A comparison of an Internet-based and Face-to-Face group intervention to modify body dissatisfaction and disturbed eating in young women

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Abstract

Objective: This study compared the effectiveness of a new manual-based group intervention program, The Body Image and Eating Behaviour Program, for women with sub-clinical body dissatisfaction and disturbed eating behaviours, using two delivery modes: a traditional Face-to-Face group intervention and an Internet-based intervention with interactive on-line group sessions in synchronous time. The program was conducted weekly over an 8-session period. Predictors of a good treatment outcome for the intervention program were examined with both delivery modes combined. Methods: Participants (18-30 year old women) were recruited by advertisements on Melbourne university campuses and at community health agencies. They were randomly assigned to group (Face-to-Face group n = 19, Internet-based group n = 21). Body dissatisfaction, disturbed eating behaviours, psychological status, and stage of change were assessed using standardized instruments prior to and immediately after the intervention, and at two months follow-up. Results: A 2 (group) X 3 (testing occasions) within subjects repeated measures analysis of variance was used to examine time and between group differences. Significant improvements on all clinical outcome variables were observed at post-test and maintained at follow-up in both groups. However, there were no significant between group differences. Hierarchical multiple regression analyses were used to examine predictors of treatment outcome at follow-up. Milder depression scores predicted greater improvement in binge eating frequency while a greater improvement in bulimic pathology and self-esteem at follow-up was predicted by more severe body dissatisfaction scores. Stage of change before treatment was not a predictor of outcome. Qualitative research demonstrated that the Internet-based delivery mode was a less confronting way of seeking help and a convenient and supportive medium to disclose personal information. However, participants had more difficulty exploring deeper psychological issues in the Internet-based group and forming close bonds with each other due to the speed and flow of the discussion. Discussion: The treatment program was valuable in both delivery modes and was found to be very acceptable by participants. The Internet, with the potential to over-come obstacles of distance and provide a discrete mode of treatment delivery, showed promising results at improving body satisfaction and disturbed eating behaviours in young women. Findings demonstrated inconclusive evidence for predictors of a good treatment outcome.
Declaration

This is to certify that:

(i) the thesis comprises only my original work

(ii) due acknowledgement has been made in the text to all other material used,

(iii) the thesis is approximately 30,000 words in length, exclusive of tables, maps, bibliographies, appendices and footnotes.

Emma Kate Gollings

January 2003
Ethics Declaration

I, Emma Kate Gollings, declare that the research reported in this thesis was conducted in accordance with the principles for the ethical treatment of human participants as approved for this research by the University of Melbourne Human Research Ethics Committee.

........................................

Emma Kate Gollings

January 2003
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1 Introduction

1.1 Body Image and Eating Problems in Women

The current study evaluates a new group therapy intervention program, delivered in Face-to-Face and Internet-based modes, designed to reduce body dissatisfaction and related disturbed eating. These are serious and distressing problems in young adult women in Australia.

1.1.1 What are body dissatisfaction and disturbed eating behaviours?

Body image and body dissatisfaction are multi-dimensional phenomena. Body dissatisfaction is determined on a continuum of disturbance from satisfaction to dissatisfaction with one's body (Thompson, Heinberg, Altbe, & Tantleff-Dunn, 1999). Body image concern has been described in various ways: a fear of fatness, a desire to be thinner, weight concern, appearance dissatisfaction, a discrepancy between self and ideal body size, distorted size perception and body schema (Grigg, Bowman, & Redman, 1996; Patton et al., 1997; Paxton et al., 1991; Williamson, Gleaves, Watkins, & Schlundt, 1993).

Body dissatisfaction can incorporate affective, cognitive, behavioural, or perceptual features. A cognitive disturbance is present when there are preoccupied and often irrational thoughts about shape and weight. Body dissatisfied women frequently worry about weight gain, and many desire to be thin. Perceptual features include an overestimation of one's body size. Behavioural features include avoidance of certain social situations that may elicit further body image evaluation. Affective features of body dissatisfaction may include distress and anxiety experienced in relation to one's perceived body shape and weight (Thompson et al., 1999).

More formal definitions can contribute further to the understanding of body dissatisfaction. Thompson (1992) introduced the concept of body image disorder as a proposal for a Diagnostic and Statistical Manual, Fourth Edition (DSM-IV: American Psychiatric Association, 1994) category. Body image disorder was defined as a persistent report of dissatisfaction, concern, and distress related to an aspect of physical appearance that is associated with some degree of impairment in social relations, social activities, and/or occupational functioning. The body image criterion for bulimia nervosa in the DSM-IV posits that self-evaluation is unduly influenced by body shape or weight.
In an attempt to control body weight, disturbed eating behaviours often develop. These behaviours can include, extreme dieting, the use of extreme weight loss behaviours (e.g. fasting, vomiting, laxative and/or diuretic abuse), excessive exercise, and binge eating (Fairburn & Garner, 1986). A binge is defined as eating in a discrete period of time (usually less than two hours) an amount of food that is definitely larger than most individuals would eat under similar circumstances, and is accompanied by a sense of lack of control. Disturbed eating behaviours often represent sub-clinical eating problems and have been found to be more common presentations among young women than a clinical eating disorder (Drewnowski, Yee, Kurth, & Krahn, 1994; Hesse-Biber, 1989; Schwitzer, Rodriguez, Thomas, & Salimi, 2001).

If eating behaviours become extremely disturbed, an eating disorder may be diagnosed according to DSM-IV (1994) criteria. These include, anorexia nervosa characterized by self-starvation and over-valued beliefs regarding the importance of thinness, and bulimia nervosa characterized by uncontrolled binge eating and compensatory behaviours (occurring at least twice weekly for three months), and over-valued beliefs about thinness. A diagnosis of Eating Disorder Not Otherwise Specified (EDNOS) may be made when extreme weight loss behaviours occur at a frequency of less than twice a week for a duration of less than three months (Schwitzer et al., 2001). As indicated above, sub-clinical manifestations of these problems are the foci of this research.

1.1.2 Why are body dissatisfaction and disturbed eating problems?

Research indicates that body dissatisfaction and disturbed eating behaviours are frequently already well established in Australian adolescents and appear to continue in young adulthood and beyond (Rosenvinge, Borgen, & Borresen, 1999; Hay, 1998). Severe body dissatisfaction has been found to have a significantly negative impact on multiple factors in one’s life. An over concern with shape and weight often maintain disturbed eating behaviours and attitudes. There is substantial longitudinal evidence that a perceived sociocultural pressure to be thin, a thin-ideal internalisation, dissatisfaction with family cohesion, teasing, body image dissatisfaction, body mass, dieting, extreme weight control behaviours, low self-esteem, and negative affect are predictors of the development of eating pathology (Ackard, Croll, & Kearney-Cooke, 2002; Cash, 1990; Cattarlin & Thompson, 1994; Killen et al., 1994; Killen et al., 1996; Leon, Fulkerson, Perry, Keel, & Klump, 1999; Pike & Rodin, 1991; Stice & Agras, 1999; Stice, Killen, Hayward, & Taylor, 1998).
Extreme weight loss behaviours (e.g. extreme dieting) have also been found to be associated with mental health problems. Patton et al. (1997) demonstrated that 62% of extreme adolescent dieters reported high levels of depression and anxiety. The recent Australian Longitudinal Study of Women's Health found associations between high frequency dieting and earlier dieting onset, and poorer physical and mental health, more disordered eating, extreme weight and shape dissatisfaction, and frequently occurring general health problems (Kenardy et al., 2001). In normal weight college females, dieting behaviour and dieting frequency have been found to be associated with emotional distress and greater eating disorder symptomatology, regardless of an individuals body mass index (BMI) (Ackard et al., 2002). Furthermore, Stice & Agras (1999) suggested that a combination of dieting behaviour and negative affect might lead to greater bulimic pathology.

1.1.3 Prevalence of body dissatisfaction and disturbed eating behaviours

The prevalence of body dissatisfaction and disturbed eating is high in adolescent and adult women (Huon, 1994; Patton et al., 1997; Paxton et al., 1991; Rosenvinge, Borgen, & Borresen, 1999). A large random study of Australian school girls (aged 14-16 years) investigated the prevalence of body image concerns and eating behaviours in adolescent girls (Grigg et al., 1996). It was found that 12% reported a distorted body image, 33% had disordered eating, and 57% engaged in unhealthy dieting. In addition, 27% reported monthly binge eating, and 8% reported monthly vomiting. Approximately two-thirds of the total adolescent sample reported they were overweight, where only 16% actually confirmed this belief. Alarmingly, over one-third of adolescents had used at least one extreme weight loss behaviour over the last month, most commonly crash dieting (22%), fasting (21%), and smoking (12%) (Grigg et al., 1996). An Australian twin study found that one in three adult women reported using an extreme method of weight control at some stage in their life (Wade et al., 1996).

The high prevalence of body dissatisfaction in adolescence, continues into adulthood, particularly amongst women in Western societies. The Women's Health Australia (WHA) project found that approximately 74% of young women from a large sample of 13 003 respondents wanted to weigh less. Disturbingly, more than 25% of women who were in the underweight category reported wanting to weigh less. It was demonstrated that 66.5% of women (aged 18-23 years) were within a healthy weight range but only 21.6% were happy with their weight (Kenardy et al., 2001). Approximately 50% of women in this cohort had dieted to lose weight in the last year and 12.2% of this group had dieted five or more times within this 12 month period. The 21% of underweight women had also been dieting with the specific purpose of losing weight. These findings are consistent with studies in the United States (e.g. Serdula et al., 1993).
A recent Australian study assessed the prevalence of eating disorder behaviours in a community-based sample (age > 15 years) (Hay, 1998). It was found that 3.2% of respondents regularly engaged in episodes of binge eating, 1.6% used strict dieting or fasted, and 0.8% purged. There was an estimated prevalence of 2.5% of respondents with binge eating disorder, and 0.7% of respondents with bulimia nervosa (Hay, 1998). In addition, Wade et al. (1996) in their Australian twin study of a female sample aged between 28 and 90 years found that 1.8% of the group had suffered from bulimia nervosa. These findings are comparable to other community-based studies in France, Norway and the United Kingdom (Basdevant et al., 1995; Fairburn, Beglin, & Davies, 1993; Fairburn, Hay, & Welch, 1993; Neumark-Sztainer, Sherwood, French, & Jeffery, 1999; Rosenoving et al., 1999).

Body dissatisfaction and disturbed eating are frequently occurring problems amongst university aged women. The research evidence indicates body dissatisfaction can predispose and maintain eating disorders, depression, and poor self-esteem. Severe body dissatisfaction is extremely distressing for individuals and it can interfere with normal functioning. The need for effective body image interventions to help people improve body dissatisfaction and related psychological functioning is crucial.

1.2 Theoretical Frameworks for Understanding Body Dissatisfaction and Disturbed Eating

The current research involved evaluating a treatment intervention for women with severe body dissatisfaction and the frequent concomitants of extreme weight loss behaviours and binge eating. To develop an effective intervention program it was important to understand potential predisposing, precipitating, and maintaining factors for these problems. Hence, theoretical models addressing the onset and development of both body dissatisfaction and disturbed eating were addressed. Models examining disturbed eating behaviour have often focused on the development of an eating disorder, which is also helpful in understanding sub-clinical eating concerns.

Risk factors that have been proposed in existing models for the development of body image disturbance include biological, developmental, familial, sociocultural, and cognitive factors. Earlier theoretical models predominantly focused on individual factors (e.g. Fairburn, 1985), while more recent models have taken a more integrative perspective, incorporating sociocultural factors (Levine, Smolak, Moodey, Shuman, & Hessen, 1994; Stice, 1994; Striegel-Moore, 1996; Thompson et al., 1999). These models, in particular Stice’s (1994) dual-pathway model, have been used in the current study to provide a solid framework for the design of an intervention program for women with severe body dissatisfaction and related eating problems.
1.2.1 A Cognitive Model of Eating Problems

Many of the earlier theoretical models of the development of body image concerns and eating problems had an individual, psychological focus. Fairburn’s (1985) cognitive model of bulimia nervosa is a good example of this and forms the basis of cognitive behavioural therapy, now regarded as a first line of treatment for such eating problems (Griffiths & Channon-Little, 1996). Fairburn’s original model posits that low self-esteem and longstanding feelings of ineffectiveness and worthlessness can lead to the development of extreme weight and shape concerns, which may promote and maintain some people adopting unhealthy dietary practices, including restrictive eating. Dieting encourages and maintains binge eating but it can also occur in response to binge eating. The affect-regulation model provides an explanation of binge eating preceding dieting and this will be discussed in the following section. Continuing with Fairburn’s cognitive view of bulimia nervosa, there are often attempts to cope with binge eating or diet violations leading to some form of compensatory behaviour (e.g. self-induced vomiting, laxative and/or diuretic abuse, excessive exercise, or fasting). These concepts will now be reviewed in more detail.

One dominant theory, the Restraint Model, proposes binge eating occurs as a consequence of dietary restraint from psychological (cognitively regulated eating patterns, such as all or nothing thinking about food) and physiological mechanisms (previously ignored physiological pressures to eat) (Polivy & Herman, 1985). Dieting can increase the likelihood of subsequent binge eating by encouraging a cognitively regulated eating pattern. Prolonged dieting efforts are thought to result in cognitive changes (e.g. all or nothing thinking about food). If the diet is broken, the dieter may be vulnerable to disinhibition of situational or cognitive factors (e.g. thinking “I’ve blown it now, I may as well eat”). These cognitions and previously ignored physiological pressures to eat may lead to binge eating. Following a binge, attempts to cope with the feeling of “fullness” and “loss of control”, may lead to the development of compensatory behaviours. The compensatory behaviours can also encourage binge eating as it is often believed that these behaviours are effective at counteracting the effects of having a binge and hence there is no anxiety about gaining weight. Fairburn (1983) labels this sequence of events, the “binge-purge cycle”. A flow diagram of the cognitive model of bulimia nervosa can be seen in Figure 1.
Fairburn's (1985) cognitive model provides comprehensive information about the maintenance of eating problems, however it does not provide information about affect-regulation pathways to disturbed eating or about the etiology and development of weight and shape concerns. The integrated models, including individual and sociocultural factors, are able to provide more insight into the development of body dissatisfaction and disturbed eating behaviours. These models will now be discussed.

![Diagram of Fairburn's cognitive model](image)

*Figure 1. Fairburn's (1985) Cognitive view of the maintenance of bulimia nervosa.*


### 1.2.2 Dual-Pathway Model

More recently, research evidence has challenged the Restraint Model (Polivy & Herman, 1985) as the exclusive explanatory model of binge eating, and it has been suggested that binge eating can also precede strict dieting (Spitzer et al., 1993; Spurrell, Wilfley, Tanofsky, & Brownell, 1997). Stice (1994) developed a dual-pathway model to explain the pathway from body dissatisfaction to bulimia via dietary restraint and an affect-regulation mechanism. The dietary restraint pathway supported the cognitive view of bulimia (Fairburn, 1985) and the Restraint Model (Polivy & Herman, 1985) in that body dissatisfaction leads to dietary restraint, which increases the likelihood of binge eating and bulimia. Dietary restraint has also been associated with negative affect due to failed dieting efforts or caloric deprivation (Stice, Nemeroff, & Shaw, 1996).
In addition, the affect-regulation mechanism in Stice’s (1994) dual-pathway model suggests that body dissatisfaction leads to bulimia via negative affect. In the affect-regulation pathway, binge eating is seen as a coping response to provide comfort and reduce elevated negative affect. Several studies have offered support for the affect-regulation pathway. Studies reporting high correlations between negative affect and bulimic symptoms (Leor et al., 1993; Stice et al., 1996), have demonstrated binge eating to be associated with reduced depression (Steinberg, Tobin, & Johnson, 1990), and shown that negative affect and dietary restraint were predictors of bulimic symptomatology (Stice, Shaw, & Nemeroff, 1998).

The dual-pathway model of bulimia nervosa highlights some additional factors to target in an intervention program. This model is to be used alongside a cognitive-behavioral approach in the current study. Predominantly cognitive-behavioral interventions target dieting and attitudes about weight and shape which supports the theoretical dietary restraint pathway. The dual-pathway model has also illustrated the importance of targeting negative affect and developing alternate strategies for coping with emotional distress.

### 1.2.3 Sociocultural Theoretical Models

Sociocultural models purport that body dissatisfaction and eating problems are a product of the increasing societal pressures on women in Western cultures to achieve an ultra-slim body shape. They include feminist perspectives that argue that appearance is a central component of the female gender role, attractiveness is important for women’s societal success, and that these cultural attitudes increase the risk of body dissatisfaction and eating problems (Pilner, Chaiken, & Fleet, 1990; Stice, 1994; Striegel-Moore, Silberstein & Rodin, 1986).

Stice’s (1994) dual pathway model has been an influential sociocultural model to explain the pathway to bulimia. The model postulates that sociocultural pressures to have a thin body for femininity and success (transmitted by family, peers and media), influence the internalisation of the thin-ideal stereotype, body dissatisfaction, and dietary restraint. The impact of these factors are however moderated by individual characteristics of self-esteem and identity confusion. Body mass indices are also thought to contribute to sociocultural pressure and body image dissatisfaction, and the thin-ideal internalisation maintains the dissatisfaction. The final predictors of the model (restrained eating and negative affect) have already been presented. A flow diagram of Stice’s model can be viewed in Figure 2.
Figure 2. Stice's (1994) model of the sociocultural influences on the etiology of bulimia nervosa.
Other more recent integrative models have also explored the development of body dissatisfaction and disturbed eating behaviours. Huon & Strong (1998) proposed that different forms of social influence (e.g. modelling, competitiveness, conformity, and compliance) from family, peers, and the media are direct precursors to the development of dieting behaviour. It was also suggested that an individual with a lower sense of autonomy would be more vulnerable to social influence. Huon, Lim, Walton, Hayne, & Gunewardene (2000) contributed to this model, finding that individuals with low conformity and high interpersonal skills had reduced vulnerability to social influences. Furthermore, a low BMI and lower levels of body dissatisfaction were protective factors in the development of dieting behaviour, even if the individual did have predisposing characteristics (i.e. conformity and poor interpersonal skills).

Thompson et al. (1999) have developed two hypothetical integrative models to contribute to the understanding of body dissatisfaction. The first model postulated that different forms of social influence (e.g. parents, peers, and the media) can lead to social comparison and internalisation of the thin-ideal. It was suggested in the second model that global psychological functioning is a mediator of the effect of social influence on body comparison and internalisation of the thin-ideal.

These integrative sociocultural models have provided a framework, based on risk factor research, for the development of the intervention program in the current study. They have presented information about the nature and impact of risk factors leading to the development of body dissatisfaction and disturbed eating behaviours. In summary, these models have identified the following factors in the development of bulimia: sociocultural pressures to achieve the thin ideal and the relevant family, peer, and media influences of these pressures; social comparison and its influences; identification of dietary restraint and negative affect pathways to encourage the process of change; the thin ideal internalisation and dysfunctional beliefs about weight; and psychological aspects such as self-esteem and identity.

### 1.3 Evaluated Treatments for Body Image and Eating Problems

The intervention program in the current study consists of a combination of interventions that have been indicated to be valuable in modifying body dissatisfaction and disturbed eating behaviours in previous programs. The primary focus of the present *Body Image and Eating Behaviour Group Program* is a cognitive behavioural therapeutic approach facilitated with a program manual. Techniques used from other approaches include, motivational enhancement therapy, and interpersonal psychotherapy. In addition, social and cultural issues that influence eating problems in women are addressed in the intervention program.
1.3.1 Psycho-Educational Interventions

Many programs based on psycho-education have had only modest success in changing body image attitudes and eating behaviours. These studies have highlighted the inadequacy of providing information alone in an intervention program as it does not impact disordered eating or risk factors for eating disturbances (Carter, Stewart, Dunn, & Fairburn, 1997; Mann et al., 1997; Paxton, 1993). However, more recently, two psycho-educational programs have demonstrated their effectiveness in reducing body dissatisfaction and disturbed eating (Stice & Ragan, 2002; Winzelberg et al., 1998). These two programs differed from the others as they used intensive psycho-educational interventions in terms of the frequency of sessions and quantity of material presented.

Stice & Ragan (2002) developed an intensive psycho-educational intervention for college-aged women and evaluated it in a controlled trial. The intervention included psycho-educational information about eating disorders, consequences of these behaviours, risk factors for eating pathology, nutrition, and healthy weight control techniques. The intervention consisted of twice weekly sessions for 1.5 hours each session over a 15-week semester period. It was found that thin-ideal internalisation, body dissatisfaction, dieting, eating disorder symptoms and body mass decreased over a 4-month period. It was concluded that an intensive psycho-educational program was effective in reducing body image and eating disturbances among college students.

A computer-mediated psycho-educational program, “Student Bodies” has also recently found modest effects in improving body image and disordered eating attitudes and behaviours in college-aged women (Winzelberg et al., 1998). The intervention included a computer psycho-educational software program (on a CD-ROM) that focused on body dissatisfaction, excessive weight concerns, and dieting or restrained eating patterns. An email support group was provided to offer emotional support to participants and provide a place where reactions and thoughts to the content of the software package could be expressed. This study provided moderate support for delivering psycho-educational programs through a computer-mediated intervention.

Findings from the above two studies illustrate that a psycho-educational component is still worthwhile to include in an intervention program so long as it is intensive and targeted towards individuals with elevated body image and eating pathology scores.
1.3.2 Cognitive Behavioural Therapy

Cognitive behavioural therapy (CBT) for body dissatisfaction and disturbed eating problems is based on Fairburn's (1981) cognitive behavioural model of bulimia nervosa. The cognitive behavioural principles were originally developed by Beck (1979) for the management of depression. The aim of CBT for body image and bulimic symptoms is to examine and change cognitive and behavioural factors that contribute to the onset and maintenance of the problems. The main aspects of treatment have been to break the binge-purge cycle by developing a normal dietary intake, and to change overvalued and distorted attitudes towards shape and weight which often maintain the disorder. The final aspect of treatment is relapse prevention, where strategies are provided to facilitate maintenance of the changes following treatment. The most common cognitive behavioural tools used are cognitive restructuring of irrational thoughts about the importance of body weight and shape; self monitoring of eating patterns, relevant thoughts and behaviour; psycho-education about the disorder, its psychological and medical health risks, and the cognitive behavioural model; behavioural measures to control eating behaviour and establish a regular eating pattern; and relapse prevention techniques (including problem solving). These techniques are practiced in the therapeutic session and in homework activities which are a major component of CBT (Hawton, Salkovskis, Kirk, & Clark, 1999; Wilfley & Cohen, 1997).

A cognitive behavioural therapeutic approach has demonstrated effectiveness in improving body dissatisfaction in individuals not meeting diagnostic criteria for an eating disorder (Cash, 1996; Grant & Cash, 1995; Rosen et al., 1995). Earlier CBT body image programs focusing on maladaptive body image cognitions, behaviours, and perceptions, demonstrated efficacy over psycho-education and support interventions, various control conditions, reflective therapies, and perceptual size estimation training (Batters & Cash, 1987; Dworkin & Kerr, 1987; Rosen, Cado, Silberg, Srebnik, & Wendt, 1990; Rosen, Saltzberg, & Srebnik, 1989).

Cash's (1991) body image therapy program is a good example of a cognitive behavioural approach for the treatment of body image disturbance. It has been frequently used and evaluated (Cash & Lavallee, 1997; Grant & Cash, 1995). CBT components of this program include body image education and self-discoveries; relaxation strategies; body image exposure and desensitisation; identifying and challenging appearance assumptions; identifying and correcting cognitive errors; modifying self-defeating body image behaviours; body image enhancement activities; and relapse prevention and maintenance of changes.
Rosen (1996) examined the extent to which traditional CBT eating disorder programs assessed and treated body image. It was found that only one third of psychotherapy studies assessed and treated body image. Although standard CBT programs for bulimia nervosa that included body image treatment have shown to be helpful, only modest body image improvements have been demonstrated. Greater clinically significant body image changes have been found in the CBT programs that have focused exclusively on treating body image disturbance (e.g. Butters & Cash, 1987; Rosen, Orosan, & Reiter, 1995; Rosen et al., 1990; Rosen et al., 1989).

However, body image therapy programs alone are not sufficient for the current intervention, nor are traditional CBT programs for bulimia nervosa. The current intervention program requires a combined approach as it targets women who are experiencing severe body dissatisfaction and sub-clinical eating pathology (e.g. extreme weight loss behaviours and binge eating). Therefore, the program needs to include an in depth application of cognitive behavioural skills for both body dissatisfaction and eating problems.

The effectiveness of CBT for bulimia nervosa has been extensively studied and reported in a number of controlled clinical trials and found to be valuable (e.g. Agras, Schneider, Arnow, Raeburn, & Telch, 1989; Fairburn, Agras & Wilson, 1992; Fairburn et al, 1993; Hay & Bacaltchuk, 2000; Wilson & Fairburn, 1993). They demonstrate reductions in binge eating and use of compensatory behaviours. Dieting is reduced, mood improved and concerns about weight and shape become less intense (Cooper, 1995; Fairburn et al., 1995; Hay & Bacaltchuk, 2000; Whital, Agras, & Gould, 1999; Wilson & Fairburn, 1993). However, the percentage of patients who achieve full abstinence from the binge/purge behaviour is variable and often only includes a minority of patients (Agras et al; Fairburn et al.; Hay & Bacaltchuk; Whital et al.). Existing follow-up data are limited, although the studies that have examined subjects 1 to 6 years post intervention, have demonstrated maintenance of treatment gains. These findings have suggested that cognitive-behavioural therapy is the treatment of choice for bulimia nervosa (Craighead & Agras, 1991; Fairburn et al., 1995; Wilson & Fairburn, 1993). However, as will be discussed later, interpersonal psychotherapy has recently been compared to cognitive behavioural therapy and comparable results have been found (Fairburn et al., 1992).

The fact that the standard course for CBT treatment (e.g. 19 sessions over a 20-week period) does not seem to be necessary for all individuals has lead to the development of different modes of treatment delivery, such as group, individual, self-help and guided self-directed formats. Different modes of delivery have the potential of improving availability and providing more cost effective service delivery. Grant & Cash (1995) evaluated Cash’s (1991) CBT body image therapy program in two different delivery modes - group therapy versus an
individual self-directed format with modest therapist contact. No significant differences between groups in therapeutic outcomes were found. Positive improvements were found and maintained at two-month follow-up on body image evaluation and satisfaction and reductions in negative body image affect across different situations. Cash & Lavallee (1997) compared Grant and Cash’s data using Cash’s (1995) CBT self-help book administered with minimal professional contact. This study found equivalent treatment outcomes where significant improvements were found in body image and adjustment, without changes in body weight. These studies provided support for the treatment of body dissatisfaction in group and self-directed forms.

More recently, there has been growing evidence suggesting that CBT can be effectively administered using manual-based guided or unguided self-help techniques for eating disorders (Cooper, Coker, & Fleming, 1994; Huon & Brown, 1988; Schmidt, Tiller, & Treasure, 1993; Thiel, Schmidt, Troop, Treasure, & Garthe, 1998; Treasure et al., 1994; Tuschen-Caffier, Pook, & Frank, 2001). Although there is not yet sufficient evidence to recommend self-help programs as a primary treatment strategy, they do provide treatment to patients who may otherwise be unable to access adequate psychological care.

In the current study, CBT provides the foundation of the intervention with the view that unhealthy eating behaviours are maintained due to overvalued ideas about the importance of body shape and weight. The primary CBT approach aimed to treat body dissatisfaction by changing attitudes and cognitive distortions to shape and weight. In addition to this, associated weight loss behaviours were treated. Interpersonal and social issues are also pertinent in the lives of individuals with body image and eating problems. To provide a framework within which to examine interpersonal concerns, techniques from interpersonal psychotherapy (IPT) were included in the program.

