long do you expect it to take to regain your pre-pregnancy figure?.
- 1 month 3 months 6 months
- 7 - 12 months more than 1 year never
- c) Do you expect to return to your pre-pregnancy weight?
- Yes No
- d) If no, how much heavier do you expect to be?lbs
- 2 a) By this stage of the pregnancy, how much weight had you expected to gain?
- Gained much more weight than you expected
- Gained more weight than you expected
- Gained the weight you had expected
- Gained less weight than you had expected
- Gained much less than you had expected
- b) How much weight do you expect to gain over the entire pregnancy ?
- lbs
- 3 On a scale of 0 - 5 how concerned have you been over the safety of your baby during pregnancy? (Please circle)
- 1 2 3 4 5
- not very concerned very concerned

SECTION FIVE

1. What is your height?feet.....inches
2. What was your weight before you became pregnant?stone.....pounds
3. What is your current weight?stone.....pounds
4. How far into your pregnancy are you?weeks

SECTION SIX

Please tick the statement that corresponds most closely to how you feel about yourself.

1 I feel that I am a person of worth, at least on an equal plane with others.

Strongly agree
Agree
Disagree
Strongly disagree

2 I feel that I have a number of good qualities.

Strongly agree
Agree
Disagree
Strongly disagree

3 All in all, I am inclined to feel that I am a failure.

Strongly agree
Agree
Disagree
Strongly disagree

4 I am able to do things as well as most people.

Strongly agree
Agree
Disagree
Strongly disagree

5 I feel I do not have much to be proud of.

Strongly agree
Agree
Disagree
Disagree

6 I take a positive attitude towards myself.

Strongly agree
Agree
Disagree
Disagree

7 On the whole, I am satisfied with myself.

Strongly agree
Agree
Disagree
Strongly disagree

8 I wish I could have more respect for myself.

Strongly agree
Agree
Disagree
Strongly disagree

9 I certainly feel useless at times.

Strongly agree
Agree
Disagree
Strongly disagree

10 At times I think I am no good at all.

Strongly agree
Agree
Disagree
Strongly disagree

SECTION SEVEN

These questions are concerned with how you have been **feeling at the moment**. Read each statement and put a tick in the box opposite the reply that comes closest to how you have been **feeling in the past week**.

I feel tensed or 'wound up':

- Most of the time
- A lot of the time
- Time to time
- Not at all

I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

I still enjoy the things I used to:

- Definitely as much
- Not quite so much
- Only a little
- Hardly at all

I get a sort of frightened feeling like butterflies in my stomach:

- Not at all
- Occasionally
- Quite often
- Very often

I get a sort of frightened feeling as if something awful is about to happen:

- Very definitely & Quite badly
- Yes, but not too badly
- A little but it does not worry me
- Not at all

I have lost interest in my appearance:

- Definitely
- I don't take so much care as I should
- I may not take quite so much care
- I take just as much care

I can laugh & see the funny side of things:

- As much as I always could
- Not quite so much now
- Definitely not as much now
- Not at all

I feel restless as if I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

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

I look forward with enjoyment to things:

- As much as I ever did
- Rather less than I use to
- Definitely less than I use to
- Hardly at all

I feel cheerful:

- Not at all
- Not often
- Sometimes
- Most of the time

I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

I can sit & feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

I can enjoy a good book or radio/TV programme:

- Often
- Sometimes
- Not often
- Very seldom