1.3.3 Interpersonal Psychotherapy

Interpersonal psychotherapy was originally developed as a time-limited treatment for depressed patients with an overall goal of helping individuals identify and modify current social and interpersonal problems (Klerman, Weissman, Rounsaville, & Chevron, 1984). Fairburn, Jones, Peveler, O'Connor, & Hope (1991) and Wilfley et al. (1993, 2002) have more recently adapted the IPT model for eating disorders. IPT has never been trialed for isolated body dissatisfaction problems. The IPT model of binge eating is based on the assumption that interpersonal problems can lead to low self-esteem and negative mood, and thus to a desire to binge eat. In essence, the model posits that by improving current social roles and adapting to interpersonal situations, changes will result in self-esteem and positive mood, and binge eating
frequency will reduce. The rationale of this model suggests that individuals with binge eating disorders may often have a number of interpersonal problems, including grief, difficulties with role expectations, confusion regarding needs for closeness and distance, and/or interpersonal deficits in social problem solving. Treatment strategies focus on these four interpersonal problem areas (Apple, 1999). To illustrate the different pathways of symptom maintenance of binge eating for IPT, please refer to Figure 3.

**Interpersonal Problems**

\[ \downarrow \]

**Low self-esteem**

**Dysphoria**

\[ \downarrow \]

**Food used to cope with negative feelings**

\[ \downarrow \]

**Bingeing**

*Figure 3. Wilfley, Grilo, & Rodin’s (1997) IPT model for binge eating.*

Previous research has suggested that CBT is the most effective form of treatment for bulimia nervosa. However, more recently there is an increasing amount of research evidence demonstrating that IPT might be a new and valuable alternative treatment (individual or group) to CBT. Fairburn, Kirk, O’Connor, & Cooper (1986) and Fairburn et al. (1993) have conducted IPT studies for bulimia nervosa. The first study (Fairburn et al., 1986) compared CBT with a non-directive interpersonal approach and demonstrated that both groups improved substantially. The second study (Fairburn et al., 1993) compared CBT, IPT, and behaviour therapy for patients with bulimia nervosa. Results indicated that both CBT and IPT were superior to behaviour therapy at follow-up. CBT was more effective than IPT in improving dysfunctional attitudes about weight, shape and dieting at the end of treatment. However, patients in the interpersonal psychotherapy group had continued to improve, and after 12 months had caught up to the cognitive-behavioural condition on every index of outcome.

Agras, Walsh, Fairburn, Wilson, & Kraemer (2000) further developed the comparison of CBT and IPT, using a larger sample size and two treatment sites to improve the reliability and generalizability of Fairburn et al.’s. (1993) findings. They found that CBT had a clinical and statistically significant advantage over IPT at the end of treatment in reducing binge eating, self-induced vomiting, and dietary restraint. However, at one-year follow-up, there were no
significant differences between the two treatments indicating that CBT was faster at reducing the primary symptoms of bulimia nervosa. These findings suggest that CBT and IPT operate in distinctively different ways. Agras et al. concluded that CBT should be viewed as the preferred psychotherapeutic treatment for bulimia nervosa.

IPT techniques are included in the current intervention in addition to CBT. The IPT approach was used to examine and explore interpersonal and social problems that are associated with low self-esteem, negative mood, body dissatisfaction and disturbed eating behaviours. It also provided strategies for coping with interpersonal and social stressors, rather than binge eating. However, both CBT and IPT have encountered problems in the early stages of therapy with attrition, motivation and ambivalence. The current intervention program included components of motivational enhancement therapy (MET) in an attempt to overcome some of these earlier problems.

1.3.4 Motivational Enhancement Therapy

Motivational enhancement therapy is a brief, systematic, psychotherapeutic intervention based on a motivational interviewing model (Miller & Rollnick, 1991) and the transtheoretical stages of change model (Prochaska & DiClemente, 1982). MET uses the technique of motivational interviewing to elicit behaviour change and help individuals explore and resolve ambivalence to change. Motivational interviewing is a counselling approach in which the costs and benefits of change, and the advantages and disadvantages of current behaviour are explored, and long-term life goals in the context of current behaviour are examined, with the hope of improving motivation. The therapist uses the therapeutic relationship to build and strengthen a commitment to change (Killick & Allen, 1997).

Prochaska & DiClemente's (1982) model of stages of change can be used for considering the process of embarking on behaviour change. The model has been described as transtheoretical as it incorporates cognitive, motivational, social learning, and relapse prevention theories (Morera et al., 1998). The transtheoretical model provides constructs of stages and processes of change for addictive behaviours. The model postulates that to modify and change one's behaviour, it is necessary to progress through five hypothesized stages: precontemplation (no acknowledgement of problem), contemplation (aware of problem but not commitment to change), preparation (acknowledgement that ready to change but has not embarked on the commitment to change), action (proactive work on problem to achieve change), and maintenance (support in maintaining changes) (Prochaska, DiClemente, & Norcross, 1992).
MET draws on the stages of change theory and endeavours to assist individuals through the process of becoming committed to change. Individuals with body image and eating problems can be difficult to treat due to their ambivalence towards treatment. There is frequently ambivalence about giving up the thin ideal and the protective mechanisms of weight control behaviours (Vitousek, Watson, & Wilson, 1998). Such ambivalence may frequently account for the high levels of premature termination of therapy reported for disordered eating (Wierzbicki & Pekarik, 1993). The transtheoretical model has demonstrated efficacy in a group of eating disorder patients, an ambivalent group, in developing and maintaining change (Blake, Turnbull, & Treasure, 1997; Ward, Troop, Todd, & Treasure, 1996).

MET has been compared to CBT in a randomised controlled trial examining the first phase of treatment (125 people with bulimia nervosa) (Treasure et al., 1999). No significant differences between treatments were found in reducing bulimic symptoms or in developing a therapeutic alliance or enhancing readiness to change. Findings from this study provided support for the transtheoretical model of change with patients presenting in the action stage making the most improvement during treatment. However, contrary to other findings, MET did not reduce drop-out rates, nor did it lead to more individuals moving into the action phase.

Most recently, Feld, Woodside, Kaplan, Olmsted, & Carter (2001) carried out a pilot study (19 eating disordered individuals) evaluating a pre-treatment MET group intervention program for individuals with eating disorders. The aim of the intervention was to increase motivation to change, for the purpose of increasing the success of future treatments for the individual. Overall, participants' motivation to change increased, and depression, low self-esteem, and interpersonal trust improved. Participants eating symptoms were not targeted and therefore there was no change in eating disorder symptomatology.

The aim of MET in the present study was to determine an individual’s stage of readiness to change prior to treatment and then assist the movement through stages to eventually reach behavioural change. Motivational interviewing techniques were used to reduce ambivalence towards treatment and improve motivation to change.
1.3.5 An Integrative Model

The present intervention program is based on CBT. However complimentary techniques from other approaches are also used. MET is introduced at the initial stages of treatment to assist in reducing ambivalence about treatment and to increase motivation to change. Concepts of IPT are used as an adjunct to the CBT techniques, with a focus on social and interpersonal problems as these are pertinent to individuals with body image and eating concerns. Social and cultural issues related to body image and eating problems are also explored. Traditionally, these approaches have been implemented as separate therapeutic treatments and there has been limited research examining integrative approaches. However, as body dissatisfaction and disturbed eating behaviours are complex biopsychosocial phenomena, an integrative approach may be beneficial as it provides an opportunity for individuals to select specific components from different treatment modalities that are most helpful for their recovery.

Most recently, an integrative time-limited group therapy model for bulimia nervosa (including the treatment of attitudes toward shape and weight) has been developed, incorporating components of CBT, psycho-education, IPT, and relational therapy (Riess, 2002). The author suggested an integrative approach may broaden treatment applicability as it may appeal to a wider range of psychotherapists and be delivered to more patients. The author used the following quote in support of integrative treatments, “Under utilization is frequently attributed to doubts among psychotherapists about the value of randomised controlled trials and professional resistance to the perceived constraints of manualized therapy” (Arnow, 1999, p.770). Another advantage identified was that an integrative approach can improve bulimic symptoms (e.g. binge eating, purging, and intense body dissatisfaction) through two different mediating mechanisms, a cognitive pathway that affects eating behaviours, and an interpersonal and relational pathway from which the disordered eating may have developed (Riess, 2002).

Promising results were found from the integrative approach (Riess, 2002) with the frequency of binge eating being significantly reduced one month following group therapy, and depression scores being significantly reduced from levels of "moderate depression" to "mild depression". Overall this treatment approach was well accepted by the psychotherapists running the group therapy sessions where eating behaviours were specifically addressed and interpersonal and relational issues were examined as factors often maintaining the eating problems.
1.4 Predictors of Treatment Outcome

There is currently inconsistent evidence regarding predictors of treatment outcome for body dissatisfaction, disturbed eating problems, and bulimia nervosa. Predictor variables are poorly understood due to small sample sizes and short term follow-up periods. Furthermore, most treatment studies have examined individuals with a diagnosis of bulimia nervosa, and have not considered individuals with extreme body dissatisfaction or sub-clinical eating disturbance. This is concerning as approximately half the clients that present to eating disorder centres do not meet full diagnostic criteria for an eating disorder (Schwitzer et al., 2001). Understanding predictors of treatment outcome potentially provides the advantage of being able to make a decision about which intervention will be most appropriate for an individual and this may improve intervention effectiveness (Stice, 1999).

Research literature has identified a variety of predictors of poor treatment outcome using CBT in bulimia nervosa, including distorted attitudes about weight and shape (Maddocks & Kaplan, 1991; Fairburn, Peveler, Jones, Hope, & Doll, 1993), greater severity of bulimic pathology, including vomiting and binge eating (Fahy & Russell, 1993; Baell & Wertheim; 1992, Keller, Herzog, Lavori, Bradburn, & Mahoney, 1991), longer duration of bulimia nervosa at pre-treatment (Keel, Mitchell, Miller, Davis, & Crow, 1999), and greater levels of obesity (Bulik, Sullivan, Joyce, Carter, & McIntosh, 1998). However, these findings have not been consistently demonstrated.

The predictive role of less severe disordered eating symptoms for a better outcome in treatments for bulimia nervosa has been supported in a study by Thiels et al. (2000). They examined pre-treatment predictors of outcome in a guided self-change program and a CBT program for bulimia nervosa. They found better outcome in the guided self-change group was predicted by lower binge eating frequency. It was concluded that individuals with more frequent binge eating behaviour would require a more intensive intervention than guided self-care. These findings were similar to those of Turnbull et al. (1997) who reported lower pre-treatment binge frequency to be a predictor of better outcome in a sequential treatment program (8 weeks with a self-care manual followed by 8 sessions of CBT). However, longer duration of illness was a predictor of better outcome in a 16 week CBT program. These studies concluded that individuals with more frequent binge eating behaviour would require a more intensive intervention than guided self-care, and those who have been ill longer may be more motivated to respond to treatment and hence demonstrate greater improvements.
Other psychological predictors of poor treatment outcome using CBT in bulimia nervosa have been identified. These include, depression (Davis, Olmsted, & Rockert, 1994), low self-esteem (Baell & Wertheim, 1992), personality disorders, particularly borderline personality disorder (Keel & Mitchell, 1997; Wonderlich, Fullerton, Swift, & Klein, 1994), substance use problems (Keel et al., 1999), and a stressful family environment (Bling et al., 1994). However, replication studies of these findings are sparse and those existing are often contradictory.

Depression has been found to be a predictor of poor treatment outcome in several studies, including cognitive behavioural treatment (Vaz, 1998, Thiels et al., 2000). However, it has also failed to demonstrate any relationship with outcome (Keel et al., 1999; Garner et al., 1990; Wilson, Rossiter, Kleifield, Lindholm, 1986). Thiels et al. (2000) suggested that the negative effects of depression (e.g. poor motivation, concentration, and memory) can impair the active involvement and acquisition of CBT strategies and techniques. However, Vaz (1998) raised doubts as to whether depression is a hindrance to outcome or a non-specific factor that can interfere with psychotherapy, causing a poor outcome. The studies investigating predictors of outcome are difficult to compare as different treatment interventions, different outcome variables, and different methods of analyses have been used.

Recent literature has suggested that an individual’s motivation to change problem behaviours may be a key factor in predicting treatment outcome. Prochaska & DiClemente’s (1983) transtheoretical model has been widely used to assess an individual’s readiness to change through five stages of change (precontemplation, contemplation, preparation, action, and maintenance). Stage of change has been found to be a predictor of treatment outcome for several addictive behaviours, such as smoking (Dijkstra, Roijackers, & DeVries, 1998), alcoholism (Hernandez-Avila, Burleson, & Kranzler, 1998), and drug abuse (Belding, Iguchi, Lamb, Lakin, & Terry, 1995). However, there is currently very little evidence supporting the importance of stage of change as predictors of treatment outcome for eating disorders.

Wolk & Devlin (2000) carried out a double-blind randomised brief psychotherapy trial for patients with bulimia nervosa, comparing CBT and IPT. Their preliminary findings suggested that there may be a relationship between initial stage of change and treatment response among patients who have had short-term psychotherapy for bulimia nervosa. They found that patients entering therapy in the precontemplation stage were unlikely to have achieved symptomatic remission at the end of treatment. In addition, it was suggested that the utility of stage of change as a predictor of treatment outcome may depend on the treatment used, as there was an association between initial stage of change and outcome for patients in the IPT group, but not in the CBT group. The authors suggested further studies are needed to provide a more concise understanding of the relationship between motivation and change during treatment.
Knowledge regarding the factors which influence how well an individual will respond to particular treatments is helpful as individuals presenting for treatment can then be allocated to the most effective treatment intervention. Predictors of treatment outcome, including severity of body dissatisfaction, bulimic pathology, depression, and stage of change, will be examined in the current study.

1.5 Modes of Treatment Delivery

Individual Face-to-Face therapy has been the traditional mode of psychological treatment delivery. However, Face-to-Face therapy is labour intensive and costly, especially for standard treatments such as CBT. This is especially the case in Australia, where there is no Medicare rebate for psychological services. In addition, psychological services, commonly operating from central metropolitan areas, are often inaccessible for people living in distant geographical locations. Again this is especially the case in Australia, where there are vast areas of low population density.

Research has indicated that evaluated treatments are under-utilised (Arnow, 1999; Wilson, 1999). This may be due to the present health care system in Australia which has placed considerable strain on the clinical services and waiting lists in public hospitals and community health centres. Another reason may be the ambivalence women with body image and eating problems feel towards treatment, and the associated feelings of shame, guilt, and embarrassment about their problem (Burney & Irwin, 2000; Sanftner & Crowther, 1998). More recently, alternative modes of treatment delivery (e.g. group therapy, self-help programs, telemedicine, and computer mediated approaches) have been developed in an endeavour to combat some of these problems.

1.5.1 Group Psychotherapy

One potential way of enhancing the efficiency and cost-effectiveness of treatment delivery is by running group programs. Research evidence has demonstrated that group psychotherapies can help in the treatment of body dissatisfaction and disturbed eating behaviours. It has been suggested that group psychotherapy can be beneficial for women struggling with body image and eating concerns as social support for these women is often very low (Rorty, Yager, Buckwalter, & Rossootto, 1999; Weiss, Katzman & Wolchik, 1994). Group therapies may help clients better deal with feelings of shame as well as providing additional peer feedback and support (Wilfley et al., 1997).
Group psychotherapy programs for the treatment of body dissatisfaction have been evaluated and found to be successful. Group CBT has been shown to produce positive changes in perceptual, evaluative, and behavioural aspects of body image (Rosen et al., 1989). Grant & Cash (1995) also demonstrated equivalent therapeutic outcome for the reduction of negative body image across a range of situations, using two CBT formats – a group therapy modality versus a self-directed format with modest therapist contact.

A meta-analysis of 40 group treatment studies for bulimia concluded that group therapy is beneficial at end of treatment and improvements are typically maintained at one-year follow-up (Fetters & Peters, 1992; Oesterheld, McKenna, & Gould, 1987). Group psychotherapy programs for more serious eating problems have been shown to be effective across different theoretical models (e.g. behavioural therapy, cognitive behavioural therapy, interpersonal psychotherapy) (Dedman, Numa, & Wakeling, 1988; Telch, Agras, Rossiter, Wilfley, & Kenardy, 1990). CBT has demonstrated comparable percentage reductions on binge eating in group and individual treatments (Gotestam & Agras, 1989; Mitchell et al., 1990). A group MET program for eating disordered individuals has also recently been evaluated and successful outcomes were demonstrated (Feld et al., 2001).

Group IPT has demonstrated efficacy for the treatment of individuals with eating concerns. Wilfley et al. (1993, 2002) compared group CBT and group IPT for individuals with binge eating disorder. At the end of treatment both groups showed significant improvements in reducing binge eating and other related eating behaviours. It was suggested that IPT in group may assist in facilitating treatment by providing an opportunity to discuss interpersonal problems in an interpersonal setting where therapist/patient, patient/patient relationships can be examined. This study highlighted that group IPT is a viable treatment alternative to group CBT.

In the current study, the intervention was delivered in a group therapy format. The purpose of group therapy in this context was to provide a safe and supportive environment where participants could discuss their body image, eating, and interpersonal problems with each other. This was very important as individuals in this population often feel shameful, isolated and alone with their problems. It was hoped that having the opportunity to share with others would alleviate some of these feelings.
1.5.2 Multimedia Technology

Multimedia technology is another alternative mode of treatment delivery for women with extreme body dissatisfaction and disturbed eating behaviours. In today’s society, telephones, video conferences, computers, CD-ROM software programs, the Internet, bulletin boards, and on-line chat rooms are other options available for improving the availability of psychological treatment services.

1.5.2.1 Telemedicine

Telemedicine refers to psychiatric and medical treatment delivered through videoconferencing or through teleconferencing. Telemedicine was the first step in the development of multimedia technology for treatment delivery. It acts as a reminder of the great information technology advancements that have occurred over the past decade. The Queensland Telemedicine Network in Australia is now the most heavily used telemedicine network in the world, with 25% of its use being for mental health (Yellowlees, 2000). Telemedicine was developed to improve access to health care where geographic distances are great and specialist services in rural and regional Australia are sparse. There is preliminary evidence being developed for the benefits of therapy for eating disorders delivered via telemedicine. Bakke, Mitchell, Wonderlich, & Erickson (2001) examined the efficacy of CBT delivered via telemedicine (data line and picture monitor) with two bulimic women. At the end of treatment and at one month follow-up, both women were abstinent from binge eating and purging. This study provided support for telemedicine being an effective mode of treatment delivery.

1.5.2.2 Computer Mediated Approaches

With the extraordinary changes in technology and the evolution of the Internet it is hard to ignore the potential benefits of multimedia technology and web based interventions as an alternative mode of treatment delivery for some patients. The Internet is currently used by approximately 40% of the Australian adult population with an even gender distribution and this percentage is only expected to rise (Yellowlees, 2000). Most recently, the technology has enabled treatment modes of delivery to progress from CD-ROM based software programs to more sophisticated on-line Internet based programs where communication occurs in synchronous “real time”.

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1.5.2.2.1 Benefits of Multimedia Technology

One of the most important benefits of Internet-based treatment is that it can potentially offer access to care to individuals in rural and remote locations who would normally be unable to access such services due to geographic distance or lack of services (Yellowlees, 2000). The Mental Health Council of Australia (MHCA) (2001) identified that a total 30% of Australians live in rural areas, and yet these areas are provided with less specialist services than the metropolitan areas. The MHCA (2001) recommended the development of innovative service delivery, suggesting the benefits of modern telecommunications (e.g. telepsychiatry, videoconferencing, email, and web based service delivery) for rural and remote locations.

Another potential advantage of an Internet mode of delivery is that it can offer confidentiality and a degree of anonymity that may encourage individuals who may be ashamed of their problem to seek help. This may be particularly pertinent to an eating disordered population, as these individuals are often reluctant to seek help due to feelings of shame, guilt, secrecy, and confusion over the meaning and purpose of their behaviours (Burney & Irwin, 2000; Fairburn, Hay, & Welch, 1993). Individuals with body image and eating problems are often very sensitive to perceived rejection and/or criticism. Participation in Face-to-Face group therapy is public and often associated with considerable anxiety and fears of negative evaluation. For these individuals the Internet may be seen as a preferable and safe therapeutic environment. Furthermore, Internet-based delivery avoids stigmatisation associated with mental illness from the community. It has the potential of providing women with a sense of power and control over their mental health, enhancing their self-esteem and promoting independent coping strategies (Finfgeld, 1999).

1.5.2.2.2 Limitations of Multimedia Technology

The development of Internet-based interventions as an alternative mode of treatment delivery also raises potential limitations and ethical considerations. Some of the more important limitations of Internet-based interventions, relevant to the current study, are the issues of privacy and confidentiality. Confidentiality and privacy issues are limited by the security of computer technology. Privacy invasions may include system breakdown, authorised (e.g. Internet service administrator) and unauthorised individuals (e.g. hackers) viewing personal messages, and back-up files of Internet communications being saved and re opened at a later date. Passwords and encryption codes can be used to increase protection of the client/psychologist communications, although the client needs to be aware of how unauthorised access can occur and privacy cannot be guaranteed (APS, 1999; Beel & Court, 2000).
Although rural and remote areas are most in need of psychological services, there is also the risk that new technologies will not be used due to lack of skills, financial costs and inaccessible information technology support in these areas. The MHCA (2001) stressed the importance of adequate government funding and providing support structures for these developments, when implementing modern technologies into rural and remote communities.

Another concern regarding Internet-based interventions is the changes to the therapeutic relationship between patient, therapist and group members, compared to a traditional Face-to-Face setting. The lack of non verbal and auditory cues have been identified as a problem due to the risk of miscommunication (Beel & Court, 2000). Murphy & Mitchell (1998) identified that they have attempted to compensate for this problem by including emotional material in brackets (e.g. “it has been several weeks since I have heard from you John (worry, concern)”) and providing clients with visual images that give them a context for understanding the written words.

Problems with attrition have also been encountered in Internet-based programs. Winzelberg et al. (1998) found that subjects completed only 50% of the software in their psycho-educational computerised intervention that addressed body dissatisfaction, excessive weight concerns, and dieting. Participants reported technological difficulties and a perceived lack of privacy when using the software in a public environment due to its colourful interface and audio segments, as reasons for low adherence to the program. Winzelberg et al. (2000) found that compliance to an Internet-based program for university-aged women wanting to improve their body image, declined from approximately 70% to 40% over the 8-week duration of the program. Furthermore, participants completed less than two thirds of the program. Compliance is an important issue as it was found to be significantly related to improvement on a primary outcome measure in Winzelberg et al.'s (2000) study. More recently, there have been attempts to improve compliance in Internet-based studies (Cello et al., 2000; Zabinski et al., 2001). The attempts that have been successful include, telephoning participants on a weekly basis to inform them of their progress, offering an incentive of a pass/fail grade based on adherence to the program, making computer programs more user-friendly, and providing a link to “profiles” (photograph of the participant and a personal statement of goals for the program) of each of the group members.

Other issues in relation to the use of the Internet in the delivery of treatment have included, the depth of psychological processes, safety and risk management issues, legal and jurisdiction issues, and potential technological problems interfering with the therapeutic process (Beel & Court). The Australian Psychological Society (APS, 1999) have made specific considerations for psychologists providing services on the Internet. Their concerns centre around the security and confidentiality of the medium; record keeping; counselling across state
and national boundaries; duty of care; and appropriate referral and psychological work practices. Other ethical issues when using this treatment medium include: the need for a governing body that can monitor the care provided on-line, and the competency of the individual providing the treatment; suitability of the client problem to Internet counselling; relevant contact details for an emergency and a management plan for crisis situations.

1.5.3 Computer-Assisted and Internet-Based Programs for Psychological Disorders

Computer-assisted and Internet-based treatment programs have been found to provide cost-effective interventions for a variety of psychological problems, including depression (Selmi, Klein, Greist, Sorrell, & Erdman, 1990), panic disorder (Richards & Alvarenga, 2002), obsessive compulsive disorder (Kirkby, Berrios, Daniels, et al., 2000), agoraphobia (Ghosh & Marks, 1987; Kirkby, Daniels, Harcourt, & Romano, 1999), gambling (Cooper, 2000), weight loss (Taylor, Agras, Losch, Plante, & Burnett, 1991), and diabetes self-management (McKay, Glasgow, Feil, Boles, & Barrera, 2002). Computer delivery modes have ranged for these disorders from interactive computer programs, simulation programs, pocket computers or palmtops, electronic discussion groups, to bulletin boards.

These studies demonstrated evidence for the effective delivery of psychological interventions with the use of computers and the Internet. They highlighted the potential benefits of modern technology and provided a foundation for the potential value of Internet-based delivery with other psychological problems, for example severe body dissatisfaction and disturbed eating behaviours.

1.5.4 The Use of Interactive Media to Prevent Body Dissatisfaction

A computer-mediated software program (Student Bodies) and an email support group have been found to be moderately effective for the delivery of a psycho-educational intervention for women with body image concerns (Winzelberg et al., 1998). The program incorporated interventions and ideas for improving body image. There were four main topics presented to participants: (1) eating disorders, (2) healthy weight regulation, (3) nutrition, and (4) exercise. The email support group was set up to provide emotional support to participants and provide a place where reactions and thoughts to the content of the software package could be expressed. In a randomised controlled study, 57 undergraduate females were assigned to either the intervention or control group. Subjects who were currently bulimic or anorexic or had a body mass index (BMI) of less than 19 were excluded from the study. Winzelberg et al. demonstrated that the computer intervention had a significant effect on improving the body image of participants.
There were however some limitations to these findings. First, participants were paid for their involvement in the study which decreased the generalizability of the program being effective as a treatment study. Second, the intervention group was only significantly different from the control group on one of the body image outcome measures. There were no significant control-intervention differences found on remaining outcome measures (e.g. bulimic symptomatology, drive for thinness, weight concern, and shape concern), and in fact, both the intervention and control groups equally improved on these measures. The modest intervention effects were explained by low program adherence with subjects only completing approximately 50% of the software program. Participants also reported technological difficulties with installing and using the program. Furthermore, there was limited use of the email support group where participants provided limited emotional support to each other.

1.5.5 Internet-Based Treatment Approaches for Body Dissatisfaction and Eating Problems

The Internet, with the potential to overcome obstacles of distance and provide a discrete mode of treatment delivery, is increasing in popularity. Recent research suggests this technology may be valuable for providing treatment for body image and eating problems. The Student Bodies program, an 8-week psycho-educational intervention delivered primarily through the Internet, has been further examined and evaluated since Winzelberg et al.'s. (1998) study. It has since shown success in reducing body dissatisfaction and excessive weight concerns in young women enrolled in university courses (Celio et al., 2000; Winzelberg et al., 2000, 1998).

Winzelberg et al. (2000) extended the Student Bodies program to provide Internet-based delivery, with a moderated discussion group (bulletin board) integrated into the program, in a controlled study of 60 participants with body dissatisfaction. Each week participants were expected to post a message to the discussion group related to the material of the week, and answer to at least one other message. The discussion group was moderated in that there was a moderator (graduate student in clinical psychology) to maintain the discussion, reflect on concerns raised by participants, and offer suggestions based on the Student Bodies content. The program was also revised to focus on personal changes in body image satisfaction. Cognitive behavioural strategies were provided each week with relevant reading material and weekly homework assignments. The feasibility and effectiveness of delivering treatment over the Internet was confirmed as significant improvements in body image and a decrease in drive for thinness were found in the intervention group at 3-month follow up.
There were, however, similar limitations to those described in relation to the earlier version of Student Bodies (Winzelberg et al., 1998). Individuals were paid for their participation and the program was open to women wanting to improve their body satisfaction, thus it was not aimed specifically at a "high risk" sample. Significant intervention differences were found on body dissatisfaction and drive for thinness measures, but no significant improvements were made on bulimic symptomatology, or weight and shape concerns. These findings limit the study's generalizability as a treatment program for at-risk populations. Program adherence continued to be a problem in the study and it was suggested that future programs may include a motivational component in the software, and offer incentives for completing the program.

The revised Student Bodies intervention program has also been compared with a Face-to-Face classroom delivered educational program (focus of the class was primarily academic) for the reduction of body dissatisfaction and excessive weight concerns, with a control group (Celio et al., 2000). To enhance group cohesion and a sense of social support, two additions were made to the Student Bodies program. These included, providing "profiles" (photograph of participant and personal statement) of each group member on the discussion board and introducing three Face-to-Face sessions (first, second, and sixth week) throughout the program. This study provided new information that an on-line discussion group (bulletin board) was more effective in reducing body dissatisfaction and disordered eating attitudes and behaviours than a traditional Face-to-Face educational intervention in college-aged women (Celio, et al., 2000).

Program adherence improved in Celio et al.'s (2000) study, however incentives of course grades were still provided. Participants were told they would receive a pass or fail grade based on completing written reflection papers, number of discussion group messages posted, and number of on-line screens read. These incentives limit the strength of the findings. Nevertheless, results do demonstrate that an Internet-based intervention can influence body dissatisfaction and disordered eating.

Zabinski et al. (2001a) recently demonstrated the efficacy of the Student Bodies Internet program in a controlled study, with 56 college women at "higher risk" of body dissatisfaction. The program consisted of the Student Bodies psycho-educational computer program, and an electronic bulletin board. The electronic bulletin board is simply another name for an email support group (Winzelberg et al., 1998) or a discussion group (Winzelberg et al., 2000). The electronic bulletin board was moderated and used to offer support and serve as a forum for discussion of readings and assignments. Although no significant interaction effects were found between the intervention and control groups, the means and effects sizes demonstrated that the computerized program did have an impact on improving body image, disordered eating, and preoccupation with weight and shape. The authors suggested that longitudinal studies are required to examine whether these programs are effective over time for the prevention and reduction of eating disorder symptoms.
A major limitation to Zabinski, Pung, Wilfley, et al.’s (2001a) study was the lack of significant interactions between the intervention and control groups. These were explained by the high variability among the sample, a small sample size, and the possibility that elevated baseline scores regressed to the mean over time, which may have provided an explanation for the improvement in the control group. A further limitation to the study was the existing problem amongst research literature of what definition constitutes individuals as “high risk”. An increased understanding of this term would enable better comparison across intervention studies to make stronger conclusions regarding the most effective intervention to reduce risk factors of eating disorders (Zabinski et al., 2001a). The authors suggested that the Student Bodies Internet-based intervention may be an appropriate first line of treatment in a stepped care approach for women with body image concerns. However, there is insufficient evidence to suggest it is an appropriate intervention for individuals experiencing more severe eating disorder problems.

Zabinski, Wilfley, Pung, et al. (2001b) have recently extended the Internet technology in a pilot study with four college aged women. This is the first study that has examined women with sub-clinical eating disorders. It is also the first study to examine the use of an on-line synchronous intervention program occurring in “real time” via Internet relay chat (IRC). A synchronous intervention mimics Face-to-Face contact as each message written by a participant is instantly displayed on the screen for others to respond to immediately. The program consisted of a psycho-educational component, a synchronous on-line chat group based on cognitive behavioural treatment and facilitated by a moderator, and feedback to participants of a summary of the on-line discussion. Promising results were found from this study with improvements in eating disordered behaviour and body image attitudes. Qualitative data suggested the format was acceptable and preferable to posting messages on a bulletin board.

The interactive multimedia intervention studies to date have demonstrated that computer software programs and electronic discussion groups can reduce risk factors for eating disorders, most importantly body dissatisfaction. Although this is a positive step forward in the research literature, the generalizability of the findings as a treatment mode are still unclear. The Student Bodies findings were based on small sample sizes and short follow-up periods of approximately three to four months. The therapeutic program that was developed for the present study is not a psycho-educational program as has been the case for many other Internet-based programs. It is primarily based on CBT techniques, with MET and IPT components added. It consists of weekly reading material, homework tasks, a bulletin board to post and receive messages throughout the week, and an on-line synchronous chat room, moderated by the group leader. Furthermore, unlike previous Internet-based programs, participation in the study was voluntary, and no incentives were provided through payment or course credit to participants.
The present study will continue to examine the efficacy of Internet-based intervention programs. It deals with some limitations of the previous Internet-based studies. It differs from previous computer-mediated research, as an on-line synchronous intervention program has been developed that is delivered in “real-time”, for “at risk” university aged women, with extreme body image concerns and sub-clinical disordered eating. To our knowledge, there is only one other pilot study that has examined the use of on-line synchronous chat with body dissatisfied women (Zabinski et al., 2001b).

1.6 Rationale for the Current Study

Body dissatisfaction and the accompanying disturbed eating behaviours are frequently occurring problems amongst young women in Australia. Irrational thoughts about the importance of shape and weight, preoccupation with food, extreme weight loss behaviours, and binge eating can be distressing and anxiety provoking for the individual and can lead to a range of avoidance behaviours. Severe body dissatisfaction, extreme weight loss behaviours and binge eating are also well recognised precursors to clinical eating disorders. In addition, they have been associated with depression and low self-esteem.

The Body Image and Eating Behaviour Group Program in the current study was designed to improve body dissatisfaction, disturbed eating behaviours, and psychological functioning. The program was based on etiologic models that have been supported by risk factor research. Models that were drawn upon included, the cognitive model of bulimia, including the binge-purge cycle (Fairburn, 1985), the dietary restraint and negative affect mechanisms in the dual pathway model (Stice, 1994), and aspects from different sociocultural models (Huon & Strong, 1998; Stice, 1994; Thompson et al., 1999).

The Body Image and Eating Behaviour Group Program consisted of a combination of theoretical approaches (e.g. CBT, IPT, and MET) that have been indicated to be valuable in improving body dissatisfaction and disturbed eating behaviours in previous programs. CBT provided the foundation of the intervention with the view that unhealthy eating behaviours are maintained due to overvalued ideas about the importance of body shape and weight. MET was introduced in the beginning of the program to reduce ambivalence towards treatment and improve intrinsic motivation to change. Aspects of IPT were introduced throughout the program to examine and explore interpersonal and social problems that may have been contributing to body dissatisfaction and disturbed eating behaviours.
Individual Face-to-Face therapy has been the traditional mode of psychological treatment delivery for women with body dissatisfaction and disturbed eating. However, there are many individuals who do not receive appropriate psychological services as treatment is often time consuming, costly, and inaccessible for people in distant geographical locations. This is particularly relevant in Australia where there are many rural regions with low populations and inadequate psychological services. Most recently, there have been some exciting new developments in alternative modes of treatment delivery that have the potential of improving these problems (e.g. group therapy, self-help programs, telemedicine, and computer mediated approaches). Previous Internet-based programs have shown promising results in reducing body dissatisfaction and disturbed eating.

The Internet-based delivery mode in the current study differed from other Internet-based studies as it targeted young women with sub-clinical body dissatisfaction and disturbed eating behaviours using an integrative psychotherapeutic group intervention based on CBT, and incorporating aspects of MET and IPT. No incentives for participation were provided. Furthermore, the intervention was primarily delivered through an Internet chat program where on-line group sessions occurred in synchronous “real time”. This study allows for the further examination of the efficacy and feasibility of using the Internet in “real time” as an alternative mode of treatment delivery.

In the current study, *The Body Image and Eating Behaviour Group Program* was delivered and evaluated in a group therapy setting using two delivery modes: an Internet-based group intervention, with an interactive on-line chat group in “real time”, compared to a Face-to-Face group intervention program, conducted weekly over an 8-session period. The primary aims of both intervention groups were to modify body dissatisfaction and extreme weight loss behaviours (e.g. dietary restraint, fasting, vomiting, and/ or laxative abuse) and binge eating. It was anticipated that changes would be observed in participants’ level of self-esteem, depression, and anxiety. A CD-ROM version of *The Body Image and Eating Behaviour Group Program* manual can be viewed in Appendix A.
1.7 Hypotheses of the Present Study

The hypotheses to be tested are:

Hypothesis 1: The Face-to-Face manual-based group intervention program will significantly improve body satisfaction, eating behaviours, and psychological status from baseline (Time 1) to end of treatment (Time 2).

Hypothesis 2: The Internet-based group intervention program will significantly improve body satisfaction, eating behaviours, and psychological status from baseline (Time 1) to end of treatment (Time 2).

Hypothesis 3: The Internet-based program delivery mode will be as effective as the Face-to-Face program delivery mode in improving body satisfaction, eating behaviours, and psychological status from baseline (Time 1) to end of treatment (Time 2).

Hypothesis 4: Improvements in body satisfaction, eating behaviours, and psychological status will be maintained at two-month follow-up (Time 3) in both the Face-to-Face and the Internet program delivery modes.

Hypothesis 5: A favourable response at two-month follow-up (Time 3) to both delivery modes will be predicted by less severe body dissatisfaction scores, less severe bulimic eating pathology, milder depressive symptoms, and advanced stage of change scores at baseline prior to the intervention (Time 1).
2 Method

2.1 Participants

Participants were 40 young women from Victoria, Australia, with a mean age of 22 years. In total 21 women (mean age = 20.9, SD = 2.86) were randomly allocated to the Internet based group program and 18 women actually completed the program. In the Face-to-Face group, 19 women (mean age = 22.1, SD = 2.83) were allocated and 15 women completed the program. Five groups (three Internet and two Face-to-Face) were conducted in total.

Participants had a mean body mass index (BMI) of 22.2 (SD = 3.4). Ninety percent of the women were university students and the remaining 10% were employed in the workforce. The ethnic diversity of the sample reflected that of the Victorian population. Seventy five percent of the Face-to-Face group were Anglo-Saxon, and the remaining participants were equally distributed between New Zealand, Hungarian, Russian, and American backgrounds. In the Internet group, 39% of participants were Anglo-Saxon, 33% were Asian, 11% were British, and the remaining participants were from German, New Zealand, and Indian backgrounds.

2.1.1 Recruitment

Young women with body image concerns and disturbed eating patterns were recruited through a range of different means to maximise the number of respondents. Recruitment flyers (see Appendix B), advertising the research program, were placed on noticeboards around five prominent university campuses in Melbourne and in student health clinics and counselling services. As the research program was being conducted at The University of Melbourne an advertisement regarding the program was also published in the university student magazine.

In addition, information about the research program was sent to several women’s’ health agencies and placed on three referral agencies’ databases (the Eating Disorder Foundation of Victoria, Women's Health Victoria, and Women's Information and Referral Exchange Service). Community and mental health agencies were also contacted and provided with advertising material where there was a specific interest or a facility for women with body image and eating concerns. Table 1 indicates the overall recruitment response from different sources prior to any formal assessment or selection.
Table 1.

Recruitment Source

<table>
<thead>
<tr>
<th>Recruitment Source</th>
<th>Response n = 71</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flyer at university campuses</td>
<td>58</td>
<td>81.7%</td>
</tr>
<tr>
<td>Eating Disorder Foundation</td>
<td>7</td>
<td>9.9%</td>
</tr>
<tr>
<td>Student Health Service</td>
<td>3</td>
<td>4.2%</td>
</tr>
<tr>
<td>Student Counselling Service</td>
<td>1</td>
<td>1.4%</td>
</tr>
<tr>
<td>Action Centre</td>
<td>1</td>
<td>1.4%</td>
</tr>
<tr>
<td>Hospital Referral</td>
<td>1</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Individuals contacting the program were preliminarily screened for inclusion criteria over the telephone. Suitability for the intervention was determined through assessment questionnaire and an interview. Ninety-one individuals originally expressed interest in the program; 51 were eligible to complete assessment questionnaires; and 46 individuals were invited for an interview. Of these individuals, 40 were eligible to participate in the program and were randomly allocated to either the Internet or Face-to-Face treatment groups (see Figure 4 for a summary of the participant flow).

2.1.2 Inclusion Criteria

The program was open to young women (aged 18 – 30 years) who had extreme body dissatisfaction where their self-evaluation was unduly influenced by body shape and weight. Respondents scoring above the community mean (81.5) on the Body Shape Questionnaire (Cooper, Taylor, Cooper, & Fairburn, 1987) were viewed as “at risk” and were eligible to be included in the intervention program (5 respondents were not included as their body dissatisfaction was assessed as not severe enough). In addition to body image concerns, individuals may have also reported disturbed eating behaviours (e.g. extreme weight loss behaviours and binge eating) and were included in the program.

Due to the nature of providing a program on the Internet, all participants needed to feel confident in using computer technology and have readily available and reliable internet access. In special circumstances, where all inclusion criteria were met apart from having reliable internet access, individuals were included in the program and access to a private computer laboratory at the university was provided.
2.1.3 Exclusion Criteria

Individuals were excluded from participating in the program on the following bases: (1) being over the age of 30 (4 excluded on this basis), (2) meeting the diagnosis for clinical anorexia nervosa or having a body mass index (BMI) of less than 17.5 (2 excluded), (3) meeting DSM-IV criteria for any other Axis I disorders (apart from bulimia nervosa) (3 excluded), (4) being currently engaged in specialist treatment for an eating disorder (e.g. psychological or pharmacological) or a weight loss program (1 excluded), and (5) having a medical condition known to influence eating behaviours (e.g. diabetes or thyroid disease) (no participants were eliminated on these grounds).

Figure 4. Summary of Participant Flow.
2.2 Assessment Instruments

2.2.1 Assessment Interview

The assessment interview included a cognitive behavioural assessment of body image and eating behaviour problems. Its purpose was to assess each individual’s eligibility for the study, satisfying the inclusion and exclusion criteria. The presenting problem was examined, including attitudes to shape and weight, eating habits, and weight control behaviours (see Appendix C for this interview schedule). Interpersonal functioning was informally examined through enquiry into current interpersonal relationships and problems.

General psychopathology was assessed using aspects of the Structured Clinical Interview for Axis I DSM-IV disorders (SCID: First, Spitzer, Gibbon & Williams, 1994). This is a semi structured interview designed to assess current and lifetime psychiatric disorders and problems. The nine diagnostic modules in the SCID each correspond to a major DSM-IV diagnostic class. The diagnostic modules begin with close-ended questions requiring a “yes” or “no” answer. These questions can be elaborated upon at the discretion of the interviewer.

In the current study, the introductory overview of the SCID, with its open-ended format, was incorporated as a foundation for providing structure for a clinical diagnostic interview and guiding inquiry through other modules, only if evidence of abnormal psychopathology was demonstrated. The Eating Disorders module of the SCID was specifically used for diagnosis and examination of maladaptive body shape and weight concerns and disturbed eating behaviours. Height and weight measurements were also taken at this time.

Reliability and validity studies have not yet been performed on the SCID for DSM-IV. However, good test-retest reliability was demonstrated for the SCID for DSM-III-R in four patient sites. Furthermore, the reliability of the SCID in this study was comparable to that obtained with other major diagnostic instruments (e.g. SADS: Schedule for Affective Disorders and Schizophrenia; DIS: Diagnostic Interview Schedule) (Williams et al., 1992). It is an efficient and user-friendly clinical interview that has been widely used in research studies. In the current study, the assessment interview was only used for inclusion/exclusion purposes.
2.2.2 Assessment Questionnaire

2.2.2.1 Demographics

A ten item questionnaire developed for this study was used to elicit basic demographic information from the participants. Items included self-report information about participants contact details, age, nationality, weight, ideal weight, height, and current occupation. See Appendix D.1.

2.2.2.2 Measure of Body Size

Quetelet’s Body Mass Index (BMI) is a commonly used estimate of an individual’s relative weight to height ratio. The equation to calculate BMI is weight in kilograms divided by height in metres squared (weight (kg) / height (m)²). A high BMI indicates the individual is relatively large for their height (Keys, Fidanza, Karvonen, Kimura, & Taylor, 1972).

The National Health and Medical Research Council have developed recommendations for a classification system described by Bray (1978) of acceptable weight, overweight and obesity. The following classifications were applied: underweight (BMI < 20); acceptable weight (BMI 20 - 25); overweight (BMI > 25 and including 30); and obese (BMI > 30).

2.2.2.3 Measures of Body Image Concern

2.2.2.3.1 Body Shape Questionnaire

In order to establish participant’s body dissatisfaction, the major inclusion criteria of the current study, the Body Shape Questionnaire was used (BSQ: Cooper, Taylor, Cooper, & Fairburn, 1987). The BSQ was developed to assess the extent of body shape concern, including a fear of fatness, feelings of low self-worth due to appearance, and a desire to lose weight. The BSQ is a 34-item self-report questionnaire with a six-point Likert scale format ranging from (1) never; (2) rarely; (3) sometimes; (4) often; (5) very often; and (6) always. An overall score is obtained by summing responses. Scores can range from 34 to 204. A high score demonstrates a high level of body shape concern. A copy of the BSQ appears in Appendix D.2.
Cooper et al (1987) found the BSQ to be a valid instrument. Significantly different scores were observed between an “unconcerned” ($M = 55.9, SD = 14.4$) and a “concerned” ($M = 109, SD = 21.2$) group in relation to weight and shape. Discriminant validity of the BSQ was also demonstrated between “probable cases” ($M = 129.3, SD = 17$) and “definite non-cases” ($M = 71.9, SD = 23.6$) of bulimia nervosa. The same authors have also established concurrent validity through finding significant correlations between the BSQ and total scores on established body image measures (e.g. Body Dissatisfaction Subscale of the Eating Disorder Inventory (Garner et al., 1983), and the Eating Attitudes Test (Garner & Garfinkel, 1979)) with bulimic women and control subjects.

Good construct validity has been found in other studies where most items were measuring the same underlying construct of “concern with shape” (Evans & Dolan, 1993; Mumford, Whitehouse, & Platts, 1991). More recently, Rosen, Jones, Ramirez & Waxman (1996) have demonstrated the BSQ to have good test-retest reliability, concurrent validity, and criterion validity for clinical status. In the present study, Cronbach’s alpha coefficient for the BSQ was .95 demonstrating high internal consistency. The cut-off score for the BSQ in the current study was the community sample mean score of 81.5, identified by Cooper et al. (1987).

2.2.2.3.2 Body Image Avoidance Questionnaire

The Body Image Avoidance Questionnaire (BIAQ: Rosen, Srebnik, Saltzberg, Wendt, 1991) was developed as a self-report measure of behavioural tendencies that most commonly are associated with body image disturbance. The BIAQ is a 19-item questionnaire consisting of questions relating to the avoidance of situations that provoke concern about physical appearance (e.g. avoidance of certain types of clothes, social situations, and physical intimacy). A copy of the BIAQ appears in Appendix D.3.

Participants identified the frequency of engaging in these behaviours on a 5-point Likert scale, ranging from (0) never; (1) rarely; (2) sometimes; (3) often; (4) usually; and (5) always. Responses were summed to provide an overall score that ranged from 1 to 74. In an undergraduate university-aged sample, Rosen et al. (1991) reported norms where the mean score was 31.5 ($SD = 13.9$). Good internal consistency was found with a Cronbach’s alpha coefficient of .89. Test-retest reliability was also sufficient and concurrent validity demonstrated. In addition, the measure was validated with female roommates’ reports of such observed behaviour. Thus, even though the BIAQ is a self-report measure of behaviour, there is evidence that the scores validly reflect actual behaviours.
The authors also demonstrated that the BIAQ is a valid measurement tool in a clinical population as it was able to distinguish between a bulimic group ($M = 40.17, SD = 10.9$) and a community control group ($M = 30.67, SD = 12.7$) and display sensitivity to the reductions in body image concern amongst participants who received a treatment program for body image disturbance. In the current study, the BIAQ demonstrated high internal consistency with an alpha coefficient of .83.

2.2.2.4 Measures of Weight-Loss Behaviours

2.2.2.4.1 Dieting History

To establish each participant's dieting history, subjects were required to give a "yes" or "no" answer to the question "Have you been on a diet before?". To determine the onset of dieting, subjects were asked to write down their approximate age at the time they first began to diet. A copy of the Dieting History measure appears in Appendix D.4.

2.2.2.4.2 The Dutch Eating Behaviour Questionnaire - Restraint Scale

The Dutch Eating Behaviour Questionnaire Restraint Subscale (DEBQ-R: Van Strien, Frijters, Bergers & Defares, 1986) was used to assess the extent of restricting food intake for weight reasons. The Restraint subscale consisted of ten questions relating to restrained eating, for example, "Do you deliberately eat less in order not to become heavier?". Participants were to rate their behaviour on a five-point, forced choice Likert scale, ranging from (1) never; (2) not often; (3) sometimes; (4) often; and (5) very often. An overall score was obtained by summing responses and dividing by the number of items. Scores could range from 1 to 5. A high score demonstrates a high level of restrained eating. A copy of the DEBQ-R appears in Appendix D.5.

Van Strien et al. (1986) demonstrated high internal consistency and high factorial validity for the restraint subscale of the DEBQ in obese men and women, and nonobese men and women. Two additional studies have shown the validity of the DEBQ-R with respect to self-reported caloric intake in normal life (Van Strien, Frijters, Staveren, Defares, & deurenberg, 1986; Wardle & Beales, 1986).

The Restraint subscale has demonstrated high construct validity and internal reliability in a sample of 18 to 30 year old healthy women of normal weight (Laessle, Tuschl, Kotthaus, & Pirke, 1989). Wardle (1987) was able to conclude that the DEBQ-R was successful in identifying eating styles of three different groups of women (e.g. women "weight watchers" groups, women with diagnoses of anorexia nervosa, and women with bulimia). In the present study, the DEBQ-R demonstrated high internal reliability in the Internet and Face-to-Face group with a coefficient alpha of .89.
2.2.2.4.3 Extreme Weight Loss Behaviours Scale

The Extreme Weight Loss Behaviours Scale (EWLB: Paxton, Wertheim, Gibbons, Szmukler, Hillier, & Petrovich, 1991) was used to measure the frequency of use of six extreme weight loss behaviours: crash dieting, fasting, vomiting, skipping meals, using laxatives, and fluid tablets (diuretics). The EWLB scale consisted of 20 items and were rated on a 4-point scale from (0) never; (1) occasionally; (2) at least weekly; to (3) daily. However, only the extreme weight loss behaviours (as listed above) were summed. This provided an overall score of the frequency of extreme weight loss behaviours. Scores ranged from 0 to 18. A copy of the EWLB scale can be seen in Appendix D.6.

The EWLB scale has demonstrated adequate internal consistency and high test-retest reliability in an adolescent sample of girls with a mean age of 14.5 years (Banasiak, Wertheim, Koerner, & Voudouris, 2001). However, the EWLB scale has not been widely used in young adult women. In the present study, the frequency of vomiting was low and this item was removed from the analyses to improve the internal consistency of the scale. This significantly improved the internal consistency producing a Cronbach’s alpha of .63.

2.2.2.4.4 Eating Disorder Inventory 2 - Drive for Thinness Subscale

The Eating Disorder Inventory-2 (EDI-2: Garner, 1991) is a 91-item, self-report, multiscale measure designed for the assessment of psychological and behavioural traits common in anorexia nervosa and bulimia. The EDI-2 is a revised version of the original Eating Disorder Inventory (EDI: Garner & Olmstead, 1983). The EDI-2 consists of eight subscales and three provisional subscales. The Drive for Thinness subscale was used in the current study (see Appendix D.7). The 7-item Drive for Thinness subscale (EDI-DT) was used as an indicator of excessive concern with dieting, preoccupation with weight, and a desire for thinness. The items reflect both a strong need to lose weight as well as a fear of weight gain.

Subjects were required to indicate the frequency with which the statements applied to them on a six-point, forced choice response scale, (1) never; (2) rarely; (3) sometimes; (4) often; (5) very often; and (6) always. Responses for each item were summed to provide an overall score for the EDI Drive for Thinness scale. The EDI-DT scale was scored as a continuous measure (1-6), rather than using a discontinuous scoring method (i.e., the least three “symptomatic responses” receiving a score of zero, developed for a clinical population), to allow detection of movement across the whole scale, thus providing greater sensitivity (Schoemaker, van Strein, & van der Staak, 1994).
The use of the EDI in assessing the attitudes and behaviours characteristic of eating disorders is widespread. More recently, the reliability and validity of the EDI-DT scale has been demonstrated in clinical populations (Eberenz & Gleaves, 1994; Schaefer, Maclennan, Yaholnitsky-Smith, & Stover, 1998). Furthermore, Garner (1991) performed extensive psychometric analyses on the revised EDI-2. In an eating disorder sample, internal consistency with a Cronbach’s alpha of .83 was found for the EDI-DT subscale. Test-retest reliability, concurrent, convergent and discriminant validity for all subscales was also demonstrated by the authors of the scale. In the present study, the internal consistency of the EDI-DT was adequate with a Cronbach’s alpha coefficient of .72.

2.2.2.5 Measures of Eating Behaviours

2.2.2.5.1 The Bulimia Test - Revised

The Bulimia Test - Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) is a 36-item (8 of these items referring to specific weight-control behaviours are not scored), self-report, multiple-choice scale and was developed to assess the symptoms of bulimia nervosa. The BULIT-R conforms to the criteria of the revised edition of the DSM-IV (1994). Items consisted of a statement, followed by 5-point, forced choice responses (e.g. "I am afraid to eat anything for fear that I won’t be able to stop"): (1) always; (2) almost always; (3) frequently; (4) sometimes; and (5) seldom or never. A score of 5 indicates extreme disturbance, and 1 indicates a response of the absence of disturbance. Scores range from 28 to 140.

Binge eating items referred to: labelling oneself as a "binge or compulsive eater" ("Would you presently call yourself a binge eater?"); the control or lack of, that subjects felt they had over the amount of food consumed ("I am afraid to eat anything for fear that I won’t be able to stop"); the frequency of binge eating behaviours ("In the last 3 months, on average how often did you binge eat?"); and subjects feelings following an eating binge ("Right after I binge eat I feel extremely fat"). To prevent a response bias, for several items the 5-point Likert response scale was reversed. An overall score is obtained by summing responses to the 28 scored items.

Thelen et al. (1991) found the BULIT-R to have high test-retest reliability and convergent and discriminative validity, while comparing a clinical bulimic sample ($M = 118.08$) and college-aged normal controls ($M = 59.62$). The BULIT-R received additional support as a useful measure of the bulimia nervosa construct due to its high internal consistency, temporal stability, and construct validity amongst college-aged women with symptoms of binge eating and purging (Brelsford, Hummel, & Barrios, 1992). Thelen, Mintz, & Vander Wal (1996) validated the BULIT-R for use with the DSM-IV criteria for bulimia nervosa using middle
adolescence and adult samples (16 to 41 year old female participants). Welch, Thompson, & Hall (1993) provided normative data for tertiary students. The mean BULIT-R score for the noncases of bulimia was 53.8 (SD = 17.2), for the eating disorder not otherwise specified group 68.2 (SD = 10.4), and the bulimia nervosa group 113.8 (SD = 9.7).

Thelen et al. (1991) developed a cut-off score of 104 as it resulted in the smallest number of errors in classification of bulimic subjects. This cut-off score was used in the current study to provide descriptive information regarding the severity of the sample. Cronbach's alpha for the current sample was .75. A copy of the BULIT-R can be found in Appendix D.8.

2.2.2.5.2 Eating Disorder Examination Questionnaire

The Eating Disorder Examination Questionnaire (EDE-Q: Fairburn & Beglin, 1994) is a 41-item self-report questionnaire based on the Eating Disorder Examination (EDE) which is a well-established investigator-based interview (Fairburn & Cooper, 1993). The EDE and the EDE-Q provide a measurement tool of the general psychopathology of eating disorders over a 28-day time period. A self-report questionnaire was chosen over the EDE investigator-based interview due to time constraints and limited resources. However, a cognitive behavioural assessment interview was used in the study which provided components of the EDE to be examined. After investigating the assessment of eating disorders, Fairburn and Beglin (1994) were able to conclude that the EDE-Q could be used in place of the EDE interview.

The EDE-Q consists of four main subscales. The Restriment subscale measures attempts to restrict food intake to influence shape and weight, the Weight and Shape concern subscales measure the extent of concern regarding shape and weight, and the Eating concern subscale measures concern and preoccupation with food and eating. Each EDE-Q item was rated on a 7-point forced-choice rating scale. To obtain mean scores for each, the responses to particular items were added and then divided by the total number of items for each subscale. An overall global score of eating disorder psychopathology was obtained by summing responses to the subscales scored items. A glossary of key terms were defined at the back of the questionnaire package to minimise problems of definition and false reported frequencies of behaviour (Appendix D.15). After investigating the assessment of eating disorders, Fairburn and Beglin (1994) concluded that the EDE-Q could be used in place of the EDE interview so long as there were not significant definitional problems, such as “binge eating".
Sound internal consistency and 2-week test-retest reliability for the four subscales of the EDE-Q has been found with a female undergraduate population. Weaker correlations were demonstrated for items measuring the occurrence and frequency of the behavioural aspects of eating disorders, although these findings were still statistically significant (Luce & Crowther, 1999). Fairburn & Beglin (1994) reported concurrent validity of the EDE-Q in community and clinical samples. In the present study, high internal consistency was found with a Cronbach’s alpha of .90. A copy of the EDE-Q can be viewed in Appendix D.9.

2.2.2.5.3 Binge Eating Frequency

Binge eating frequency was assessed with one specific item on the EDE-Q. This was item number (8) asking “On how many days out of the past 28 days have you had episodes of binge eating?” Participants were asked to rate their response on a scale ranging from (0) no days; (1) 1-5 days; (2) 6-12 days; (3) 13-15 days; (4) 16-22 days; (5) 23-27 days; and (6) every day. Binge eating was defined in the glossary as “to eat what you think is a lot of food in a short space of time (usually within two hours) and feel that you can’t stop eating even if you want to.”

2.2.2.6 Measures of Psychological Factors

2.2.2.6.1 Brief Symptom Inventory

The Brief Symptom Inventory (BSI: Derogatis & Spencer, 1982) is a 53 item, multidimensional scale developed as a brief form of the Symptom Checklist (SCL-90-R). It is a self-report inventory used to assess psychological symptoms and was used as a baseline assessment measure in the current study. The BSI was an important measure for examining general psychopathology and providing indicators of DSM-IV Axis I disorders. A copy of the BSI can be seen in Appendix D.10.

BSI items are rated on a 5-point Likert scale, ranging from (0) not at all; (1) a little bit; (2) moderately; (3) quite a bit; and (4) extremely. The BSI measures nine primary symptom dimensions including: somatization (SOM); obsessive-compulsiveness (OBS); interpersonal sensitivity (INS); depression (DEP); anxiety (ANX); hostility (HOS); phobic anxiety (PHOB); paranoid ideation (PAR); and psychoticism (PSY). Three global indices of distress, including: global severity index (GSI); positive symptom distress index (PSDI); and positive symptom total (PST) can also be calculated (Derogatis & Melisaratos, 1983).
Scores for the nine symptom dimensions were calculated by summing the responses and then dividing the sum by the number of items in that dimension. The GSI was calculated by adding the sums for the nine symptom dimensions and the additional items together and then dividing by the number of responses (i.e., 53 when there are no missing values). The PST involved counting the number of items with a positive (nonzero) response. Finally, the PSW was derived by dividing the sum of the item values by the PST.

Derogatis (1993) established sound internal consistency for all nine symptom dimensions, ranging from .71 on the Psychoticism dimension to .85 on Depression. Test-retest reliability, convergent validity, construct validity and population norms have also been established. The BSI’s concurrent validity was supported through the BSI subscales correlating highly with other similar scales (Birchwood et al., 1989). However, when correlated with the Minnesota Multiphasic Personality Inventory (MMPI) scales, the BSI was found to have poor discriminant validity and limited convergent validity. Boulet & Boss (1991) suggested that the BSI total score should only be used as an index of general psychopathology as opposed to an instrument examining the specific nature of psychopathology.

In the current study, good internal consistency was found for all symptom dimensions. Cronbach alpha’s ranged from .75 on the Obsessive-Compulsive dimension to .87 on Anxiety and Depression.

2.2.2.6.2 Beck Depression Inventory – Second Edition

The Beck Depression Inventory - Second Edition (BDI-II: Beck, Steer, & Brown, 1996) is a 21-item self-report measure of depressive symptomatology in adults and adolescents aged 13 years and older. It assesses the somatic, affective, cognitive, and behavioural symptoms of depression. The second edition of the BDI was developed to correspond to criteria for diagnosing depressive disorders in the DSM-IV (1994). The BDI-II is a revision of BDI-I (Beck, Rush, Shaw, & Emery, 1979) which replaced the original instrument (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).

Participants were asked to read each group of statements on the BDI-II and indicate the particular behaviour or feeling that was most representative of their life over the last two weeks. Each item was rated on a 4-point scale ranging from 0 to 3. For example, in the case of “sadness”: (0) I do not feel sad; (1) I feel sad much of the time; (2) I am sad all the time; (3) I am so sad or unhappy that I can’t stand it. A total score of the BDI-II is obtained by summing the ratings for the 21 items. BDI-II scores can range from: a minimal or low level of depression (0 - 13); mild depression (14 - 19); moderate depression (20 – 28); to more severe levels of depression (29 to 63) (Beck et al., 1996). A copy of the BDI-II can be seen in Appendix D.11.
In a clinical population, Beck et al. (1996) found internal consistency to be high with an alpha coefficient of .92. Similarly, in a non-clinical population of college students, the alpha coefficient was .93. Test-retest stability was also found. In the current study, high internal consistency was found with an alpha coefficient of .93.

The authors of the inventory investigated the psychometric characteristics of the BDI-II with an outpatient sample and a college-aged student sample. They were able to demonstrate content, construct, convergent, discriminant, and factorial validity. Dozois, Dobson & Ahnberg (1998) performed a psychometric evaluation of the BDI-II with undergraduate students. High levels of internal consistency were replicated. Convergent validity was demonstrated. In addition, it was concluded that the BDI-II had a stronger factorial structure than the original BDI (i.e. a cognitive-affective dimension, and somatic-vegetative dimension).

2.2.2.6.3 Rosenberg Self-Esteem Inventory

The 10-item Rosenberg Self-Esteem scale (RSE: Rosenberg, 1965) was used to assess general feelings of self-worth. Participants were to read a statement and respond on a 4-point Likert scale: (1) strongly disagree; (2) disagree; (3) agree, and (4) strongly agree (e.g. "I feel that I have a number of good qualities"). The 10 items were summed and then divided by 10 to provide a total score. A score of 1 indicating low levels of self-esteem, and a maximum score of 4, indicating high levels of self-esteem.

Past research has demonstrated high internal consistency and test-retest reliability in the RSE (Flemming & Courtney, 1984). Studies have shown that the RSE correlates positively with scores from other measures of self-esteem (Savin-Williams & Janquish, 1981) and negatively with anxiety and depression (Flemming & Courtney, 1984). In the present study, adequate internal consistency was found with a Cronbach's alpha of .85. The RSE is displayed in Appendix D.12.

2.2.2.6.4 State Trait Anxiety Inventory

The 20-item self-report trait component of the State-Trait Anxiety Inventory (STAI: Spielberger, Corsuch, Lushene, Vagg, & Jacobs, 1983) was used to assess trait anxiety (T-Anxiety) and evaluate how participants "generally feel". T-anxiety refers to stable individual differences in anxiety proneness and the 20 statements reflect tendencies to perceive situations as potentially threatening or dangerous (physically or psychologically).
Participants were asked to rate how they "generally feel" for each statement on a 4-point Likert scale ranging from (1) almost never; (2) sometimes; (3) often; to (4) almost always (e.g. "I feel nervous and restless"). Scoring weights for the anxiety-absent items were reversed, and then summed with remaining weighted items. Scores range from 20 to 100. A high score indicating a high level of anxiety.

The T-anxiety scale has been widely used in assessing clinical anxiety in medical, surgical, psychosomatic, and psychiatric patients. The STAI was originally developed for use with high school, college students and adults. Norms, reliability, and validity data for the STAI are available on a wide variety of population samples (Spielberger et al., 1983). Spielberger et al. found the mean T-Anxiety score for college students to be 40.40 (SD = 10.15) with a coefficient alpha of .91. Stability, measured by test-retest reliability coefficients, was also relatively high. Evidence was provided for concurrent, convergent, divergent, and construct validity of the STAI scales. In the current study, high internal consistency was also found, with a Cronbach's alpha of .91. A copy of the T-anxiety scale can be seen in Appendix D.13.

2.2.2.7 Measure of Stage of Change

2.2.2.7.1 University of Rhode Island Change Assessment Scale

The University of Rhode Island Change Assessment Scale (URICA: McConnaughy, DiClemente, Prochaska & Velicer, 1989) is a 32-item self-report questionnaire which assesses four stages reflecting varying degrees of readiness to change. There are eight items measuring each stage. The URICA is based on Prochaska & DiClemente’s (1982) stage of change model which posits that individuals progress through different stages in modifying problem behaviours. The four stages are: (1) precontemplation (e.g. “As far as I’m concerned, I don’t have any problems that need changing”); (2) contemplation (e.g. “I have a problem and I really think I should work on it”); (3) action (e.g. “I am doing something about the problems that have been bothering me”); and (4) maintenance (e.g. “I have been successful in working on my problem but I’m not sure I can keep up the effort on my own”).

The URICA asks participants to rate the extent to which they agree or disagree with statements that describe how they feel as they approach problems, on a five-point Likert scale, ranging from (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree. In the current study, a modified version of the URICA was used, where participants were prompted to read the questions in relation to problems specifically related to “their body”, “food”, and “eating” (Jordan, P, personal communication, April 5th 2000). A score (range 8 to 40) is calculated for each of the four subscales that correspond directly to stages of change.
Categorization to stage of change is based on the subscale with the highest score. Where subscale scores are equal, the participant is allocated to the more advanced stage of change (e.g., a participant would be allocated to the contemplation stage, if she had equal scores on precontemplation and contemplation). Where contemplation and action subscale scores are equal, the participant is allocated to a stage of change often referred to as the preparation stage (Prochaska, DiClemente & Norcross, 1992).

Several research studies have confirmed the stages of change model. Its efficacy has been illustrated with alcoholism treatment patients (DiClemente & Hughes, 1990; Velasquez, Carbonari & DiClemente, 1999), weight control program participants (O'Connell & Velicer, 1988), and smoking cessation participants (DiClemente et al., 1991). The model has demonstrated adequate internal consistency in a psychiatric setting with Cronbach’s alpha coefficients for the four scales: precontemplation, .79, contemplation, .84, action, .84, and maintenance, .82 (McConnaughy et al., 1989). These findings replicate those from an earlier study where the stage of change model was shown to be a reliable phenomenon for participants entering treatment programs (McConnaughy, Prochaska & Velicer, 1983).

In the present study, adequate internal consistency was demonstrated with Cronbach’s alpha coefficients for the four subscales: precontemplation, .65, contemplation, .69, action, .84, and maintenance, .74. However, in the present study, the stage of change variable, categorising an individual to a stage of change, was dichotomised due to unequal subscale group sizes. Participants scoring highest on either precontemplation, contemplation, or preparation stages of change were placed into one group, and participants scoring highest on action and maintenance stages were placed in another group. A copy of the URICA can be found in Appendix D.14.

2.3 Procedure

Approval for the present research was given by the University of Melbourne Behavioural and Social Sciences Human Ethics Committee (Appendix E).

The Body Image and Eating Behaviour Group Program was advertised around university campuses in Melbourne, and through community and mental health agencies. Initial contact with respondents occurred via the telephone when they contacted the researcher to inquire about the study. At this time a brief telephone interview took place to determine the needs of the respondent and whether or not they met initial selection criteria. Information obtained from the telephone interview included: contact details, date of birth, current occupation, current living situation, permission to contact the participant at home, Internet access and availability, presenting problem, specific information regarding the nature of body image and eating concerns, and previous psychological or psychiatric history. Due to the nature of this research, it
was at this time that respondents were informed that the program was not designed for crisis counselling or emergencies and if respondents needed emergency assistance they were referred to appropriate services.

Respondents who were likely to be eligible were sent an assessment questionnaire (see Appendix D), an information letter regarding the study and a consent form (see Appendix F) in a self-addressed envelope. Respondents were alerted to the glossary at the back of the questionnaire which provided definitions of terms that may have been unfamiliar to them. In particular, "binge eating" was defined to improve consistency in interpretation and heighten the accuracy of subsequent self-report results in the questionnaire.

Once completed questionnaires were returned, eligible respondents were offered an assessment interview. Informed consent was obtained from each respondent prior to formal assessment. Respondents were advised that all answers and information they provided on the questionnaire were confidential, subject to legal limits and they were free to withdraw from the study at any time. The assessment interview was conducted by the researcher of the study who was a psychology doctorate student and had specific training in interviewing and counselling skills and cognitive behaviour therapy. On-site supervision with a senior clinical psychologist was provided weekly throughout the course of the interview and treatment phases.

Following the assessment interview, suitable participants were randomly allocated to one of the following two groups: Internet-based intervention group, or Face-to-Face intervention group. Following assignment, all participants were provided with a hard copy of the treatment manual and were advised of the commencement date of their first group session. Assessment questionnaires and weight measurements were completed by participants two additional times following their baseline measures, once at the end of the 8-session treatment, and again at a two month follow-up. At the time of the follow-up session, participants in the Internet group also completed a semi-structured qualitative telephone interview that evaluated components of the web-based intervention.
2.4 Description of the Intervention

2.4.1 Intervention Procedure

The psychotherapeutic group intervention consisted of weekly group sessions and was facilitated with an 8-session treatment manual for participants to work through each week. Membership in each group was closed once participants had been randomly allocated to specific groups. There was a limit set of a maximum of ten participants in each group, however the average number of participants per group was seven. The group sessions were for 90 minutes once per week for seven weeks. The eighth session operated as a booster session following a one-month break from the program.

The purpose of the weekly group sessions was to provide a safe and supportive environment where participants could share their experiences and concerns together. A group format provided participants with a sense that they were not the only ones with severe body image concerns and disturbed eating behaviours. Participants received feedback from the group leader and other group members, and were educated about body image and eating problems. The therapeutic work that took place in the group sessions was strongly guided by the use of a manual and homework activities. During the group session, techniques and strategies from cognitive behavioural therapy, motivational enhancement therapy, and interpersonal psychotherapy were delivered and practised.

2.4.2 Structure of Treatment Manual

The treatment manual was developed to provide participants with weekly reading material and homework activities. This material was divided into eight chapters, representing the 8-session length of the program. At the beginning of each chapter was a contents page. This page outlined the aims and agenda of each session, homework tasks to be completed during the week prior to the session, and tasks that would be carried out in the weekly group session. At the end of each chapter was a list of topics that would be covered in the group session, a comments and questions page, and a weekly evaluation page.
There were two purposes of the weekly evaluation page. First, it was to provide risk management for participants. This was of particular importance for the Internet-based group where there was not regular Face-to-Face contact. Participants were to rate on a four point Likert-type scale ((1) strongly disagree and (4) strongly agree), statements concerning satisfaction with their current mood and anxiety levels, body image concerns, and eating patterns. This provided the group leader with information regarding each individual participant's current mental state and an opportunity to follow up any participants who may have reported higher levels of personal dissatisfaction and lowered mood.

Second, the weekly evaluation page was designed to provide information to assist future program development and modification. Participants were asked to circle a number from (1) not at all, to (4) very much so, to represent how helpful aspects of the program had been during a particular week (e.g. the reading material, the weekly homework tasks, the group session, and the bulletin board (Internet group only)). There was an expectation that these evaluation pages were returned to the group leader each week. Those participants who didn’t promptly complete the evaluation were followed up by the group leader. The weekly evaluation page can be viewed in Figure 5.

2.4.3 Early Development of the Intervention Program

The intervention procedure and the structure of the treatment manual were initially trialed in a Face-to-Face pilot group. Six female students from Melbourne University participated in the study. They reported extreme body image concerns and disturbed eating behaviours. Two participants dropped out during treatment (both international students returning to their home country), hence four participants completed the program. The purpose of running the pilot group was to examine the acceptability and effectiveness of the assessment questionnaire and interview schedule, the treatment manual and the structure of the weekly group sessions. All participants completed a Program Evaluation Questionnaire at the end of treatment which allowed the researcher to obtain feedback regarding helpful and unhelpful aspects of the intervention (including the process and content of group sessions and the manual) and make recommended changes for future programs.
WEEK 1 EVALUATION

Please select ONE number which best represents how HELPFUL the Program was for you this week, in sharing your eating and body image concerns and exploring your readiness for change.

Enter your Name: 

1=Not at all  2=Somewhat  3=Moderately So  4=Very Much So

1. Content Information  1  2  3  4
2. Weekly Tasks  1  2  3  4
3. Group Session  1  2  3  4
4. Bulletin Board  1  2  3  4

Please Comment on what material was noted useful and helpful for you in the past week.

Enter text here:

Please pick a number for each statement that refers to the past week.

1=Not at all  2=Somewhat  3=Moderately So  4=Very Much So

1. I feel satisfied with myself.  1  2  3  4
2. My mood has been good.  1  2  3  4
3. I am satisfied with my eating patterns.  1  2  3  4
4. I am satisfied with the shape and size of my body.  1  2  3  4
5. I have been feeling tense and anxious.  1  2  3  4

Thank you for filling out our evaluation form. To send the evaluation off, please hit the "SEND EVALUATION" button, to clear the form and start over, press the "Clear form" button.

SEND EVALUATION

Clear form

Figure 5. Example of the Weekly Evaluation Page.
2.4.4 Treatment Content

The primary focus of the treatment manual was to modify and reduce body image dissatisfaction, weight preoccupation, and unhealthy eating behaviours (e.g. dieting, excessive weight loss behaviours, and binge eating). Self-esteem and symptoms of depression and anxiety were also addressed in relation to body image and eating behaviour concerns.

The manual-based group therapy program was developed around a cognitive behavioural framework with the view that unhealthy eating behaviours are maintained due to overvalued ideas about the importance of body shape and weight (Cash, 1991; Fairburn, 1985; Grant & Cash, 1995; Hawton et al., 1999). The CBT approach aimed to change attitudes and cognitive distortions to shape and weight, and associated weight loss behaviours. Cognitive behavioural tools that were used in the intervention included: psycho-education regarding healthy eating and the physical and psychological health risks of dieting and abnormal eating behaviours; self-monitoring of eating behaviours and relevant thoughts and feelings; cognitive restructuring of negative and irrational thoughts; positive self-statements and coping statements; problem solving skills; and behavioural strategies, such as relaxation training, distractor activities, and the use of self-control measures to develop a regular eating pattern. Relapse prevention techniques were included in the final follow-up session of the program for strategies to maintain the changes made.

Techniques from motivational enhancement therapy were adopted at the beginning of the intervention with the aim of engaging the participant in treatment and enhancing the participants' level of motivation and readiness to change existing maladaptive eating behaviours and/or irrational thoughts (Miller & Rollnick, 1991; Schmidt & Treasure, 1997). Topics for discussion included: the costs and benefits of change; the advantages and disadvantages of being preoccupied with body image and eating behaviours; the prediction of quality of life with and without current problems; and the exploration of long-term life goals. These topics facilitated the objective of motivational interviewing in developing a discrepancy between present behaviour and future goals.

The interpersonal psychotherapy model for binge eating postulates that binge eating begins with the presence of interpersonal problems that lead to low self-esteem and feelings of dysphoria. Hence, the goal of interpersonal psychotherapy is to help individuals identify and modify current interpersonal and social problems, using treatment strategies that might focus on four interpersonal problem areas: grief, interpersonal role disputes, role transitions, and interpersonal deficits (Fairburn et al., 1991; Wilfley et al., 1993, 1997, 2002). In the current program, the emphasis was on participants beginning to identify and modify interpersonal and social problems that accompany body dissatisfaction and disturbed eating behaviours.
Interpersonal issues were explored in the intervention with a focus on identifying positive and negative aspects of healthy and unhealthy relationships and interpersonal functioning. This material was presented with an underlying feminist ideology where the social and cultural issues that accompany body image concerns and eating problems for women were highlighted. Participants examined and were encouraged to challenge the influence of societal messages and their effect on women's self-image. A group format compliments interpersonal psychotherapy in many ways, as Wilfley et al. (2000) illustrated, "the intensive interactional group format provides a powerful mix of interpersonal support and interpersonal challenge that encourages participants to become involved and motivated".

An outline of the weekly group aims and agendas of the treatment manual can be seen in Table 2.
<table>
<thead>
<tr>
<th>Week</th>
<th>Aims</th>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(1) To introduce and meet group members (2) To share our eating and body image concerns, and explore our readiness for change.</td>
<td>• Share experiences with body image &amp; eating problems. • Discuss readiness for change. • Examine how poor body image and/or unhealthy eating behaviours can affect our lives. • Introduce self-monitoring sheets.</td>
</tr>
<tr>
<td>2</td>
<td>(1) To review motives and plans for change. (2) To provide a rationale for normalizing eating behaviour and explore the meaning of giving up dieting.</td>
<td>• Review motives and plans for change. • Provide a rationale for a CBT approach. • Develop an increased awareness of the health risks of dieting and unhealthy eating. • Explore the meaning of giving up dieting for an 8-week program and for the future. • Provide a rationale for normalizing eating behaviour. • Review self-monitoring food diary. • Review “normalizing our eating behaviour”. • Explore body image and self-esteem issues. • Highlight the importance of healthy relationships. • Examine eating and emotions. • Explore triggers for binge eating and dieting. • Review self-monitoring. • Discuss historical perspectives of body image. • Discuss social pressures and body dissatisfaction. • Discuss media portrayal of stereotypical images of girls and women and the “thin” ideal. • Address body image avoidance. • Challenge irrational beliefs that “thinness” is the most important quality in women. • Review self-monitoring. • Review strategies to help break the habit of binge eating. • Examine negative thinking and negative self-talk. • Group cognitive restructuring of related cognitions and irrational beliefs. • Discuss strategies for coping with distress, anxiety and panic. • Review self-monitoring of negative self-talk and positive counterstatements. • Examine common “thinking traits”. • Discuss and learn techniques to challenge mistaken beliefs. • Problem solving skills. • Relapse prevention strategies. • “Golden Rules” to remember. • Contingency plan.</td>
</tr>
<tr>
<td>3</td>
<td>(1) To explore the relationship between body image and self-esteem. (2) To explore interpersonal problems. (3) To explore links between our emotions and our eating patterns</td>
<td>• Explore triggers for binge eating and dieting. • Review self-monitoring. • Discuss historical perspectives of body image. • Discuss social pressures and body dissatisfaction. • Discuss media portrayal of stereotypical images of girls and women and the “thin” ideal. • Address body image avoidance. • Challenge irrational beliefs that “thinness” is the most important quality in women. • Review self-monitoring. • Review strategies to help break the habit of binge eating. • Examine negative thinking and negative self-talk. • Group cognitive restructuring of related cognitions and irrational beliefs. • Discuss strategies for coping with distress, anxiety and panic. • Review self-monitoring of negative self-talk and positive counterstatements. • Examine common “thinking traits”. • Discuss and learn techniques to challenge mistaken beliefs. • Problem solving skills. • Relapse prevention strategies. • “Golden Rules” to remember. • Contingency plan.</td>
</tr>
<tr>
<td>4</td>
<td>(1) To examine social and media pressures on body image dissatisfaction and explore distressing body image situations. (2) Develop strategies to help break the habit of binge eating.</td>
<td>• Explore triggers for binge eating and dieting. • Review self-monitoring. • Discuss historical perspectives of body image. • Discuss social pressures and body dissatisfaction. • Discuss media portrayal of stereotypical images of girls and women and the “thin” ideal. • Address body image avoidance. • Challenge irrational beliefs that “thinness” is the most important quality in women. • Review self-monitoring. • Review strategies to help break the habit of binge eating. • Examine negative thinking and negative self-talk. • Group cognitive restructuring of related cognitions and irrational beliefs. • Discuss strategies for coping with distress, anxiety and panic. • Review self-monitoring of negative self-talk and positive counterstatements. • Examine common “thinking traits”. • Discuss and learn techniques to challenge mistaken beliefs. • Problem solving skills. • Relapse prevention strategies. • “Golden Rules” to remember. • Contingency plan.</td>
</tr>
<tr>
<td>5</td>
<td>(1) To examine and learn techniques to restructure our negative thinking and irrational beliefs. (2) To learn strategies for coping with distress, anxiety and panic.</td>
<td>• Explore triggers for binge eating and dieting. • Review self-monitoring. • Discuss historical perspectives of body image. • Discuss social pressures and body dissatisfaction. • Discuss media portrayal of stereotypical images of girls and women and the “thin” ideal. • Address body image avoidance. • Challenge irrational beliefs that “thinness” is the most important quality in women. • Review self-monitoring. • Review strategies to help break the habit of binge eating. • Examine negative thinking and negative self-talk. • Group cognitive restructuring of related cognitions and irrational beliefs. • Discuss strategies for coping with distress, anxiety and panic. • Review self-monitoring of negative self-talk and positive counterstatements. • Examine common “thinking traits”. • Discuss and learn techniques to challenge mistaken beliefs. • Problem solving skills. • Relapse prevention strategies. • “Golden Rules” to remember. • Contingency plan.</td>
</tr>
<tr>
<td>6</td>
<td>(1) To learn techniques to challenge mistaken beliefs. (2) To develop effective problem solving skills.</td>
<td>• Explore triggers for binge eating and dieting. • Review self-monitoring. • Discuss historical perspectives of body image. • Discuss social pressures and body dissatisfaction. • Discuss media portrayal of stereotypical images of girls and women and the “thin” ideal. • Address body image avoidance. • Challenge irrational beliefs that “thinness” is the most important quality in women. • Review self-monitoring. • Review strategies to help break the habit of binge eating. • Examine negative thinking and negative self-talk. • Group cognitive restructuring of related cognitions and irrational beliefs. • Discuss strategies for coping with distress, anxiety and panic. • Review self-monitoring of negative self-talk and positive counterstatements. • Examine common “thinking traits”. • Discuss and learn techniques to challenge mistaken beliefs. • Problem solving skills. • Relapse prevention strategies. • “Golden Rules” to remember. • Contingency plan.</td>
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2.5 Treatment Modes of Delivery

2.5.1 Face-to-Face Group Intervention

The Face-to-Face group intervention operated in a similar way to traditional group psychotherapy. There was a limit set of a maximum of ten participants in each group. The groups met in the Psychology Department at The University of Melbourne for 90 minutes once per week for the seven week duration of the program. The one month follow-up booster session was a Face-to-Face session as well and held in the same location.

2.5.2 Internet-Based Group Intervention

The Internet-based group operated with the same group session structure and duration as the Face-to-Face group. However, the intervention was delivered primarily via the Internet. The group leader had met all participants during the Face-to-Face assessment interviews. The first and the last “booster” group sessions were Face-to-Face sessions held at The University of Melbourne campus which provided an opportunity for participants to meet each other in person and put a context around each individual. Thus, participants involved in the Internet-based intervention were not anonymous to the group leader, nor to other participants. In the first group session, in addition to introductions and exploring readiness to change, usernames and passwords were provided and participants were shown how to access and use the web site, bulletin board, and chat room. The remaining six sessions, between the first and the last were conducted on-line in real time.

2.5.2.1 Risk Management

Best practice guidelines were followed to ensure the privacy and confidentiality of the Internet program for participants. Passwords and usernames were changed for each different group. This ensured that participants could no longer access the Internet program once their intervention had finished. Most importantly however, participants were informed that even with the use of passwords, there was no absolute guarantee that “hackers” wouldn’t break into the computer system. In addition, the log files from the on-line weekly chat sessions were immediately deleted once the group session was over. Furthermore, the Internet program was placed on a secure University of Melbourne server. The program was therefore protected by the university’s firewall and other security measures.
The weekly evaluation form provided at the end of each chapter in the manual was an additional component to the risk management strategy. Due to the lack of Face-to-Face interactions, participants were required to rate their level of mood, anxiety, body image and eating concerns on an evaluation form each week. This enabled the group leader to monitor the mental state of participants to ensure safety of participants.

2.5.2.2 Internet Site

Group participants had access to the password-protected Internet site for the duration of the program. The site operated as a closed web site ensuring that it was only accessible to individuals officially enrolled in the program. The same treatment manual as the Face-to-Face group program was provided electronically on this site, requiring the same reading material to be read each week and homework tasks to be completed. At the end of each reading section there was a weekly evaluation form that could be completed and submitted on-line. An example of the web interface for the Internet site can be seen in Figure 6.

![Body Image and Eating Behaviour Home Page](image.png)

**Body Image and Eating Behaviour**

**Group Program**

Welcome to the Body Image and Eating Behaviour Group Program. This program is being run by Emma Gollings and A/Prof Susan Paxton from the Psychology Department at Melbourne University.

This is an 8-session program for young women concerned about their body image and/or unhealthy eating behaviours. From this home page you can be linked to all 3 aspects of the program: the manual, the bulletin board and the

*Figure 6. “Body Image and Eating Behaviour Group Program” Homepage.*
2.5.2.3 Chat Room

The group sessions were held through an on-line chat room and a time was allocated for participants to log on to the chat room each week, with a separate username and password. The chat room could not be accessed by participants at other times. The chat room operated with the same structure and time period as the Face-to-Face group sessions, with the biggest difference being the treatment mode of delivery using on-line synchronous discussions.

The computer software used for the chat room was the freeware program, “Free Chat” (Kendrick, 1998). Instructions of how to use the program and “chat” by sending and receiving messages were provided to participants (see Appendix G). This included instructions for “chatting” and how to use non-verbal cues (e.g. happy and sad faces, emotional cues in brackets) through written communication. An example of the chat room screen and the chat room help screen, can be viewed in Figure 7 and Figure 8 respectively.

![Chat Room Screenshot](http://msie6.example.com/chat/chat.cgi)

**Figure 7.** An example of the Chat Room.
2.5.2.4 Bulletin Board

The bulletin board acted as a permanent message board for participants in the Internet-based intervention to post and read messages in a confidential environment that was password-protected. The purpose of the bulletin board was to provide a place where participants could share experiences, offer support and contact each other between the weekly group sessions.

Participants were encouraged to write at least two messages to the bulletin board each week. There were topics of discussion put on the bulletin board each week that participants could respond to or alternatively they could comment on general themes, feelings, or thoughts that may have arisen throughout the week. Participants were prompted to reply to at least one message from another group member with the aim of increasing group support and communication. An example of the bulletin board and the weekly topics can be seen below in Figure 9 and Figure 10.

The freeware software package used for the bulletin board was developed by “DiscusWare, LLC”, of Holland, Michigan in the United States. Adaptations relevant to the current group intervention were then made to the “Discus” program. “Discus” administration instructions of how to read and post messages were provided to participants (see Appendix G).
Figure 9. Weekly Topics on the Bulletin Board

Figure 10. An Example of a Message Posting on the Bulletin Board.
2.6 Design and Analysis

In the present study respondents were randomly allocated to one of two groups (a Face-to-Face group or an Internet-based group). Each group completed the same 8-session intervention. These groups completed assessment instruments on three separate occasions, baseline (Time 1), end of treatment (Time 2), and follow-up (Time 3). Baseline measures were used as an initial assessment to determine eligibility for the intervention. The end of treatment measure occurred following completion of the program (session 7). The follow-up measure occurred two months post completion of the booster session (session 8).

To examine the success of randomisation procedures in creating equivalent groups at baseline, one-way between-group (Face-to-Face versus Internet-based) analyses of variance (ANOVA) were conducted on each dependent variable (multivariate analysis of variance (MANOVA) was not performed due to violation of assumptions). If a significant difference between groups on any of the dependent variables was found, a one-way analysis of covariance (ANCOVA) was performed on that particular variable.

In order to compare treatment completers with treatment drop-outs, participants who completed all eight sessions of the program were compared on baseline scores to those who dropped out of the program, using independent samples t-tests.

The primary analysis used treatment completers, comparing the two treatment groups on all the outcome variables assessed at baseline and throughout the course of treatment and follow-up. The four primary treatment hypotheses (Hypotheses 1 to 4) were investigated using univariate repeated measures ANOVAs for each of the 11 outcome variables. A 2 group (Face-to-Face, Internet-based) by 3 times of assessment (Time 1, Time 2, and Time 3) design was used, with group being the between-subjects factor and time of assessment being the within-subjects factor. The 11 treatment outcome variables included: Body Shape Questionnaire (BSQ), Body Image Avoidance Questionnaire (BIAQ), Dutch Eating Behaviour Questionnaire – Restraint Scale (DEBQ-R), Extreme Weight Loss Behaviours scale (EWLB), Eating Disorder Inventory Drive for Thinness subscale (EDI-DT), Bulimia Test Revised (BULIT-R), Binge Eating Frequency (BE-FREQ), Eating Disorder Examination Questionnaire (EDEQ), Beck Depression Inventory –II (BDI), State Trait Anxiety Inventory (STAI), and Rosenberg Self-Esteem scale (RSE). Each variable was considered in a separate repeated measures ANOVA.

A secondary analysis was by intention-to-treat. All of the outcome analyses were examined using an intention-to-treat sample. Where there were missing end of treatment or follow-up data, the baseline value was carried forward.
The main effect of time in the repeated measures ANOVAs addressed Hypothesis 1 and Hypothesis 2 by enabling assessment of whether the intervention had an impact on the outcome variables in the Face-to-Face and the Internet-based group. If a time effect was observed, a within-subjects repeated contrasts test indicated whether there was a significant difference between Time 1 and Time 2.

In order to examine Hypothesis 3, that both delivery modes were equally as effective at improving treatment outcome, the main effect of group in the repeated measures ANOVAs investigated whether there was an overall significant group difference on all the outcome measures. The interaction effect (group by time) also addressed Hypothesis 3 by enabling assessment of whether outcome measures differed across time according to group. If an interaction effect was observed, tests of within-subjects repeated contrasts investigated whether there was significant differences for the interaction between Time 1 and Time 2.

In order to examine Hypothesis 4, that treatment gains would be maintained from Time 2 to Time 3 in both delivery modes, tests of within-subjects contrasts for the time effect indicated whether there were significant differences between Time 2 and Time 3. The interaction effect (group by time) was examined. If there was a significant interaction effect, the tests of within-subjects repeated contrasts for the interaction, between Time 2 and Time 3, would be investigated.

Effect sizes were calculated using eta squared and were provided for Time 1 to Time 2 and Time 2 to Time 3. Eta squared values can range from 0 to 1. In the current study a large effect size was desirable where the effect was meaningful to the participant and observers. According to Cohen’s (1988) effect size conventions, eta squared values can be interpreted as, .01 a small effect, .06 moderate, and .14 a large effect (Pallant, 2001). These effect size conventions were used as a benchmark for the repeated measures analyses.

The fifth and final hypothesis that less severe body dissatisfaction scores, less severe bulimic pathology, milder depressive symptoms, and advanced readiness for change scores at baseline would be significant predictors of a favourable treatment outcome for both groups combined, were examined using multiple hierarchical regression analyses. The Face-to-Face and Internet-based groups were combined for this analysis as they had both made similar changes during the intervention and the small sample size in each group needed to be improved. Outcome measures used for the regression analyses were: Body Shape Questionnaire, Extreme Weight Loss Behaviours scale, Eating Disorder Inventory – Drive for Thinness scale, the Bulimia Test, Binge Eating Frequency, the Beck Depression Inventory-II, and the Rosenberg Self-Esteem scale.
In each multiple hierarchical regression, the follow-up outcome measure of interest (e.g. ROSENBERG Time 3) was entered as a dependent variable. Each baseline outcome measure (e.g. ROSENBERG Time 1) was entered in separate equations in Step 1 in order to control for the starting level of that variable. The unique variance accounted for by each predictor variable was then tested by entering it in Step 2. This analysis identified the unique contribution that each independent variable made to the dependent variable and the model as a whole.
3 Results

3.1 Data Treatment

In the following analyses, participants with missing data were used in as many analyses as possible. There was very little missing data. However, the occasional items from questionnaire scales which had missing values were replaced with the mean value of the participant's scale score.

3.1.1 General Assumptions of Parametric Techniques

Assumptions for the use of parametric techniques were checked, using SPSS 11.0 (2001), prior to all analyses. When baseline data from all participants were examined for normal distributions (using skewness and kurtosis measurements), there were two consistently extreme outliers on a wide range of variables. Once these outliers were omitted from the Internet group, the assumption of normality was no longer violated.

As frequently occurs in assessments over time, the shape of distributions changed slightly at different assessment points but this was not marked. When transformations were performed, they adversely affected skewness and kurtosis. Therefore, original untransformed variables were retained in the analysis.

Bonferroni adjustments were applied to decrease the chance of a Type 1 error occurring due to performing multiple analyses. A more stringent alpha value was set by dividing the usual alpha value of .05 by the number of tests that were to be performed in each analysis. There were up to 14 dependent variables included in the one-way between-groups ANOVA. Bonferroni adjustments were applied and the new alpha value for these analyses was set at .004. There were 11 dependent outcome variables used in the repeated measures analyses, and a new alpha value for these analyses was set at .005 (Pallant, 2001; Tabachnick & Fiddell, 1996). However, alpha values less than .05 and .01 were reported and interpreted in terms of possible trends.
3.1.2 Assumptions for Independent Samples T-Test, ANOVA and ANCOVA

General assumptions that apply to the parametric techniques used in this study (i.e., independent samples t-test and ANOVA) were mostly not violated. They included random sampling, independence of observations, normality and homogeneity of variance. The assumption of homogeneity of variance was violated on two baseline variables, BMI and the precontemplation subscale of the URICA. However, this should not affect the analyses in the current study as Stevens (1996) has suggested that analysis of variance is fairly robust to violations of this assumption, providing the group sizes are similar.

Specific assumptions associated with ANCOVA were also examined. There were no violations to the assumption of a linear relationship between any of the dependent variables and the covariate in each group. Graphical examinations of the scatterplot and statistical assessments between the dependent variables and the covariate demonstrated no violations to the assumption of homogeneity of regression slopes.

3.1.3 Assumptions for Repeated Measures ANOVA

The assumptions required for repeated measures ANOVA of independence of observations, multivariate normality and homogeneity of covariance were met. However, there was one consistently extreme outlier in the Internet group. This outlier was removed resulting in a total of 16 subjects in the Internet group for all repeated measures analyses. The sphericity assumption was assessed using Mauchly’s Test of Sphericity in SPSS (2001). In the present study, when the assumption of sphericity was violated, adjusted univariate tests were examined. It has been suggested that when there is departure from sphericity, both the Huynh-Feldt or Greenhouse-Geisser procedures should be examined (Sheeber, Sorensen, & Howe, 1996). Greenhouse-Geisser is more appropriate for severe violations of sphericity (ε < 0.75) and the Huynh-Feldt procedure for less severe violations (ε > 0.75) (Sheeber et al., 1996; Stevens, 1999). The choice of procedures used will be displayed in the repeated measures table later in this chapter.
3.1.4 Assumptions for Hierarchical Multiple Regression

Hierarchical multiple regression was employed to determine if severity of body dissatisfaction, bulimia eating pathology, depressive symptoms, or advanced stage of change at baseline assessment were able to predict treatment outcome on key variables. The predictor variables were chosen from the relevant research literature that has examined predictors of treatment outcome. A Bonferroni adjustment was not made on the alpha level (set at 0.05) for the hierarchical multiple regression analyses as there was a concern that with a small sample size, a more stringent alpha value may produce a Type 2 error (Stevens, 1996). Confidence limits at the 95% level were placed around R squared values (Olkin & Finn, 1995; Steiger & Fouladi, 1992).

Tests for hierarchical multiple regression assumptions were performed using SPSS Regression and SPSS Frequencies. The assumption of multicollinearity was investigated through examination of correlations between the variables in the model and collinearity diagnostics. There was no evidence of multicollinearity and assumptions for normality were met. An examination of residuals scatterplots and the normal probability plot provided a test of normality, linearity, and homoscedasticity between predicted DV scores and errors of prediction. With the critical chi-square value at 13.82 (obtained from chi-square tables), for the Mahalanobis Distance, no outliers amongst the cases were identified. Standardized residuals were also examined to check for outliers and none were identified (Tabachnick & Fidell, 1996).

However, the assumption of linearity was questionable for all four multiple regression analyses. The following variables did not meet the assumption of linearity with the different predictor variables on the residuals plot: body image (BULIT); bulimic eating pathology (EWLB, BDI); depression (BSQ, EDI-DT, EWLB, BULIT, Stage of Change); and stage of change (EDI-DT). Tabachnick & Fidell (1996) identify that failure of linearity of residuals in regression does not necessarily invalidate an analysis, so much as weaken it. This will be discussed when interpreting the findings of the multiple regression analyses.
3.2 Statistical Power

Power analyses were conducted using a computer power analysis program called G*Power (Faul & Erdfelder, 1992). A post-hoc power analysis was performed on the data to determine the power of the repeated measures analyses to detect a difference if there truly was one. Cohen (1992) states that the statistical power of a significance test is the long-term probability, given the population effect size (ES), the significance criterion (α), and the sample size (N) of rejecting a false null hypothesis. A power of .80 and an α = .05 is identified as a convention for general use. A power of less than .80 risks incurring a Type II error (failure to reject the null hypothesis), and a power greater than .80 would require a much larger sample size that may often exceed the investigator's resources.

According to Cohen's (1988) effect size conventions, an effect size where f = 0.4 or above is illustrative of a large effect size using analysis of variance. In addition, using a t-test for means analysis where d = .8 or above demonstrates a large effect size. Similar effect size conventions for repeated measures analysis can be found in a paper by Green (1990) which indicates sample size needed for power of 0.8 using effect size measures for independent samples ANOVA. These effect sizes include .10 for a small effect, .25 for a medium effect, and .40 for a large effect. These effect size conventions were used for the following post hoc power analyses.

Post hoc power analyses were carried out, using G*Power, on each of the four primary outcome measures. Four primary outcome measures were used in the power analyses. These included total sample correlation scores across time on the Body Shape Questionnaire, the Bulimia Test – Revised, the Beck Depression Inventory, and the Eating Disorder Examination Questionnaire Total score. Within and between subject analyses on all four outcome measures used an α = 0.005, N = 31, and a large effect size f = 0.4. A power analysis on the Body Shape Questionnaire indicated mildly insufficient power for a between-subject effect, and sufficient power for a within-subject effect and an interaction of between subjects and within subjects. A between-subject effect size F = 0.29, found a power = 0.51, Critical F(1,29) = 9.23, and Lambda = 9.18. A within-subject effect size F² = 1.26, found a power = 0.99, Critical F (2,58) = 5.81, and Lambda = 39.06. The power result for the interaction of between-subjects and within-subjects effect was identical to the power for within-subject effects.
A post hoc power analysis on the Bulimia Test - Revised demonstrated insufficient power for a between-subject effect, and sufficient power for a within-subject effect and an interaction of between-subjects and within-subjects effect. A between-subject effect size $F^2 = 0.20$, found a power = 0.32, Critical $F(1,29) = 9.23$, and Lambda = 6.26. A within-subject effect size $F^2 = 1.55$, found a power = 1.0, Critical $F (2,58) = 5.81$, and Lambda = 47.99. The power result for the interaction of between-subjects and within-subjects effect was identical to the power for within-subject effects.

A post hoc power analysis on the Beck Depression Inventory indicated insufficient power for a between-subject effect, and strong power for a within-subject effect, and an interaction of between-subjects and within-subjects effect. A between-subject effect size $F^2 = 0.23$, found a power = 0.38, Critical $F(1,29) = 9.23$, and Lambda = 7.22. A within-subject effect size $F^2 = 1.02$, found a power = 0.99, Critical $F (2,58) = 5.81$, and Lambda = 31.65. The power result for the interaction of between-subjects and within-subjects effect was identical to the power for within-subject effects.

Finally, a post hoc power analysis on the Eating Disorder Examination Questionnaire Total score found insufficient power for a between-subject effect, and adequate power for the within-subject effect, and the interaction of between-subjects and within-subjects effect. A between-subject effect size $F^2 = 0.23$, found a power = 0.38, Critical $F(1,29) = 9.23$, and Lambda = 7.13. A within-subject effect size $F^2 = 1.05$, found a power = 0.99, Critical $F (2,58) = 5.81$, and Lambda = 32.49. The power result for the interaction of between-subjects and within-subjects effect was identical to the power for within-subject effects.

In conclusion, the sample size for the current study is adequate in providing sufficient power to detect meaningful differences following the treatment intervention for within-subject effects and interaction effects of between-subjects and within-subjects. However, once the Bonferroni adjustment was made and the significance criterion ($\alpha$) was set at a more conservative level of 0.005, the power of detecting between-subjects effects weakened.

Another post-hoc power analysis was performed on the data to determine the power of the hierarchical regression analyses to detect a difference if there truly was one. In the current study a large effect size was desirable where the effect was meaningful to the participant and observers. According to Cohen's (1988) multiple regression effect size conventions, an effect size where $F^2 = .35$ or above is illustrative of a large effect size. In addition, an effect size where $F^2 = .15$ is representative of a medium effect size.
Given alpha = .05, a set of 2 predictors, a total sample size of N = 31, and a large effect size where \( \eta^2 = .35 \), the G*Power analysis demonstrates a power = .80, Critical F (2, 28) = 3.4, and Lambda = 10.85. This post hoc power analysis demonstrates sufficient power for a regression analysis. However, a post hoc power analysis with a medium effect size where \( \eta^2 = .15 \) demonstrated insufficient power for a regression analysis. With an alpha = .05, a set of 2 predictors, and a total sample size of 31, power = .43, Critical F (2, 28) = 3.34, Lambda = 4.65.

The caveat in this study is the sample size, as N = 31 may not have been large enough to appropriately test the hypotheses of the regression analyses. There is differing opinions amongst authors regarding this issue. According to Tabachnick and Fidell (1996) the rule of thumb for cases-to-IVs ratio is \( N \geq 50 = 8m \) (m is the number of IVs, 2 in this study), indicating that 66 participants were required for the analysis. However, Stevens (1999) suggests that “for social science research, about 15 subjects per predictor are needed for a reliable equation”. According to Stevens our sample size is adequate to perform a regression analysis.

### 3.3 Randomisation of Group and Sample Characteristics

#### 3.3.1 Randomisation of Group

Participant characteristics on baseline values in the Face-to-Face and Internet groups are presented in Table 3. The table shows means, standard deviations, t scores, p values, and effect sizes. One-way between-group ANOVAs were conducted to compare the scores of the two groups on clinical baseline assessment variables to ascertain whether randomisation was successful. As can be seen from Table 3, there were no significant differences, using the Bonferroni adjusted alpha level of .004, between the Face-to-Face or Internet groups at baseline on age, BMI, body image concern, extreme weight loss behaviours, eating behaviour, psychological status, or stage of change variables. On most variables, the effect sizes, calculated using eta squared, were small to medium.

However, there was a trend towards significant group differences on the Extreme Weight Loss Behaviour scale, with the Face-to-Face group reporting somewhat higher frequency of extreme weight loss behaviours than the Internet group. Therefore the impact of this baseline difference will be taken into account when analysing the effect of treatment on the EWLB measure, using an ANCOVA with baseline EWLB entered as a covariate.

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Of those participants who completed the program, there were no differences between groups on attendance statistics. Participants in the Face-to-Face group attended 77 percent of the group sessions ($M = 6.47, SD = 1.19$) and those in the Internet group attended 81 percent of the group sessions ($M = 6.17, SD = 1.47$).

Overall, it appears that the randomisation process was successful in achieving approximately similar groups at baseline assessment.

### 3.3.2 Sample Characteristics

The mean age of the sample (including both Face-to-Face and Internet group participants) was 22 years. Participants had a mean BMI of 22 placing them in the normal weight range. In total, both groups displayed moderate to severe body image and eating behaviour problems. There were 8 participants who were diagnosed with bulimia nervosa at baseline assessment.

#### 3.3.2.1 Body Image Concern

As a total group, participants scored highly on the BSQ placing them in a high risk group with probable concern for bulimia nervosa or anorexia nervosa. High risk has been defined by Cooper et al. (1987) as scores ≥ 110 on the BSQ. The mean score on the BIAQ matched the mean score found by Rosen et al. (1991) for bulimia nervosa subjects ($M = 40.2, SD = 10.9$).

#### 3.3.2.2 Weight-Loss Behaviours

The mean scores of the total sample for the EDI-DT scale was higher than female college norms (Garner & Olmsted, 1983) which indicated participants in the current study had excessive concern with dieting, preoccupation with weight, and a strong desire for thinness. High mean scores were found on the DEBQ-R scale reflecting high levels of dietary restraint in the total sample of participants.
3.3.2.3 Eating Behaviours

Disturbed eating behaviour was also evident. The total sample mean score for the BULIT-R placed the mean score of participants close to the cut-off score of 104 for a clinical diagnosis of bulimia nervosa. Furthermore, the BULIT-R scores were significantly higher than the mean of 59.6 for control group subjects (Thelen et al., 1991). The total sample mean frequency of binge eating (scored from item 8 on the EDE-Q) was moderate at 2.9 ($SD = 2.13$), indicating that on average, participants were binge eating on approximately 13 to 15 days of the last month. However, it was a mixed sample of binge eaters, as can be seen from the standard deviation where there is an equal spread of lower and more extreme scores. The overall global mean score of the EDE-Q indicated moderate levels of eating disorder psychopathology.

3.3.2.4 Psychological Status

Relatively high psychological disturbance was also found. The total sample mean score for the BDI-II placed the mean score of participants in the moderately depressed range (20 to 28) prior to treatment (Beck et al., 1996). Moderate levels of anxiety on the STAI were demonstrated by scores exceeding the college-aged norm by more than one standard deviation ($M = 40.40, SD = 10.15$) (Spielberger et al., 1983). RSE scores for the total sample indicated relatively low levels of self-esteem.

3.3.2.5 Stage of Change

At baseline assessment, 39 participants completed the URICA stages of change questionnaire. The dichotomised stage of change variable included, 72% (28/39) of participants in the contemplation and preparation stage and only 28% (11/39) of participants in the action and maintenance stage.

These findings support the conclusion that the total sample consisted of young women who had sub-clinical levels of body image disturbance and disordered eating.
Table 3.
Means (standard deviations) and Summary Data for One-way ANOVA, for Face-to-Face and Internet Groups on Baseline Assessment Variables.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Face-to-Face</th>
<th>Internet</th>
<th>Total</th>
<th>F value</th>
<th>p value</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 16</td>
<td>n = 18</td>
<td>N = 34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>22.56 (2.76)</td>
<td>21.00 (2.97)</td>
<td>21.74 (2.94)</td>
<td>2.51</td>
<td>.12</td>
<td>.07</td>
</tr>
<tr>
<td>BMI</td>
<td>23.37 (3.94)</td>
<td>21.58 (2.61)</td>
<td>22.42 (3.37)</td>
<td>2.48</td>
<td>.13</td>
<td>.07</td>
</tr>
<tr>
<td>Body Image Concern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>139.06 (31.96)</td>
<td>127.78 (28.47)</td>
<td>133.09 (30.24)</td>
<td>1.19</td>
<td>.28</td>
<td>.04</td>
</tr>
<tr>
<td>BIAQ</td>
<td>42.13 (12.77)</td>
<td>38.78 (13.56)</td>
<td>40.35 (13.11)</td>
<td>.56</td>
<td>.47</td>
<td>.02</td>
</tr>
<tr>
<td>Weight-Loss Behaviours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>3.67 (.83)</td>
<td>3.47 (.77)</td>
<td>3.56 (.79)</td>
<td>.51</td>
<td>.48</td>
<td>.02</td>
</tr>
<tr>
<td>EWLB</td>
<td>2.81 (2.37)</td>
<td>1.33 (1.19)</td>
<td>2.03 (1.96)</td>
<td>5.47</td>
<td>.03*</td>
<td>0.15</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>35.19 (7.56)</td>
<td>33.06 (5.01)</td>
<td>34.06 (6.33)</td>
<td>.96</td>
<td>.34</td>
<td>.03</td>
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<tr>
<td>Eating Behaviours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>99.63 (21.79)</td>
<td>91.94 (25.38)</td>
<td>95.56 (23.72)</td>
<td>.89</td>
<td>.35</td>
<td>.03</td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>2.56 (2.03)</td>
<td>3.11 (2.32)</td>
<td>2.9 (2.18)</td>
<td>.53</td>
<td>.47</td>
<td>.02</td>
</tr>
<tr>
<td>EDEQ</td>
<td>90.13 (22.99)</td>
<td>77.83 (25.42)</td>
<td>83.62 (24.74)</td>
<td>1.47</td>
<td>.15</td>
<td>.06</td>
</tr>
<tr>
<td>Psychological Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>21.38 (12.16)</td>
<td>19.50 (14.02)</td>
<td>20.38 (13.01)</td>
<td>.17</td>
<td>.68</td>
<td>.01</td>
</tr>
<tr>
<td>STAI</td>
<td>57.44 (10.96)</td>
<td>54.67 (10.99)</td>
<td>55.97 (10.90)</td>
<td>.54</td>
<td>.47</td>
<td>.02</td>
</tr>
<tr>
<td>RSE</td>
<td>2.45 (.52)</td>
<td>2.49 (.43)</td>
<td>2.47 (.47)</td>
<td>.07</td>
<td>.79</td>
<td>.002</td>
</tr>
<tr>
<td>Stages of Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage of Change</td>
<td>1.31 (.48)</td>
<td>1.22 (.43)</td>
<td>1.27 (.45)</td>
<td>.34</td>
<td>.57</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
*p < .05. **p < .01. ***p < .005
3.4 Attrition and Completers

Drop-outs were classified as participants who completed the initial assessment and were randomly allocated to one of the treatment modes of delivery but who failed to begin the treatment program \( n = 5 \) or else began the treatment program but did not complete it \( n = 2 \). These participants were therefore included in the one group of "non-participants" due to their small sample sizes. Completers were those participants who completed all eight weeks of the program. Using this criteria, 7 participants were considered drop-outs (Internet group \( n = 3 \), Face-to-Face group \( n = 4 \)) and 32 participants as completers (Internet group \( n = 17 \), Face-to-Face group \( n = 15 \)).

In order to compare baseline characteristics of drop-outs versus completers, independent samples t-tests on body image, eating behaviours, psychological status, and stages of change variables, were conducted (see Table 4). A Bonferonni adjustment for multiple comparisons was not made due to the small sample sizes (particularly in the drop-out group) and exploratory nature of the analyses. As a result, the findings are potentially indicative of trends only and should be interpreted with caution.

Significant differences were found between drop-outs and completers on the EWLB Scale and the RSE at baseline assessment. The mean scores on all assessment variables show that the more extreme scores were held by participants who dropped out of the program compared to those who completed. Most commonly, the effect sizes were small to medium according to Cohen's (1988) effect size conventions.

Significant differences were also found between drop-outs and completers on several of the BSI subscales assessing psychopathology (see Table 5). Significant differences between drop-outs and completers were found on the following scales: Global Severity Index, Positive Symptom Scale, the somatization subscale, the obsessive-compulsive subscale, the anxiety subscale, and the hostility subscale. Mean scores on all BSI subscales that assessed psychopathology show a trend towards more severe scores being held by participants who dropped out of the program.
There were no significant differences in stage of change scores for drop outs and completers at baseline assessment (see Table 6). In addition, there was not a significant relationship between the proportion of participants who dropped out of the program or completed it, and the stage of change to which they were categorized to, $X^2(2,39)=.38, p=.30$. However, it was found that 75% of completers were in the contemplation stage at baseline assessment, where as a smaller percentage of drop-outs, 57%, were in the contemplation stage prior to the intervention. The effect sizes (for the BSI psychopathology measures and the Stages of Change subscales), calculated using eta squared, were mostly medium to large, and on one occasion there was a very small effect (eta squared ranged from .007 to .16).

Table 4.

Means (standard deviations) and Summary Data for Independent T-tests, for Drop-Outs and Completers on Baseline Assessment Variables.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Completers</th>
<th>Drop-Outs</th>
<th>t value</th>
<th>p value</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>$n = 32$</td>
<td>$n = 7$</td>
<td>22.36 (3.47)</td>
<td>21.94 (2.68)</td>
<td>.29</td>
</tr>
<tr>
<td>Body Image Concern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>130.5 (29.24)</td>
<td>154.43 (42.06)</td>
<td>-1.81</td>
<td>.078</td>
<td>.08</td>
</tr>
<tr>
<td>BIAQ</td>
<td>39.81 (12.92)</td>
<td>44.71 (18.02)</td>
<td>-.85</td>
<td>.40</td>
<td>.02</td>
</tr>
<tr>
<td>Weight-Loss Behaviours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>3.56 (.75)</td>
<td>3.63 (1.16)</td>
<td>-.21</td>
<td>.84</td>
<td>.001</td>
</tr>
<tr>
<td>EWLWB</td>
<td>1.84 (1.80)</td>
<td>4.00 (2.94)</td>
<td>-2.55</td>
<td>.02*</td>
<td>.15</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>33.72 (6.37)</td>
<td>35.71 (8.14)</td>
<td>-.72</td>
<td>.48</td>
<td>.01</td>
</tr>
<tr>
<td>Eating Behaviours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>94.75 (24.16)</td>
<td>107.57 (23.63)</td>
<td>-1.23</td>
<td>.21</td>
<td>.04</td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>2.91 (2.22)</td>
<td>2.86 (1.77)</td>
<td>.06</td>
<td>.96</td>
<td>.12</td>
</tr>
<tr>
<td>EDEQ</td>
<td>81.81 (24.34)</td>
<td>96.43 (332.07)</td>
<td>-1.36</td>
<td>.18</td>
<td>.001</td>
</tr>
<tr>
<td>Psychological Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>19.44 (12.8)</td>
<td>27.86 (14.06)</td>
<td>-1.55</td>
<td>.13</td>
<td>.06</td>
</tr>
<tr>
<td>STAI</td>
<td>55.75 (11.12)</td>
<td>63.14 (11.25)</td>
<td>-1.59</td>
<td>.12</td>
<td>.06</td>
</tr>
<tr>
<td>RSE</td>
<td>2.49 (.48)</td>
<td>2.03 (.53)</td>
<td>2.30</td>
<td>.03*</td>
<td>.13</td>
</tr>
</tbody>
</table>

Note. Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).

*p <.05. **p <.01. ***p<.005
Table 5.
*Means (standard deviations)* and Summary Data for Independent T-Tests, for Drop-outs and Completers on Baseline Assessment Psychopathology Variables.*

<table>
<thead>
<tr>
<th>Assessment of Psychopathology</th>
<th>Completers</th>
<th>Drop-Outs</th>
<th>t value</th>
<th>p value</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 32</td>
<td>n = 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief Symptom Inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Severity Index</td>
<td>1.26 (.65)</td>
<td>1.91 (.96)</td>
<td>-2.20</td>
<td>.03*</td>
<td>.12</td>
</tr>
<tr>
<td>Positive Symptom Total</td>
<td>30.94 (9.07)</td>
<td>39.57 (12.01)</td>
<td>-2.15</td>
<td>.04*</td>
<td>.11</td>
</tr>
<tr>
<td>Positive Symptom Distress</td>
<td>2.05 (.59)</td>
<td>2.45 (.66)</td>
<td>-1.59</td>
<td>.12</td>
<td>.06</td>
</tr>
<tr>
<td>Somatization</td>
<td>.67 (.63)</td>
<td>1.31 (.91)</td>
<td>-2.21</td>
<td>.03*</td>
<td>.12</td>
</tr>
<tr>
<td>Obsessive-Compulsive</td>
<td>1.54 (.83)</td>
<td>2.31 (9.7)</td>
<td>-2.18</td>
<td>.04*</td>
<td>.12</td>
</tr>
<tr>
<td>Interpersonal Sensitivity</td>
<td>2.29 (.96)</td>
<td>2.57 (1.36)</td>
<td>-5.2</td>
<td>.62</td>
<td>.007</td>
</tr>
<tr>
<td>Depression</td>
<td>1.71 (1.00)</td>
<td>2.17 (1.05)</td>
<td>-1.08</td>
<td>.29</td>
<td>.03</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.08 (.89)</td>
<td>2.10 (1.09)</td>
<td>-2.63</td>
<td>.01**</td>
<td>.16</td>
</tr>
<tr>
<td>Hostility</td>
<td>1.09 (.70)</td>
<td>1.80 (1.23)</td>
<td>-1.49</td>
<td>.18</td>
<td>.06</td>
</tr>
<tr>
<td>Phobic Anxiety</td>
<td>.63 (.69)</td>
<td>1.26 (1.36)</td>
<td>-1.89</td>
<td>.28</td>
<td>.09</td>
</tr>
<tr>
<td>Paranoid Ideation</td>
<td>1.13 (.86)</td>
<td>1.89 (1.51)</td>
<td>-1.29</td>
<td>.24</td>
<td>.04</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>1.50 (.93)</td>
<td>2.11 (1.34)</td>
<td>-1.46</td>
<td>.15</td>
<td>.06</td>
</tr>
</tbody>
</table>

*Note. Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).*

* p < .05. ** p < .01. *** p < .005

Table 6.
*Means (standard deviations)* and Summary Data for Independent T-tests, for Drop-Outs and Completers on Baseline Stages of Change Subscales.

<table>
<thead>
<tr>
<th>Stages of Change Subscales</th>
<th>Completers</th>
<th>Drop-Outs</th>
<th>t value</th>
<th>p value</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 32</td>
<td>n = 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precontemplation</td>
<td>1.68 (.41)</td>
<td>2.00 (.53)</td>
<td>-1.78</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>Contemplation</td>
<td>4.39 (.40)</td>
<td>4.08 (.58)</td>
<td>1.72</td>
<td>.09</td>
<td>.07</td>
</tr>
<tr>
<td>Action</td>
<td>3.65 (.56)</td>
<td>3.20 (.96)</td>
<td>1.70</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>Maintenance</td>
<td>3.79 (.57)</td>
<td>3.96 (.55)</td>
<td>-.72</td>
<td>.48</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Note. Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).*

* p < .05. ** p < .01. *** p < .005

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3.5 Examination of Treatment Completers

A summary of all data between the Face-to-Face and Internet-based groups and across respective assessment times for the body image concern, weight loss behaviour, eating behaviour, and psychological status variables can be found in Table 7. Repeated measures ANOVAs were examined following a Bonferroni adjustment with a new set alpha value of .005.

Randomisation of group analysis revealed a trend ($p = .03$) towards significant baseline group differences on the EWLB scale. A one-way between-groups ANCOVA was conducted to compare the group differences on EWLB outcome data, while using EWLB scores as a covariate. After adjusting for EWLB baseline scores, there was no significant difference between the Internet or Face-to-Face group on the EWLB Time 2 outcome variable, $F(1, 29) = 2.2, p = .15$, eta squared = .07, nor on the EWLB Time 3 outcome variable, $F(1, 28) = 1.8, p = .19$, eta squared = .06. Overall, there was no evidence that the trend towards significance for baseline group differences on the EWLB scale caused any systematic bias between the Internet and Face-to-Face group.

3.5.1 Hypotheses 1 and 2

A series of repeated measures ANOVAs were conducted to examine the effectiveness of the Face-to-Face and Internet-based groups in improving body satisfaction, eating behaviours, and psychological status from Time 1 to Time 2 (Hypothesis 1 and 2).

For the two groups pooled (Face-to-Face and Internet), on each outcome variable, there was a statistically significant decrease in mean scores from Time 1 to Time 2 (see Table 8). Tests of within-subjects repeated contrasts supported this finding and demonstrated significant differences on all outcome measures between Time 1 and Time 2 (see Tables 9, 10, 11, 12). These findings supported Hypothesis 1 and Hypothesis 2 that the cognitive behavioural intervention program improves body satisfaction, eating behaviours, and relevant psychological factors from Time 1 to Time 2 across both delivery modes. Very large effect sizes, calculated using eta squared, with a mean of .5, were demonstrated for Time effects between Time 1 and Time 2 on all outcome variables (see Table 8).

The mean eta squared effect sizes across Time for body image concern measures was 0.6, for weight loss behaviours it was 0.4, for eating behaviours 0.6, and for psychological status measures it was 0.5. These effect sizes are comparable and in some cases stronger, to those found in other similar computer mediated intervention studies (e.g. Celio et al., 2000; Zabinski et al., 2001a). Table 13 provides a comparison with similar studies of intervention effect sizes with commonly used outcome measures.
Table 7.
Means (standard deviations) at Time 1, Time 2, and Time 3 for Outcome Measures in the Face-to-Face and Internet Groups.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Face-to-Face (n = 15)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 3</td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 3</td>
<td></td>
</tr>
<tr>
<td><strong>Body Image Concern</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>137.0 (32.0)</td>
<td>97.9 (39.4)</td>
<td>88.9 (32.4)</td>
<td>124.1 (26.9)</td>
<td>86.6 (27.3)</td>
<td>86.6 (28.8)</td>
<td></td>
</tr>
<tr>
<td>BIAQ</td>
<td>40.8 (12.0)</td>
<td>29.8 (12.1)</td>
<td>28.5 (10.3)</td>
<td>39.6 (14.2)</td>
<td>29.6 (13.9)</td>
<td>29.4 (14.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight-Loss Behaviours</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>3.6 (.8)</td>
<td>2.8 (.8)</td>
<td>2.6 (.8)</td>
<td>3.6 (.7)</td>
<td>3.3 (.6)</td>
<td>3.0 (.8)</td>
<td></td>
</tr>
<tr>
<td>EWLB</td>
<td>2.5 (2.2)</td>
<td>.7 (.9)</td>
<td>.7 (1.1)</td>
<td>1.2 (1.2)</td>
<td>.8 (1.0)</td>
<td>.5 (1.0)</td>
<td></td>
</tr>
<tr>
<td>EDI-DT</td>
<td>34.9 (7.8)</td>
<td>26.5 (9.3)</td>
<td>24.9 (7.9)</td>
<td>32.5 (5.0)</td>
<td>24.4 (4.8)</td>
<td>24.2 (6.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Eating Behaviours</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>99.5 (22.6)</td>
<td>90.9 (21.4)</td>
<td>65.7 (21.4)</td>
<td>89.6 (26.0)</td>
<td>70.7 (18.4)</td>
<td>65.1 (19.3)</td>
<td></td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>2.67 (2.06)</td>
<td>1.13 (1.06)</td>
<td>.87 (1.06)</td>
<td>3.12 (2.47)</td>
<td>1.25 (1.65)</td>
<td>.88 (1.41)</td>
<td></td>
</tr>
<tr>
<td>EDEQ</td>
<td>88.2 (22.5)</td>
<td>50.5 (34.4)</td>
<td>42.5 (28.0)</td>
<td>76.2 (25.9)</td>
<td>43.9 (19.1)</td>
<td>43.3 (25.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Psychological Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>20.2 (11.6)</td>
<td>9.1 (7.1)</td>
<td>8.2 (9.5)</td>
<td>17.5 (14.6)</td>
<td>8.3 (5.1)</td>
<td>7.0 (7.2)</td>
<td></td>
</tr>
<tr>
<td>STAI</td>
<td>56.9 (11.2)</td>
<td>41.2 (10.6)</td>
<td>38.9 (10.9)</td>
<td>54.1 (11.4)</td>
<td>45.6 (7.9)</td>
<td>43.2 (10.3)</td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>2.5 (.5)</td>
<td>3.0 (.4)</td>
<td>3.1 (.5)</td>
<td>2.6 (.4)</td>
<td>2.9 (.3)</td>
<td>3.0 (.3)</td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005
Table 8.
Summary Statistics for Repeated Measures ANOVAs (F, p, and effect size values) for Each Outcome Variable.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Time Effect (n = 31)</th>
<th>Group Effect (n = 31)</th>
<th>Interaction (n = 31)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
</tr>
<tr>
<td>Body Image Concern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>45.33</td>
<td>.000***</td>
<td>.61</td>
</tr>
<tr>
<td>BIAQ</td>
<td>32.32</td>
<td>.000***</td>
<td>.53</td>
</tr>
<tr>
<td>Weight-Loss Behaviours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>13.37</td>
<td>.000***</td>
<td>.32</td>
</tr>
<tr>
<td>EWLB</td>
<td>20.26</td>
<td>.000***</td>
<td>.41</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>36.23</td>
<td>.000***</td>
<td>.56</td>
</tr>
<tr>
<td>Eating Behaviours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>51.06</td>
<td>.000***</td>
<td>.64</td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>27.10</td>
<td>.000***</td>
<td>.48</td>
</tr>
<tr>
<td>EDEQ</td>
<td>44.95</td>
<td>.000***</td>
<td>.61</td>
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<td>Psychological Status</td>
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</tr>
<tr>
<td>BDI</td>
<td>23.18</td>
<td>.000***</td>
<td>.45</td>
</tr>
<tr>
<td>STAI</td>
<td>40.43</td>
<td>.000***</td>
<td>.58</td>
</tr>
<tr>
<td>RSE</td>
<td>29.24</td>
<td>.000***</td>
<td>.50</td>
</tr>
</tbody>
</table>

Note. ¹ Huynh-Feldt adjusted F test procedure (ε > 0.75). ² Greenhouse-Geisser adjusted F test procedure used (ε < 0.75).

Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).

*p <.05. **p <.01. ***p <.005
Table 9.

Summary data (F, p, and $\eta^2$ values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the body image concern outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BSQ</th>
<th>BIAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F value</td>
<td>p value</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>44.64</td>
<td>.000***</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>2.05</td>
<td>.163</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>.02</td>
<td>.892</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>1.56</td>
<td>.223</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 10.

Summary data (F, p, and η² values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the weight loss behaviour outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>DEBQ</th>
<th></th>
<th>EWLBQ²</th>
<th></th>
<th>EDI-DT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>9.63</td>
<td>.004***</td>
<td>.25</td>
<td>21.95</td>
<td>.000***</td>
<td>.37</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>8.85</td>
<td>.006**</td>
<td>.23</td>
<td>1.03</td>
<td>.319</td>
<td>.03</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>2.67</td>
<td>.113</td>
<td>.08</td>
<td>4.66</td>
<td>.039*</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>1.18</td>
<td>.287</td>
<td>.04</td>
<td>3.44</td>
<td>.562</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 11.

Summary data (F, p, and η² values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the eating behaviour outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BULIT-R</th>
<th></th>
<th>BEFREQ</th>
<th></th>
<th>EDEQ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>49.39</td>
<td>.000***</td>
<td>.63</td>
<td>29.81</td>
<td>.000***</td>
<td>.51</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>5.42</td>
<td>.027*</td>
<td>.16</td>
<td>2.17</td>
<td>.152</td>
<td>.07</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>2.04</td>
<td>.164</td>
<td>.07</td>
<td>.30</td>
<td>.588</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.01</td>
<td>.928</td>
<td>.00</td>
<td>.06</td>
<td>.806</td>
<td>.002</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 12.

*Summary data (F, p, and $\eta^2$ values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the psychological status outcome measures.*

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BDI</th>
<th></th>
<th></th>
<th></th>
<th>STAI</th>
<th></th>
<th></th>
<th></th>
<th>RSE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$F$ value</td>
<td>$p$ value</td>
<td>$\eta^2$</td>
<td>$F$ value</td>
<td>$p$ value</td>
<td>$\eta^2$</td>
<td>$F$ value</td>
<td>$p$ value</td>
<td>$\eta^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>24.13</td>
<td>.000***</td>
<td>.46</td>
<td>35.24</td>
<td>.000***</td>
<td>.55</td>
<td>29.56</td>
<td>.000***</td>
<td>.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.78</td>
<td>.386</td>
<td>.03</td>
<td>3.54</td>
<td>.070</td>
<td>.11</td>
<td>1.72</td>
<td>.200</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>.19</td>
<td>.667</td>
<td>.01</td>
<td>3.07</td>
<td>.090</td>
<td>.10</td>
<td>1.50</td>
<td>.231</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.02</td>
<td>.895</td>
<td>.001</td>
<td>.000</td>
<td>.987</td>
<td>.00</td>
<td>.00</td>
<td>.964</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 13.

An effect size comparison of the current study, Celio et al. (2000) and Zabinski et al.’s. (2001a) study between Time 1 to Time 2 on common outcome measures.

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Current study</th>
<th>Celio et al. (2000)</th>
<th>Zabinski et al. (2001a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSQ</td>
<td>0.61</td>
<td>0.35</td>
<td>0.39</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>0.56</td>
<td>0.40</td>
<td>0.56</td>
</tr>
<tr>
<td>EDE-Q</td>
<td>0.58</td>
<td>NR</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Note. NR = not reported.

Effect Sizes: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).

3.5.2 Hypothesis 3

The third hypothesis, that both delivery modes would be equally effective in improving body satisfaction, eating behaviours, and psychological status from Time 1 to Time 2 was supported.

Analyses revealed no significant differences between groups nor a group by time interaction on any of the following outcome variables: BSQ; BIAQ; DEBO-R; EWLB; EDI-DT; BULIT-R; BE-FREQ; EDEQ; BDI; STAI; or RSE using an alpha level of .005 (see Table 8). Furthermore, tests of within-subjects repeated contrasts indicated no significant differences for the interaction effect between Time 1 and Time 2. This indicated that both delivery modes resulted in approximately equal and positive improvement across these measures (see Tables 9, 10, 11, and 12). Between-subjects group effect sizes were calculated. They ranged from small to moderate, with a mean of .04 for all outcome variables. The group by time interaction effect sizes also ranged from small to moderate, with a mean of .05.

There was a trend towards a significant group by time interaction for the EWLB outcome measure ($F(1.4, 58) = 5.95, p = .01$). The tests of within-subjects repeated contrasts on the EWLB also indicated a trend towards significance on the group by time interaction between Time 1 and Time 2 ($F(1, 29) = 4.66, p = .04$). The effect size of .19 was large. These findings suggested that the Face-to-Face group may have been improving slightly more than the Internet group between Time 1 and Time 2 on this variable. Bar graphs of the main effects across time for the primary outcome measures can be seen in Appendix H.

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3.5.3 Hypothesis 4

The fourth hypothesis, that improvements in body satisfaction, eating behaviours, and psychological status will be maintained at two-month follow-up in both delivery modes was supported.

As indicated in Tables 9, 10, 11, and 12, the tests of within-subjects repeated contrasts demonstrated that there when the two group were pooled, there were no significant time differences, nor interaction differences (time by group) between Time 2 and Time 3 on the following outcome variables: BSQ; BIAQ; EDI-DT; EWLB; BE-FREQ; EDEQ; BDI; STAI; or RSE. Mean scores indicated that the improvements were maintained at follow-up in both the Internet and Face-to-Face groups (see Table 7). Moderate time effect sizes, between Time 2 and Time 3, were demonstrated for these outcome variables, with a mean effect size of .06. Effect sizes for interaction (group by time) effects were small to moderate, with a mean of .04.

Tests of within-subjects repeated contrasts indicated that there were observed trends of continued improvements between Time 2 and Time 3, in both Internet and Face-to-Face groups, on some outcome variables. The trend was toward a time effect for the BULIT outcome measure ($F(1, 29) = 5.42, p = .03$) and the DEBQ-R outcome measure ($F(1, 29) = 8.85, p = .006$). Large effect sizes were evident with means of .16 and .23 respectively.

3.6 Clinically Significant Change

At the end of treatment, clinically significant change was assessed by examining whether total mean end of treatment scores had fallen within one standard deviation of the general population norm for that outcome measure. Clinically significant change was reported for only the outcome measures where norms have been established (e.g. BSQ, BIAQ, BULIT-R, BDI, STAI). At baseline, prior to the intervention, the total sample had sub-clinical levels of body dissatisfaction and disturbed eating on all outcome measures. At the end of treatment and at two-month follow up, the majority of participants had achieved clinically significant change on all key outcome variables (except BULIT-R at Time 2 in the Face-to-Face group). Clinically significant changes are demonstrated in Table 14 and 15.
Table 14.
Clinically significant change at Time 2 for BSQ, BIAQ, BULIT-R, BDI, STAI.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Population Norm</th>
<th>Face-to-Face (n = 15)</th>
<th>Internet (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>% participants</td>
</tr>
<tr>
<td>BSQ</td>
<td>81.5 (28.4)</td>
<td>137.0 (32.0)</td>
<td>97.9 (39.4)*</td>
</tr>
<tr>
<td>BIAQ</td>
<td>30.7 (12.7)</td>
<td>40.8 (12.0)</td>
<td>29.8 (12.1)*</td>
</tr>
<tr>
<td>BULIT-R</td>
<td>53.8 (17.2)</td>
<td>99.5 (22.6)</td>
<td>90.9 (21.4)</td>
</tr>
<tr>
<td>BDI</td>
<td>0-13 (low)</td>
<td>20.2 (11.6)</td>
<td>9.1 (7.1)*</td>
</tr>
<tr>
<td>STAI</td>
<td>40.4 (10.2)</td>
<td>56.9 (11.2)</td>
<td>41.2 (10.6)*</td>
</tr>
</tbody>
</table>

* Clinically significant change

Note. * Clinically significant change

Table 15.
Clinically significant change at Time 3 for BSQ, BIAQ, BULIT-R, BDI, STAI.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Population Norm</th>
<th>Face-to-Face (n = 15)</th>
<th>Internet (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 3</td>
<td>% participants</td>
<td>Time 3</td>
</tr>
<tr>
<td>BSQ</td>
<td>81.5 (28.4)</td>
<td>88.9 (32.4)*</td>
<td>73%</td>
</tr>
<tr>
<td>BIAQ</td>
<td>30.7 (12.7)</td>
<td>28.5 (10.3)*</td>
<td>100%</td>
</tr>
<tr>
<td>BULIT-R</td>
<td>53.8 (17.2)</td>
<td>65.7 (21.4)*</td>
<td>67%</td>
</tr>
<tr>
<td>BDI</td>
<td>0-13 (low)</td>
<td>8.2 (9.5)*</td>
<td>73%</td>
</tr>
<tr>
<td>STAI</td>
<td>40.4 (10.2)</td>
<td>38.9 (10.9)*</td>
<td>80%</td>
</tr>
</tbody>
</table>

* Clinically significant change

Note. * Clinically significant change
3.7 Intention-to-Treat Analyses

The data was also analysed by intention to treat, which included all participants that had dropped out of treatment. Summary statistics of all data, including: mean values (and standard deviations) across time; time, group, and interaction effects; and repeated contrasts, between the Face-to-Face and Internet-based groups on all outcome measures can be found in Appendix I (Tables 20 - 25).

Similar to the treatment completer analyses, each outcome variable, demonstrated a statistically significant decrease in mean scores from Time 1 to Time 2 when the two groups were pooled. Large effect sizes for Time effects were found again, with a mean of 0.4. The mean eta squared effect sizes across Time for body image concern measures was 0.5, for weight loss behaviours it was 0.3, for eating behaviours 0.5, and for psychological status measures it was 0.4. These effect sizes are comparable to the treatment completers and to those found in other similar studies (e.g. Celio et al., 2000; Zabinski et al., 2001a).

Intention to treat analyses demonstrated no significant differences between groups nor a group by time interaction on any of the outcome variables, using an alpha level of .005. Similar to the treatment completers analysis, the intention to treat analysis demonstrated that both the Internet and Face-to-Face groups resulted in approximately equal and positive improvements across all outcome measures. Group effect sizes were on average 0.02 and were slightly smaller compared to the treatment completers. The group by time interaction effect sizes were also small, with a mean of 0.3. A similar trend towards a significant group by time interaction for the EWLB outcome measure between Time 1 and Time 2 was also displayed ($F(1, 36) = 5.6, p = .02$).

Finally, there were no significant time differences, nor interaction differences between Time 2 and Time 3 on all the outcome measures in the intention to treat analyses, as was also the case in the completer analyses. Small to moderate effect sizes between Time 2 and Time 3 were also consistent with completer analysis. The average time effect size was .06, and the average interaction effect size was .03. Similar trends of continued improvement between Time 2 and Time 3, in both groups, were found for the same outcome measures, BULIT ($F(1, 36) = 5.5, p = .02$) and DEBQ-R ($F(1, 36) = 8.4, p = .006$).
3.8 Predictors of Treatment Outcome

3.8.1 Hypothesis 5

Hierarchical regression analyses were employed to test Hypothesis 5 to determine whether less severe body dissatisfaction, less severe bulimic eating pathology, milder depressive symptoms, and advanced stage of change scores at baseline assessment predict a favourable outcome for both groups combined at Time 3, on the following outcome measures: BSQ, EWLB, EDI-DT, BULIT-R, BE-FREQ, BDI, and RSE.

Caution needs to be exercised when interpreting these exploratory results due to the small sample size \((N = 31)\) which may not have been large enough to appropriately test the hypotheses of the regression analyses. However, according to Stevens (1999) our sample size is adequate to perform a regression analysis.

Tabachnick & Fidell (1996) highlight that regression analyses are most effective when each independent variable is strongly correlated with the dependent variable, but uncorrelated with other independent variables. In the current study, this was not always the case. Findings indicated that some independent variables were correlated with each other, and there were some weak relationships between independent variables and dependent variables (e.g. correlations less than .3). The following results should be viewed with consideration of the above recommendations.

Tables 16-19, summarize the results of these regression analyses by displaying the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (\(\beta\)), the semipartial correlations (\(\xi_1^2\)), and R, R², and adjusted R², after entry of the dependent variables and predictors.

3.8.1.1 Body Dissatisfaction as a Predictor of Outcome

Less severe body dissatisfaction at Time 1 was not a predictor of favourable treatment outcome at Time 3 on EWLB, EDI-DT, BULIT-R, BE-FREQ, BDI, OR RSE variables. These findings did not support Hypothesis 5. However, the standardised regression coefficients suggested that a favourable outcome on the BULIT and RSE at Time 3 was predicted by more severe body dissatisfaction scores at Time 1.
Examination of Table 16 indicated that Time 1 BULIT was a significant predictor of Time 3 BULIT when entered into the hierarchical regression in step 1 ($R^2 = .42$, Finc (1, 29) = 20.91, $p < .001$), accounting for 42% of the variance. After step 2, with BSQ Time 1 added to the prediction, an additional 20% of the variance, $R^2 = .62$ (CI: .33 to .78), Finc (2, 28) = 14.74, $p < .001$. This was a statistically significant contribution. The standardised regression coefficients for each predictor revealed that Time 1 BULIT (beta = .83) and Time 1 BSQ (beta = -.48), made statistically significant contributions to explaining Time 3 BULIT.

RSE Time 1 was a significant predictor of RSE Time 3 after it had been entered into the equation in step 1 ($R^2 = .18$, Finc (1, 29) = 6.35, $p < .05$). In step 2 when BSQ 1 was entered into the prediction, it explained an additional 21% of the variance in RSE Time 3. This was a statistically significant contribution ($R^2 = .39$ (CI: .09 to .62), Finc (2, 28) = 9.90, $p \leq .01$). The standardised regression coefficients indicated that both the RSE (beta = .46) and the BSQ (beta = .46) at Time 1 made statistically significant contributions to the model in explaining Time 3 RSE.

3.8.1.2 Bulimic Eating Pathology as a Predictor of Outcome

Less severe bulimic eating pathology at Time 1 did not predict favourable treatment outcome at Time 3 on BSQ, EWLB, EDI-DT, BDI, OR RSE variables (see Table 17). These findings did not support Hypothesis 5.

3.8.1.3 Psychological Status as a Predictor of Outcome

3.8.1.3.1 Depression

Milder levels of depression at Time 1 was found to be a predictor of favourable treatment outcome at Time 3 on BE-FREQ. This finding supports Hypothesis 5. However, depression scores at Time 1 did not predict a favourable outcome on any of the following measures: BSQ, EWLB, EDI-DT, BULIT-R, BDI, OR RSE.
Examination of Table 18 demonstrated that BDI Time 1 was a significant predictor of a favourable outcome for BE-FREQ at Time 3. In step 1, BE-FREQ Time 1 was a significant predictor of BE-FREQ Time 3, explaining 30% of the variance ($R^2 = .30$, Finc $(1, 29) = 12.4$, $p \leq .001$). After step 2, BDI Time 1 explained an additional 24% of the variance to the prediction of BE-FREQ at Time 3 ($R^2 = .54$ (CI: .23 to .73), Finc $(2, 28) = 14.76$, $p \leq .001$). This was a statistically significant contribution. The standardised regression coefficient for BDI Time 1 indicated that it was a significant predictor (beta = .51) and made a significant contribution to explaining BE-FREQ Time 3, when the variance explained by BE-FREQ Time 1 was controlled for.

### 3.8.1.4 Stage of Change as a Predictor of Outcome

Stage of change at Time 1 was not a predictor of favourable treatment outcome at Time 3 on any of the following outcome measures: BSQ, EWLB, EDI-DT, BULIT-R, BE-FREQ, BDI, OR RSE variables (see Table 19). These findings did not support Hypothesis 5.

### 3.8.2 Summary

In summary, the hierarchical multiple regression analyses provided minimal support for Hypothesis 5. Findings that supported Hypothesis 5 demonstrated that milder depression scores at Time 1 predicted greater improvement in binge eating frequency at Time 3. Other significant findings were also demonstrated, however these didn’t support the hypothesis. For example, a greater improvement in bulimic eating pathology and self esteem at Time 3 was predicted by more severe body dissatisfaction scores at Time 1. Non-significant predictors of outcome included bulimic eating pathology and stage of change at Time 1.
Table 16.
Summary of Hierarchical Regression for Body Dissatisfaction (BSQ) at Time 1 Predicting Outcome for EWLB, EDI-DT, BULIT, BE-FREQ, BDI, and RSE at Time 3 (N = 31).

<table>
<thead>
<tr>
<th>Variables</th>
<th>EWLBQ 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWLBQ 1</td>
<td>.67</td>
<td>.59</td>
<td>.35</td>
<td>.74</td>
<td>.45***</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>.32</td>
<td>-.04</td>
<td>-.12</td>
<td></td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = .295</td>
</tr>
</tbody>
</table>

\(R^2 = .46\)  
Adjusted \(R^2 = .43\)  
\(R = .68***\)

<table>
<thead>
<tr>
<th>Variables</th>
<th>EDI-DT 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI-DT 1</td>
<td>.36</td>
<td>.74</td>
<td>.23</td>
<td>.22</td>
<td>.13*</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>.36</td>
<td>.04</td>
<td>.20</td>
<td></td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = 10.98</td>
</tr>
</tbody>
</table>

\(R^2 = .15\)  
Adjusted \(R^2 = .09\)  
\(R = .39\)

<table>
<thead>
<tr>
<th>Variables</th>
<th>BULIT 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULIT 1</td>
<td>.65</td>
<td>.74</td>
<td>.68</td>
<td>.83</td>
<td>.42***</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>.36</td>
<td>-.30</td>
<td>-.48</td>
<td></td>
<td>.20***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = 10.98</td>
</tr>
</tbody>
</table>

\(R^2 = .62\)  
Adjusted \(R^2 = .59\)  
\(R = .79***\)

<table>
<thead>
<tr>
<th>Variables</th>
<th>BE-FREQ 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE-FREQ 1</td>
<td>.55</td>
<td>.05</td>
<td>.33</td>
<td>.56</td>
<td>.30***</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>-.26</td>
<td>-.01</td>
<td>-.29</td>
<td></td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = 1.40</td>
</tr>
</tbody>
</table>

\(R^2 = .38\)  
Adjusted \(R^2 = .34\)  
\(R = .62***\)

<table>
<thead>
<tr>
<th>Variables</th>
<th>BDI 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI 1</td>
<td>.52</td>
<td>.26</td>
<td>.36</td>
<td>.57</td>
<td>.27***</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>-.07</td>
<td>-.05</td>
<td>-.22</td>
<td></td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = 7.35</td>
</tr>
</tbody>
</table>

\(R^2 = .31\)  
Adjusted \(R^2 = .26\)  
\(R = .56**\)

<table>
<thead>
<tr>
<th>Variables</th>
<th>RSE 3 (DV)</th>
<th>BSQ 1</th>
<th>B</th>
<th>β</th>
<th>(sr^2) (incremental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSE 1</td>
<td>.42</td>
<td>-.07</td>
<td>.38</td>
<td>.46</td>
<td>.18**</td>
</tr>
<tr>
<td>BSQ 1</td>
<td>.43</td>
<td>.06</td>
<td>.46</td>
<td></td>
<td>.21***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intercept = 1.27</td>
</tr>
</tbody>
</table>

\(R^2 = .39\)  
Adjusted \(R^2 = .35\)  
\(R = .63***\)

Note. *p < .05. **p < .01. ***p < .001

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Table 17.

Summary of Hierarchical Regression for Bulimic Pathology (BULIT) at Time 1 Predicting Outcome for BSQ, EWLB, EDI-DT, BDI, and RSE at Time 3 (N = 31).

<table>
<thead>
<tr>
<th>Variables</th>
<th>BSQ 3 (DV)</th>
<th>BULIT 1</th>
<th>B</th>
<th>β</th>
<th>sr² (incremental)</th>
</tr>
</thead>
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*Note. *p < .05. **p < .01 ***p < .001
Table 18.
Summary of Hierarchical Regression for Depression (BDI) at Time 1 Predicting Outcome for BSQ, EWLB, EDI-DT, BULIT, and BE-FREQ at Time 3 (N = 31).

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<th>β</th>
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<th>(r^2) (incremental)</th>
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<td>(R^2 = .13)</td>
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<th>(r^2) (incremental)</th>
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<td>(R = .74**)</td>
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Note. *p < .05. **p < .01 ***p < .001
Table 19.

Summary of Hierarchical Regression for Stage of Change (STAGE) at Time 1 Predicting Outcome for BSQ, EWLB, EDI-DT, BULIT, BE-FREQ, and BDI at Time 3 (N = 31).

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<th>β</th>
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<td>-0.21</td>
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Note. *p < .05. **p < .01 ***p < .001
4 Discussion of Quantitative Results

4.1 Introductory Overview of Findings

The research findings described have demonstrated that a newly developed group intervention, *The Body Image and Eating Behaviour Program*, is an effective intervention for young women with sub-clinical body dissatisfaction and disturbed eating behaviours. The findings indicated that the intervention, predominantly based on cognitive behavioural therapeutic approaches, but also implementing motivational enhancement techniques in the initial stages of the program, and incorporating aspects of interpersonal psychotherapy through the discussion of interpersonal and social functioning, was a valuable treatment in both Face-to-Face and Internet delivery modes. Improvements in body dissatisfaction, eating pathology, and psychological status, in both delivery modes were demonstrated. To our knowledge this is the first comparison of the effectiveness of an interactive on-line Internet chat group in synchronous time (real time) with a traditional Face-to-Face program, for the treatment of sub-clinical body dissatisfaction and eating disturbance.

4.1.1 Treatment Drop-out

Attrition was not a significant problem in the current study as it has been in other Internet-based programs (e.g. Winzelberg et al., 1998, 2000). There was a relatively small number of drop-outs in this study. Five participants pulled out of the program prior to it starting and two participants (one from the Face-to-Face group and one from the Internet group) dropped-out in the early stages of the program. Exploratory analyses revealed significant differences between those participants who dropped out of the program and those who completed the program. The drop-outs appeared to use more extreme weight loss behaviours, have lower self-esteem, and have higher levels of psychopathology.

The differences between participants' who dropped-out of the program and those who completed it may suggest reasons for non-participation. It is likely that body dissatisfaction and disturbed eating behaviours are just one of the many problems that the participants with higher levels of psychopathology are struggling with. Therefore these participants may not have found an isolated program focusing on body image and eating behaviours to be the most helpful for them at that particular time. An alternative hypothesis to explain patterns in participant drop-out, may be greater ambivalence about changing current behaviour in the drop-out group.

Change and having the motivation to change can be challenging for many individuals (Vitousek
et al., 1998). Sinoff (1990) described this approach-avoidance behaviour as a subject’s inability to make important life decisions. This is especially the case when there are multiple problems in one’s life. This may explain drop-outs in the current study, demonstrated by the higher levels of psychopathology in these participants. However, ambivalence regarding change was not identified through the stages of change measure (URICA) used in this study. Concerns regarding the use of this measure will be discussed in the concluding chapter of this document.

4.2 Hypotheses 1 and 2

Hypothesis 1, that the Face-to-Face group intervention would significantly improve body satisfaction, eating behaviours, and psychological status from Time 1 to Time 2, was supported in that, for the two groups pooled (Face-to-Face and Internet), significant change occurred. Highly significant improvements from Time 1 to Time 2 were demonstrated on the following outcome measures: body satisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety, and self-esteem.

With very few evaluated treatment programs existing for severe body image concerns in young women, these findings significantly contribute to the research literature. They have demonstrated that The Body Image and Eating Behaviour Program is a valuable intervention for young women who do not meet DSM-IV (1994) criteria for an eating disorder but who present with sub-clinical body image and eating disturbances. Furthermore, the treatment has appeared to be therapeutic in a group format, although it is unclear what specific components of the treatment were effective. However, beginning the intervention with motivational interviewing techniques to enhance motivation to change and commitment to the treatment program was well received by participants. The solid framework of CBT offered participants an opportunity to develop cognitive and behavioural strategies for challenging overvalued ideas regarding weight and shape, and to begin normalizing eating behaviour. In addition to learning new skills, the IPT component allowed participants to examine current interpersonal relationships and explore their association with mood, self-esteem, body image concern, and eating behaviours.

The integrative approach differs from traditional programs where in the past, the interventions have predominantly been psycho-educational (e.g. Stice & Ragan, 2002), cognitive behavioural (e.g. Grant & Cash, 1995) or interpersonal (e.g. Fairburn et al., 1986, 1993) approaches. However, it does support the positive findings from Riess (2002) who incorporated psycho-education, CBT, IPT, and relational therapy in an integrative program for women with bulimia nervosa. Riess suggested that body image and eating behaviour improvements may occur through two different pathways, a cognitive pathway that changes
body image attitudes and eating behaviours, and an interpersonal pathway from which eating disturbances may have developed. This may have been the case in the current study as findings have highlighted the considerable value in taking relevant aspects from different therapeutic approaches for a Face-to-Face group intervention program.

Hypothesis 2, that the Internet group intervention program would significantly improve body satisfaction, eating behaviours, and psychological status from Time 1 to Time 2, was supported in that, when the two groups were pooled, significant change occurred. Participants demonstrated highly significant improvements across all outcome measures from Time 1 to Time 2, including: body satisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety, and self-esteem.

This research has found promising results regarding the use and efficacy of the Internet as an alternative mode of treatment delivery for body image and eating disturbances. The findings provide support to the current literature examining computer-mediated approaches as alternative modes of treatment delivery and the potential benefits of Internet-based intervention programs (Celio et al., 2000; Winzelberg et al., 1998, 2000; Zabinski et al., 2001a). Zabinski et al. (2001b) have recently demonstrated the use of delivering a cognitive behavioural intervention for women with high body image concerns, through synchronous Internet relay chat in a small pilot study. Although unable to provide quantitative data, the study demonstrated that the Internet chat room was an acceptable and feasible format for treatment delivery for the four college women who participated. The current study has validated these preliminary findings.

Significantly new contributions to the existing research literature have also been made. These include (1) the development of an integrative psychotherapeutic group intervention, based on CBT and incorporating aspects of MET and IPT, (2) the development and evaluation of an Internet chat program that facilitates on-line group sessions in synchronous time, and (3) the evaluation of an Internet-based program that targeted young women with severe body dissatisfaction and sub-clinical disordered eating.

The findings from the current study also suggest that the improvements made between baseline and end of treatment were clinically significant. The mean effect size across all outcome measures between baseline and end of treatment was 0.5. These effects would be considered large according to Cohen’s (1988) effect size conventions. In the current study a large effect size was desirable where the effect was meaningful to the participant and observers. Furthermore, the effect sizes in the current study were comparable to studies examining the effectiveness of computer-mediated approaches for body image and eating concerns (e.g. Celio et al., 2000; Zabinski et al., 2001a) and to face-to-face studies that have compared two different types of intervention (e.g. Agras et al., 2000).
The current findings provide further evidence that the improvements made were clinically significant changes because overall, at the end of treatment the majority of participants had become similar to their well-functioning normal peers on the BSQ, BIAQ, BULIT-R (Internet group only), BDI, and STAI. BE-FREQ reduced by one scale point, from 13 to 15 days of the last month at the time of assessment, to binge eating on approximately 1 to 5 days of the last month at the end of treatment. However, the standard deviations at the end of treatment on the BSQ and the BULIT-R were large, indicating that some participants were doing better than others.

These changes are remarkable considering the short duration of the intervention program, the new mode of treatment delivery used, and the fact that change occurred in a group setting which doesn't allow for individual guidance and attention.

4.3 Hypothesis 3

Hypothesis 3, that the Internet program delivery mode would be as effective as the Face-to-Face program delivery mode in improving body satisfaction, eating behaviours, and psychological status from Time 1 to Time 2, was supported. There were no significant group differences found between the Face-to-Face or Internet-based groups on the following outcome measures: body satisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety, and self-esteem. Overall, it was found that both groups were making approximately equal improvements across time.

Although no significant group differences were found, there was a significant time by group interaction for the EWLB scale. This was due to the lack of significant change in the Internet group between Time 1 and Time 2. It may appear that the Face-to-Face group was improving more than the Internet group between Time 1 and Time 2, however the non-significant effects reflect the low baseline scores on the use of extreme weight loss behaviours in the Internet group, rather than a lack of treatment improvement. No other group by time interactions were demonstrated. Furthermore, mean scores on the BULIT-R and the BSQ indicated that the Internet group may have been doing slightly better in the intervention program compared to the Face-to-Face group between Time 1 and Time 2 on this measure.

The overall similarity in treatment effects in both the Face-to-Face and Internet-based groups would be surprising to many with regard to the obvious differences between the treatment modes of delivery. One of the major concerns regarding Internet-based interventions is the potential differences in the therapeutic relationship between patient, therapist and group members, compared to a traditional Face-to-Face approach. Concerns regarding
miscommunication from the lack of verbal and auditory cues has been identified as a problem (Murphy & Mitchell, 1998). Other issues in relation to the use of the Internet in psychotherapy have included, the depth of psychological processes, safety and risk management issues, and the disturbance of technological problems and management of these in a time-limited setting (Beel & Court, 2000). As indicated in the following chapter, these do not appear to have been major issues in this study.

In addition, there have been many benefits identified of Internet-based interventions, and further support for these are provided in the lack of significant group differences found. The convenience of the Internet to be able to reach people in rural and remote areas is a strong advantage for such a delivery mode. Confidentiality and privacy is another advantage, particularly in women with eating problems as these individuals are often secretive about the nature of their problems, and are very anxious about negative evaluation from others. The Internet relieves these pressures by removing the face-to-face contact. These aspects of the program are also described in more depth in the following chapter. Furthermore, in the current study, the groups were essentially the same, in terms of length, size, treatment content, homework activities, and group processes. There was the same group leader in both groups which helped to improve consistency and fidelity to the treatment groups and guidelines.

Some caution is required, however, in interpreting these results. Effect sizes indicate that if there was a group difference it may not have been detected due to insufficient power. The mean effect size on the outcome measures for group effects was 0.02. Additionally, the mean effect size for interaction effects was .07. These between-subjects effect sizes and group by time interaction effect sizes ranged from small to medium, according to Cohen's (1988) effect size conventions. A larger sample size would have provided sufficient power to truly detect a difference if there was one. In addition, the observed power values for the group by time interactions were less than 0.8, indicating that there was less than an 80 percent chance of detecting group by time interaction effects. Therefore, caution should be made in making any firm conclusions regarding the similarity in the efficacy between the Internet and Face-to-Face groups as a power of less than 0.80 risks incurring a Type 2 error.
4.4 Hypothesis 4

Hypothesis 4, that improvements in body satisfaction, eating behaviours, and psychological status will be maintained at two-month follow-up in both the Face-to-Face and the Internet program delivery modes, was supported. For the two groups pooled, significant improvements were maintained from end of treatment to follow-up on all outcome measures including: body satisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety, and self-esteem.

There was a trend toward significant time differences on two outcome measures (DEBQ and BULIT-R) between end of treatment and follow-up. Mean scores on these two measures indicated that there were further improvements being made in both groups. There were no significant group by time interaction effects found between end of treatment and follow-up, suggesting that both groups maintained treatment gains in a similar manner across the follow-up period.

The maintenance of treatment effects in both the Internet and Face-to-Face groups are comparable to other computer-mediated programs in this area that examined body dissatisfaction and eating behaviour at similar time intervals (e.g. Winzelberg et al., 2000; Zabinski et al., 2001a). Maintenance of treatment gains provided support for the short-term efficacy of the program in that changes made by participants were maintained for two-months after the treatment had formally finished. These findings offer encouraging support for the durability of treatment effects, feasibility and potential of this new and innovative mode of treatment delivery, although longer-term follow-up is required.

The findings from the current study also suggest that the improvements maintained between end of treatment and follow-up were clinically significant. The mean effect size across all outcome measures between end of treatment and follow-up was 0.08. These effects would be considered medium according to Cohen’s (1988) effect size conventions which represents an effect that is likely to be visible to the naked eye of a careful observer. Cohen (1992) states that a medium effect has approximated the average size of observed effects in different fields. This suggests that the maintenance of effects between end of treatment and follow-up are adequate and meaningful. These effect sizes are also comparable to other studies examining the effectiveness of computer-mediated approaches for body image and eating concerns (e.g. Celio et al., 2000; Zabinski et al., 2001a).
Clinically significant change was confirmed by examining whether total mean follow-up scores had remained within one standard deviation of the general population norm for a particular outcome measure. The majority of participants continued to remain similar to their well-functioning normal peers at follow-up on the BSQ, BIAQ, BULIT-R, BDI, and STAI. Furthermore, the percentage of participants to reach clinical significance increased in both groups on the body satisfaction (BSQ) and bulimic eating pathology (BULIT-R) measures. In fact, all participants in the face-to-face group had made clinically significant change on the body image avoidance measure (BIAQ). These clinically significant changes suggest that body image concerns and bulimic eating behaviours in both groups, and body image avoidance behaviours in the Face-to-Face group were continuing to improve after the end of treatment. These are extremely positive results that offer support for the durability of treatment effects at two-months follow-up.

4.5 Intention-to-treat Analyses

Intention-to-treat analyses did not reveal any different trends compared to the completer analyses. There were no significant differences detected between the Face-to-Face and Internet-based groups. When the two groups were pooled, significant improvements were made from Time 1 to Time 2 on all outcome measures, including: body satisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety, and self-esteem. These improvements were also maintained across groups from Time 2 to Time 3.

4.6 Hypothesis 5

Hypothesis 5, that a favourable response at follow-up to both intervention groups will be predicted by less severe body dissatisfaction scores, less severe bulimic pathology, milder depressive symptoms, and advanced readiness to change scores, was only partially supported. The only significant finding to support this hypothesis was that milder depression scores predicted a favourable outcome for binge eating frequency. Less severe body dissatisfaction, less severe bulimic eating pathology, and advanced stage of change were not significant predictors of a favourable treatment outcome at follow-up on any of the following outcome measures: body satisfaction, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, and depression. Nevertheless, other significant results outside of the hypothesis were found and indicated that greater improvement in bulimic pathology and self-esteem measures at follow-up was predicted by more severe body dissatisfaction scores at baseline.
4.6.1 Depression as a Predictor of Outcome

There have been inconclusive findings regarding depression as a predictor of outcome in bulimia nervosa treatment studies (Garner et al., 1990; Keel et al., 1999; Thiels et al., 2000; Vaz, 1998). In the current study, milder depression scores predicted greater improvement in binge eating frequency. Thiels et al. (2000) claimed that the negative symptoms of depression (e.g. poor motivation, concentration and memory difficulties) can affect the involvement and acquisition of CBT strategies. Therefore, milder depression scores may facilitate greater motivation and concentration which improves engagement with CBT treatment and predicts a favourable outcome. This theory provides a possible explanation for depression predicting greater improvements in binge eating frequency, a behavioural measure, that requires motivation to change.

4.6.2 Severity of Body Dissatisfaction as a Predictor of Outcome

Although unable to support Hypothesis 5, significant findings from the current study suggest an opposite trend in that greater severity of body dissatisfaction may predict outcome. The findings indicated that greater improvement in bulimic pathology and self-esteem at follow-up was predicted by more severe body dissatisfaction scores at baseline. This finding can be understood in terms of relative change. An individual with more severe body image concerns will have larger improvements to make and relatively speaking will make the largest relative change.

In a cognitive model, severe body dissatisfaction maintains dieting and other unhealthy eating behaviours and attitudes (Fairburn & Garner, 1986; Polivy & Herman, 1985). In body image treatment, CBT challenges the preoccupation of the importance of shape and weight which improves eating behaviours. Improving body satisfaction will also improve one’s self-esteem. Therefore, targeting body image and self-esteem in an intervention where individuals have severe body dissatisfaction and further to improve, compared to those with mild body dissatisfaction, will result in bigger relative change and improvement in eating behaviour and self-esteem. The findings in the current study reflect improvements in eating behaviour and self-esteem predicted by the relative change in body dissatisfaction.
Turnbull et al. (1997) found that a longer duration of illness was a predictor of better outcome in bulimia nervosa. It was suggested that individuals with a longer history of illness may be more ready to change and more ready to embark on a treatment program. When an individual is highly symptomatic, they may often feel overwhelmed by the problem and seek help to improve their current level of functioning. This theory relating to the stage of change and motivational factors could also apply to the finding of severe body dissatisfaction being a predictor of favourable outcome in the current study.

The caveat to the findings related to the predictors of outcome in this study was the sample size, as a total of 31 participants may not have been large enough to appropriately test the hypotheses of the regression analyses. However, confidence limits have added validity to the regression findings and have supported the R Square value. The confidence limits in the current study have demonstrated that even though the sample size was small, 95 percent of the variance in the regression models were still being explained.

Knowledge regarding predictors of treatment outcome is helpful as it may potentially allow individuals to be appropriately matched to interventions which may strengthen the effectiveness of the intervention. Although some comparisons have just been made, it is difficult to compare the current findings to other studies as they have mostly examined predictors of outcome in the treatment of bulimia nervosa, and not extreme body image disturbance. Furthermore, these studies have used different treatment approaches, different outcome measures, different statistical analyses, and have demonstrated inconsistent findings.

However, in terms of contributing to the research literature it can be suggested that a favourable response at follow-up for binge eating frequency was predicted by milder depression scores at baseline. Furthermore, a favourable outcome on the bulimic eating pathology and self-esteem measures at follow-up was predicted by more severe body dissatisfaction at baseline which is opposite to what was originally hypothesised.

4.7 Conclusion

The Body Image and Eating Behaviour Program has proved to be an effective intervention for women with sub-clinical body image and eating problems in both Face-to-Face and Internet-based delivery modes. The program demonstrated to be of sufficient length and intensity to target symptom severity and bring about change. This research has provided support for the program as a valuable and highly accessible resource for the body image and eating disordered community. The effectiveness of the Internet-based delivery mode has the potential of offering psychological services to a wide population of people living in diverse geographic locations and struggling with body dissatisfaction and disturbed eating behaviours.
5 Qualitative Program Evaluation

5.1 Program Evaluation

The Body Image and Eating Behaviour Program was developed specifically for the current study and consequently had not been evaluated. It was essential to obtain qualitative feedback from all participants, regardless of group, to examine in more detail aspects of the program, including content of the treatment manual and the group sessions, that were helpful and aspects that were not as helpful. This information provides feedback in order to make any changes to the program for future implementation. As a result, a program evaluation questionnaire was designed to do this.

5.2 Method

5.2.1 Participants and Procedure

Upon completion of the Body Image and Eating Behaviour Program all participants from both groups were requested to complete a paper and pencil Program Evaluation Questionnaire. The questionnaire was completed by 23 participants (12 from the Face-to-Face group; 11 from the Internet group).

The questionnaire was completed from the participant’s point of view. It investigated helpful and least helpful aspects of the program; changes in feelings, attitudes and behaviours that the participants may have experienced; ways in which the program could have been more beneficial; the length of the program and the treatment manual; and the benefits of the group therapy sessions. The questions included in the Program Evaluation Questionnaire can be seen in Appendix J.
5.3 Results

5.3.1 Most Helpful Aspects of the Program

Participants were asked to comment on what aspects of the program were most helpful. Seventy-four percent (17/23) of participants reported that having the opportunity to share experiences and the support they received from other group members in the weekly group sessions was the most helpful part of the program. Comments from various participants included, "sharing experiences helped to put things in perspective for me and helped me to feel less isolated", "meeting people with similar problems was helpful", "it was good to learn things from other people", "the intimate gathering of women made it particularly comfortable for me to share my problems with others".

Another helpful aspect identified included the self-monitoring food diaries. Four participants noted that it was helpful to examine and confront their eating patterns and behaviours as it made them more rational and helped put their eating patterns into perspective. One participant commented "I had done food diaries in the past when I was trying to lose weight but had never looked at it from the point of view of confronting inner assumptions about myself. It helped put my eating habits into perspective." Thought monitoring and learning techniques to challenge irrational habits was also helpful for some of the participants. Six participants felt the coping strategies they learnt were helpful and relevant to their body image and eating behaviour struggles (e.g. relaxation strategies, positive thinking techniques, challenging irrational thoughts, strategies to delay binge eating, and problem solving techniques).

5.3.2 Changes in Feelings, Attitudes, and Behaviours

The most common response from participants to the question concerning "noticeable changes in feelings toward oneself" was feeling more positive. Most of the positive feelings identified by participants were related to their body image. Comments included, "I no longer consider my physical appearance as the sole determinant of my self-worth", "I'm more relaxed within my own body", "I'm not as obsessed with my body", "I don't place as much importance on my size and weight as I used to", "I feel less that self-worth depends on my size and shape". Other participants found that the program helped them to change, "I feel better to be facing up to my problems", "I feel more motivated to change", "I have more confidence that I can change and I'm less hopeless". One participant reported mixed feelings from participating in the program, "sometimes it makes me feel worse because I realize the extent of my problem".
As expected, individual changes in attitudes and behaviours varied between participants. Responses ranged from, “having more confidence” in general, feeling less negative about body shape, “I give less of my energy to feeling negative about my body all the time”, “I realised that I had become far too consumed by my image and that there were far more important things to worry about” and “I still hate my body at times, but can now recognize when these times occur, knowing that I’m probably just feeling generally down”. One participant identified that the most radical change she made was with regard to her attitude towards society, “one of my biggest gains was the realization that there are social pressures placed upon us which we internalise – a notion I’d never considered before, and it has made me quite angry at society”. Other responses to individual changes in attitudes and behaviour included having better control of eating patterns, whether it be binge eating, “I don’t freak out as much when I do binge, I just accept it and move on, I’m more in control now”, increased awareness of hunger, “I’m more able to respond to hunger”, healthy eating, “I have more self-respect to eat to be healthy, not to be emaciated”, “I eat what I want, I just eat it, enjoy it, and who cares what others think attitude”, “I’m not interested in dieting, just healthy eating”, or vomiting.

5.3.3 Least Helpful Aspects of the Program

Participants were asked the question “what aspects of the program were least useful for you?” Although responses were again varied, seven participants identified that they didn’t use the self-monitoring food diary. Reasons for this were because they either felt ashamed writing down their eating behaviours, it put too much of a focus on their eating behaviours “self monitoring my eating drew more attention to eating which was something that I was wanting to become more relaxed about”, or that they were not ready to make changes to their eating patterns, “trying to normalize my eating and letting go of the control was hard”, “the thought of giving up dieting was too stressful for me to think about”.

There were components of the reading material that were not relevant to six of the participants. In summary, it was identified that strategies for reducing binge eating, relaxation strategies, problem solving techniques, and the sociocultural aspects of the treatment manual were not as useful to these six participants. The predominant reason for this was due to the different backgrounds of these participants and different reasons for joining the Body Image and Eating Behaviour Program. The program was for individuals with extreme body image concerns, and also accepted individuals with unhealthy eating behaviours, and those who may have been struggling with both. Consequently, an individual with severe body image concerns but whose eating was healthy, may not have found reading material on binge eating relevant.
5.3.4 Improvements to the Program

Similarly, a suggested improvement to the program by three of the participants was to have group members presenting with the same concerns about their bodies and eating behaviours, and in addition for members to be at the same stage in terms of readiness to change.

Other suggestions included, having two group session each week “because by the time the next session would come around I would be in ‘diet mode’ again” and making the sessions go for a longer period of time. One participant would have preferred the program to be solution-focused rather than problem-focused, she suggested to “focus on success stories rather than starting from scratch techniques. I would find it helpful to look at the end results and then work backwards and see how they were achieved”. Another participant suggested having a person who has recovered from an eating disorder to come and speak at one of the group sessions and learn “how they did it and what helped them to change”.

A multicultural issue arose from the question enquiring about future improvements to the program. Four participants from Asian backgrounds expressed they would feel more comfortable in a multicultural group where there were other Asian members. One of the participants suggested to have “more Asian girls in the group because I feel like I’m the only Asian girl who has such problems”.

5.3.5 Helpfulness of Weekly Group Sessions

Participants were asked “Did you find the group sessions helpful? If so, in what way?” and “Are there aspects of the group sessions that you would have liked to be different?” Eighty-seven percent of participants found the weekly group sessions helpful. The most valuable aspect of the group sessions was the opportunity for participants to share their feelings in a safe environment, to offer and gain support and understanding from each other, and to learn helpful coping strategies from others. Comments from participants included, “it was helpful to know that you’re not the only one out there with these thoughts and that there are others like you”, “the groups were good because you didn’t get judged for your feelings”, “the groups gave me a strong sense of companionship”, “it’s good to know that others have problems too”.

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There were twelve participants who didn’t think there were any aspects of the group sessions that needed changing. However, other participants did offer some suggestions for future programs. Three participants reported feeling uncomfortable to discuss positive parts of their progress, "I felt uncomfortable saying positive things when I knew others were having a bad day or week". It was suggested that more feedback could be given to help people feel more comfortable talking about positive progress. Other suggestions included, having discussions that provided more answers rather than more questions, having longer group sessions, and having the opportunity to learn more about each individual member's personal issues.

5.3.6 Length of the Program

Participants were asked to comment on the 8-session length of the program. Fifty-two percent of participants (12/3) felt the program was a good length, with some commenting that it was "a good starting off point". Whereas forty-four percent of participants (10/23) felt the program should have been longer. A common length of time suggested was a 10 to 12 week program. One participant commented, "just as things were getting better, it seemed the program was almost ending", and another "the program was very motivational and since it has ended, I have found myself slipping back into bad habits almost subconsciously. It should be longer".

5.4 Conclusions

Qualitative information from participants provided valuable feedback regarding specific components of the new program, and aspects that were helpful and unhelpful. Overall, the program was a positive experience for all participants. The support gained and opportunity to share experiences with others was identified as one of the most helpful aspects of the group program. The majority of participants responded well to the predominant cognitive behavioural approach used, with only a few members having a preference for a more solution-focused approach.

Approximately half of the participants found the 7-week length of the program, including a booster session, to be appropriate. There were time restrictions for this clinical research as it took place in a university setting. It was not feasible to extend the length of the program outside the semester timetable and into holiday periods due to higher dropout rates. One of the difficulties identified with the program was implementing an intervention program to individuals at different stages of change and catering for individuals with differing concerns regarding their eating behaviour. Unfortunately, time constraints, feasibility, and sample size in clinical university research influenced these concerns.
6 Qualitative Evaluation of Internet-Based Modality

The mechanisms of how Internet-based intervention programs can be used therapeutically are still in the process of being investigated and researched. The purpose of the current qualitative study was to provide an exploratory investigation into specific issues that relate to Internet-based programs, including the comfort and acceptability of the approach, technological difficulties, and the advantages and disadvantages of electronic communication and treatment.

It has been suggested that the accessibility and privacy of computerized interventions may assist an individual to feel more comfortable in the therapeutic process (Newman, Consoli, & Barr Taylor, 1997; Finn & Lavitt, 1994). Weisband & Reinig (1995) found e-mail users to be more open in disclosing personal information than they would be in Face-to-Face situations because they do not physically see the person with whom they are communicating. It was important to explore whether these were perceived advantages in the present study.

Other advantages of on-line psychological services have been identified in the research literature. For example, the opportunity to provide therapeutic services to individuals who would not otherwise have access to such services, due to geographic locations. Murphy & Mitchell (1998) identified other potentials of computer interventions including typing, as it externalises the individual’s problems with their issues appearing before them, promoting therapeutic change. They also identified the recursive nature of writing, where individuals have the opportunity of editing their comments and an opportunity to tell a story about themselves in a different way than in Face-to-Face therapy where there are different social pressures and demands.

However, there have also been concerns expressed regarding on-line psychological services compromising the therapeutic relationship, and increasing the rate of client dropouts (Newman et al., 1997). Additionally, there has been the question regarding whether warmth and compassion can be communicated via text, and the challenge of interactions without non-verbal cues (Murphy, & Mitchell, 1998).

The rapidly growing rate of Internet communications makes the occurrence of on-line therapy inevitable in today’s society. Although it is difficult to monitor the quality of care delivered over the Internet, attempts need to be made to implement evidence-based research regarding the efficacy of psychological treatment delivered over the Internet. Thus, the current qualitative study aimed to examine perceived advantages and disadvantages of the Internet-based format.
6.1 Method

6.1.1 Participants and Procedure

Upon completion of The Body Image and Eating Behaviour Program all participants from the Internet-based group were requested to participate in a 20 minute telephone interview. The purpose of the interview was to perform a thematic analysis exploring the effectiveness and usefulness of the Internet-based component of the intervention program. Fourteen participants were available for interview.

The interview consisted of questions enquiring about the advantages and disadvantages of an Internet-based therapeutic program and asked participants in what mode of treatment program they would prefer to participate (Internet or Face-to-Face) should they have a choice again in the future. Participants were asked about technological difficulties encountered in the Internet-based program, ways in which the Internet-based program could have been more beneficial, the process of the on-line chat sessions and how comfortable each participant felt in sharing information in an on-line group setting. Individual components of the Internet-based program (e.g. the on-line manual, the bulletin board, and the on-line chat room) and their utilisation were examined. The interview schedule can be viewed in Appendix K.

6.2 Results

6.2.1 Advantages of an Internet-Based Program

Participants expressed common themes with regard to the advantages of the Internet-based program. All participants identified the advantage of being able to feel more confident in sharing and expressing emotions than in a Face-to-Face group. It was felt that typing messages was a more direct way of communicating and that the messages were more open and honest. It was described as a helpful, and perhaps less intimidating and confronting way of seeking help, particularly for the first time. One participant reported “I didn’t need to think so much about what I was saying, it wasn’t as awkward as when you’re actually in front of somebody, and it was easier to talk about personal things”.

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The participants described that in a traditional Face-to-Face scenario they felt "too embarrassed having to face people" and they would become too distracted by their own anxiety in speaking in front of a group, therefore not being as communicative with others. Another participant noted that the non-judgemental environment and having a degree of anonymity in the web based group was helpful in facilitating open discussions.

The Internet-based program was also identified as being a convenient and accessible way to join a psychotherapeutic group as one could join the group within the comforts of one’s own home. Participants reported that the convenience of not having to travel allowed them the opportunity to attend more group sessions.

6.2.2 Disadvantages of an Internet-based Program

There were also common themes of disadvantages of an Internet-based therapeutic program. Participants felt that although they could disclose information about their behaviours, thoughts, and feelings easily, they felt that there wasn’t as much opportunity to explore some of the deeper and more underlying issues they were facing. Two participants expressed that they found it difficult to be empathic over the computer.

The fast speed at which the messages reached participants computer screens made it more challenging to continue a smooth conversation. Individuals found it difficult to monitor the speed with which they needed to respond as well, sometimes leading to many different messages appearing on the screen at the same time. One participant reported that she sometimes felt the "group conversations go around in circles and it's hard to really extrapolate things". Another commenting that "it was difficult to control the discussion, especially when different people were following different tangents". This inherent problem with computer technology was dealt with by keeping the on-line chat sessions as directed as possible, and highlighting to participants the importance of reading each message and keeping message responses within the same topic of conversation rather than introducing a new topic.

Another disadvantage identified by fifty-seven percent of participants (8/14) was the difficulty in developing close bonds with other group members. It was reported that participants would have liked to develop contacts and possibly friendships with women experiencing similar problems as themselves and continue these friendships and support once the program had finished. However, it was felt that the Internet-based environment made it difficult "to really get to know each other". Three participants felt that they were "more people oriented" and missed the "personal contact". However, in one of the Internet-based groups, a group member took the initiative of starting her own email support group with interested participants once the group had formally finished.
6.2.3 Process of On-Line Chat Sessions

All participants found the on-line chat sessions to be helpful. Five participants felt they became more involved in the Internet-based program compared to a Face-to-Face program as they were able to read and really understand the messages in the chat room. One participant reported that "reading the written text made the messages and thoughts of others seem clearer, you actually could really think about what you wanted to say as well". Another participant reported that for her "communication was easier on-line because she had the time to put her thoughts together", and another felt that it gave her time to be able to "reflect on herself" as she could read over the messages she had written.

All participants reported the on-line chat sessions provided a supportive environment which helped them feel less alone with their body image and eating struggles. The weekly group sessions were found to be motivating for participants and helped them to stay focused on the process of change throughout the program. There was a general feeling reported by participants that as they became more familiar with the on-line chat program, the conversation flowed more smoothly, with one participant commenting that "it was like we were actually talking, rather than just writing messages".

One participant who was an international student from Malaysia reported some language and cultural barriers. She found the on-line chat sessions to be too fast and that she missed some of the conversations due to language difficulties. In addition, this participant expressed that she would have felt more comfortable in a group with more Asian women who were surrounded by similar cultural pressures as her.

6.2.4 Sharing Information in an Internet-Based Group

Participants were asked to rate on a five-point Likert-type scale, where (0) is not at all comfortable and (5) is extremely comfortable, the degree to which they felt comfortable sharing information in the Internet-based group. The mean score for participants was 4.5, with scores ranging from 3.5 to 5. The only aspect identified that interfered with participants sharing information was the concern that they may disclose something personal and then not be responded to by other members because of time delays in relaying messages, or whether or not it was worth disclosing as the topic may not be picked up or carried on with.
6.2.5 Technological Difficulties

Very few technological problems were encountered throughout the program. However, there was one common interruption to the flow of the group session which involved messages appearing on participant's computer screens at slightly different times (usually within minutes) depending on the speed of individual Internet service providers and their mode of connection (e.g. home modem, university modem, a network modem). For some participants this caused a delay in their response to messages and an interruption to the flow of the conversation taking place at that particular moment. This technological problem affected the ability of participants to respond appropriately to the conversation and follow the current topic. Those participants with faster connections (e.g. those operating their computers through a network or a fast modem) did not experience these difficulties.

6.2.6 Preference for Mode of Treatment in the Future

Participants were asked whether they would prefer to be involved in an Internet or a Face-to-Face group if they had the opportunity to join a similar group again. Fifty-seven percent (8/14) of participants chose a Face-to-Face setting. Reasons for this choice included the opportunity to develop more solid friendships with members in the group, the ability to talk directly to people and the ease of communication, and to be able to see others feelings and emotions. One participant identified that "meeting Face-to-Face would make the group sessions seem less surreal", and another felt it would be helpful "to hear myself out loud". One participant identified the Internet-based group to be "an easy way out" for her as she was able to avoid being confronted by people. Once finishing the program the same participant commented that she felt "the Face-to-Face group would have been more helpful because it would have made me face my fears, and this would have been more therapeutic for me".

Forty-three percent (6/14) of participants identified they would prefer to join another Internet-based program if they had the opportunity in the future. The convenience of joining an Internet-based program where one could participate from home or from any computer with Internet access was a common reason for having preference over a Face-to-Face approach. One participant reported "I live far away from the city and get nervous on public transport when it's dark so the Internet-based group really suited me". This seemed particularly important for three of the participants who were in full-time employment. They reported that joining traditional Face-to-Face groups in the CBD location were not feasible for them due to work commitments and the location of their work place. One of these participants found logging on from her work place at the end of the day very convenient in terms of travel time, expenditure, and privacy.
Another participant's job required constant interstate travel which has made it impossible for her to regularly attend any Face-to-Face groups in the past. She commented that "being able to join a Internet-based program was perfect for me because I travel fortnightly with my job. In this program I was able to regularly log on to all the sessions no matter if I was in Melbourne or somewhere else around Australia".

Additional comments made by participants who favoured the Internet-based program were that "it was less confronting", "there was no pressure to talk", "I felt more comfortable voicing my thoughts through writing messages, rather than people watching me", "it's my secret and I felt more comfortable chatting over the Internet rather than actually meeting people", "the on-line chat sessions made me become more involved in the group and pay attention as you actually had to read the messages, and it was noticeable if you didn't respond".

6.2.7 Improvements to the Internet-Based Program

Participants were given the opportunity to offer suggestions of ways in which the Internet-based program could be improved. Two participants identified that the bulletin board, where individuals had the opportunity to post messages onto a message board, was not used. One participant felt that this additional support would have been beneficial to her and highlighted the need to have this component used in such a program. Four participants suggested for the group to meet in a Face-to-Face setting in the middle of the program. They thought this would be a good opportunity to associate faces with names and introduce human contact to the program. One participant thought that if a Face-to-Face meeting wasn't possible, a telephone conference might also be helpful. She thought this would allow participants to hear each others voices and get to know each other better through a more natural conversation.

Ninety-three percent of participants (13/14) highlighted the importance of keeping group sizes small. In the current study, the group sizes varied from four to eight participants, not including the group leader. Suggestions were made to have anywhere from three people to eight people in the group, with a common average of five people. Similar reasons for having smaller group sizes were provided. Participants wanted to feel they had more control over the conversation in the group session. They wanted to slow down the on-line chat process, keep the conversations on track, have in depth discussions with each other and really get to know one another, and receive and provide feedback regarding different concerns and helpful strategies.
6.2.8 Utility of Individual Components of the Internet-Based Program

There were three main components of the Internet-based program, including an on-line treatment manual, a bulletin board, and an on-line chat room. Participants were asked about the frequency of access and necessity of these components. As has been demonstrated previously, the on-line chat sessions were regularly attended by all participants and were an integral component of the treatment program. In addition, the majority of participants reported using the hard copy of the treatment manual as opposed to the on-line copy of the manual which was also provided. Three participants reported using the on-line manual more frequently. They found that they were often on the computer so it was just as easy to stay there and read the weekly reading material and complete the weekly evaluation forms. The other participants found the hard copy more convenient to pick up and take away with them, and it offered them an opportunity to do their reading in privacy. They reported that it was helpful to write the homework exercises or notes straight onto the manual, and some had a preference for reading from paper rather than the computer screen.

Unfortunately, the bulletin board was minimally utilised throughout all groups involved in the program. Participants expressed that available time was a contributing factor to their lack of use of the bulletin board. Joining the on-line chat sessions each week and completing weekly reading and relevant activities was enough to keep participants actively involved in the program. For a few group members who didn’t have internet access at home, they found it too much of an effort to find a private computer and post a message throughout the week. A common reason for not posting a message was “I would have liked to use it but nobody else did and I wasn’t going to be the only one”. This type of view was expressed by nine participants. Another two participants expressed an Internet security issue. They felt inhibited about leaving a personal comment on a message board on the world wide web and concerned about who may be able to view this message.

6.3 Conclusions

Overall, the majority of participants accepted the Internet-based delivery approach as providing a comfortable medium to share and express emotions. The weekly on-line chat sessions were seen as a helpful and an essential component to the success of the program in helping participants overcome their body image and eating problems. Participants reported feeling more comfortable disclosing personal information in an Internet setting as opposed to a Face-to-Face setting.
All participants found the Internet-based intervention to be convenient and accessible. It provided an option for participants to join a psychotherapeutic group who would normally be unable to access such a service. In the current study, the Internet-based group was particularly beneficial for those participants who lived in distant locations, worked full time outside of central metropolitan areas, or regularly travelled with work commitments. The drop-out rate in the Internet-based group was low which is contrary to concerns expressed regarding this mode of delivery resulting in an increased drop-out rate. Participants specifically noted that the convenience of the treatment delivery was a motivation to continue with the program.

The current study was unique to other research studies in this area as it introduced synchronous on-line group therapy occurring in “real time”, whereas most other studies (Zabinski et al., 2001b excluded) have developed computer interventions using asynchronous email bulletin boards. A bulletin board was an additional component of the current intervention, however it was minimally utilised due to time pressures and privacy concerns regarding the security of leaving messages posted on the world wide web. The password protected web site didn’t help to alleviate these concerns.

Although there were minimal technological difficulties experienced throughout the program, the speed of individual Internet service providers did interrupt the flow of conversation. Common themes of disadvantages of an Internet-based approach included the difficulty in exploring deeper and more underlying psychological issues. This was influenced due to the speed of the discussion and the interruption to the flow of conversation with messages appearing at uncontrolled times. Participants also reported missing the development of close bonds with other group members which they felt may have happened in a Face-to-Face setting.

The Internet-based group hypothesised that the Face-to-Face delivery mode would be attractive to participants because of the social contact it can provide, the ease of communication, and the face-to-face interaction where non-verbal cues are understood. Alternatively, the Internet mode of delivery provided the advantage of being convenient and accessible. This study has demonstrated that an Internet-based approach is an acceptable mode of treatment delivery. Further research to identify individual characteristics most appropriate for Internet delivery would enhance treatment effectiveness.
7 Concluding Discussion

In the current study, a manual-based group intervention program, *The Body Image and Eating Behaviour Program*, for young women with sub-clinical body dissatisfaction and disturbed eating behaviours was developed and evaluated, using two different modes of treatment delivery: a traditional Face-to-Face intervention and an Internet-based intervention with on-line chat in synchronous time. Promising results were identified and all hypotheses regarding treatment outcome were supported. When the two groups were pooled, significant improvements across time from baseline to end of treatment on all outcome measures (body dissatisfaction, body image avoidance behaviours, dietary restraint, extreme weight loss behaviours, drive for thinness, bulimic pathology, binge eating frequency, eating pathology, depression, anxiety and self-esteem) were demonstrated. Furthermore, these improvements were maintained from end of treatment to follow-up. There were no significant between group differences found.

This research has contributed to a deeper understanding of delivering psychotherapeutic intervention programs over the Internet. It has demonstrated efficacy of using the Internet as an alternative mode of treatment delivery for body image and disturbed eating problems. It is the first study to deliver a psychotherapeutic program (based on an integrative approach) through an interactive on-line Internet chat group in synchronous time for the treatment of sub-clinical body dissatisfaction and disturbed eating behaviours in young women. Qualitative analyses have also suggested that participants in the Internet group found it to be an acceptable, helpful, and feasible approach to treatment delivery.

Predictors of a favourable treatment outcome, combining both groups to increase the sample size, were also examined. Unfortunately, the current study contributed further to the inconclusive evidence regarding predictors of treatment outcome. It was found that milder depression scores at baseline significantly predicted greater improvements in binge eating frequency. Less severe body dissatisfaction, less severe bulimic pathology, and advanced stage of change did not predict favourable treatment outcome as was originally hypothesised. However, instead it would seem that higher symptomatology at baseline predicted favourable outcome at follow-up. For example, more severe body dissatisfaction predicted greater improvements in bulimic pathology and self-esteem at follow-up.

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7.1 Consideration of Treatment Effects

The Body Image and Eating Behaviour Program was a newly developed program for the treatment of sub-clinical body image and eating problems (including the use of extreme weight loss behaviours and binge eating). The program consisted of a combination of interventions that have been indicated to be valuable in modifying body dissatisfaction and disturbed eating behaviours in previous programs. It was primarily based on cognitive behavioural therapeutic approaches but also integrated techniques from motivational enhancement therapy and interpersonal psychotherapy.

Techniques from motivational enhancement therapy were introduced in the initial stages of treatment. Strong attendance rates and the small number of treatment drop-outs may have been influenced by these early treatment efforts to reduce ambivalence towards treatment and to increase motivation to change. There is strong research evidence for the effectiveness of cognitive behavioural therapy in improving body dissatisfaction (Cash, 1996; Rosen, 1995). As cognitive behavioural therapy was the foundation of the current intervention, it is likely that it was responsible for many of the improvements observed. Furthermore, an important aspect of the program was the completion of homework activities between group sessions. The purpose of the homework activities was to reinforce cognitive behavioural techniques that were introduced each week and to keep participants motivated throughout the week. The interpersonal psychotherapy approach of examining current social and interpersonal problems that was introduced in addition to the cognitive behavioural framework may have also been beneficial. There is no particular indication that one therapeutic approach counteracted the effect of another.

The effectiveness of the intervention suggested that an integrative approach may be helpful for a sub-clinical population, potentially allowing participants to focus on specific components from the different treatment modalities that were most helpful to them. However, the absence of a control group in this study makes it unclear what components actually produced the changes that were observed and this study does not enable an examination of the relative contributions of different therapeutic styles.
7.1.1 Comparison of Delivery Modes

Traditional Face-to-Face group therapy has been shown to be effective in previous studies of body dissatisfaction and bulimia nervosa in cognitive behavioural therapy (Grant & Cash, 1995; Rosen et al., 1989; Telch et al., 1990), interpersonal psychotherapy (Wilfley et al., 1993, 2002), and motivational enhancement therapy (Feld et al., 2001). The current study provides further support for the effectiveness of Face-to-Face group psychotherapy in reducing body dissatisfaction, disturbed eating behaviours and improving psychological functioning, in an integrative intervention program.

The two delivery modes in the current study operated in essentially the same way. Both delivery modes used the same treatment program and both were bound by the same group session structure, process and requirements. The only difference between the groups was that one was delivered in a traditional Face-to-Face mode and the other was delivered on the Internet in an on-line chat room. In the Internet-based group, participants and therapist were not anonymous to each other as assessment interviews were conducted face-to-face, and the first and last “booster” group sessions were face-to-face sessions. This provided an opportunity for participants to meet each other and put a face to the names of other participants. However, the lack of anonymity does raise the issue of what the Internet-based intervention would be like if it was completely anonymous. This is a likely scenario for treatment delivery in geographically distant locations. Currently, there is no evidence to indicate the effectiveness of the Internet-based intervention in anonymous settings. This requires further research.

The remaining sessions of the Internet-based program were conducted through a password protected on-line chat room in synchronous time (i.e., real time). In addition to the chat program, there was a bulletin board (i.e., email message board) provided. This allowed participants to email messages to each other regarding treatment content and personal experiences between group sessions. However, the bulletin board was minimally utilised throughout the program. Participants reported that time constraints inhibited their use of the bulletin board and that the weekly on-line group sessions were sufficient for them to feel involved and supported in the program. In addition, some participants were concerned about the security and confidentiality of posting messages to a board that was linked to the world wide web.
Overall, there was positive feedback from participants in the Internet-based group with regard to their experiences of participating in such a new and innovative program. Qualitative interviews revealed that participants felt more comfortable sharing information in the Internet group compared to a face-to-face setting because they didn’t have to physically face each other which they found less intimidating. Several other studies have also reported that clients can self-disclose more easily to a computer terminal (Childress, 1999; Zabinski et al., 2001b).

Participants identified other promising advantages of Internet-based programs. These included that it is a convenient, accessible, supportive, motivational medium, that enables a comprehensive understanding of the chat content material. These advantages supported the potential of an Internet-based treatment for individuals who usually would be unable to access such psychological services due to their geographic location or heavy work commitments requiring after hours work and travel. One participant in the Internet group attended the weekly chat sessions from different states in Australia due to work trips and found this very convenient. Another participant regularly attended the evening group sessions from her work computer. Thus, Face-to-Face therapeutic groups existing in the community are often not accessed for these very reasons and an Internet mode of delivery has the potential of overcoming these difficulties.

Although the advantages outweighed the disadvantages in the current study, there were some limitations to the Internet-based group. In qualitative interviews, participants reported that it was more difficult to discuss deeper underlying psychological issues and form close bonds with other members. Participants in the Internet group felt they would have been able to gain more social support in a Face-to-Face setting. This may be an inevitable limitation to Internet-based interventions as the lack of body language and facial cues for emotional expression and warmth may inhibit the formation of closer bonds.

Although there were minimal technological difficulties experienced throughout the program, one common problem was the speed of individual service providers and network connections. This interfered with the speed at which messages reached participants’ computer screens. Sometimes messages would appear quickly and at other times they would be slow. This interrupted the flow of conversation and at times participants found it difficult to follow the conversation. As this is an inherent problem when using on-line Internet connections, participants need to be informed to send messages that are in relation to the common topic of conversation and read as many other messages as possible before responding again. This is a similar rule as allowing each member an opportunity to speak and voice their opinions in a face-to-face setting.
7.2 Considerations of Predictors of Outcome

An examination of variables that predicted treatment outcome in the current study found two predictors of outcome. The finding that milder depression predicts greater improvements in binge eating frequency could be explained by the theory that the negative symptoms of depression can affect the involvement and acquisition of cognitive behavioural strategies (Thiels et al., 2000). Thus, milder depressive symptoms might enable the individual to have the motivation to adopt these strategies to normalize eating behaviour and reduce binge eating. However, the relationship between depression and poor outcome is still unclear in the literature. Vaz (1998) expressed uncertainties as to whether depression is an obstacle for treatment outcome or a non-specific factor that can interfere with the psychotherapeutic process. The current results contribute to the inconsistent and contradictory findings demonstrated in the research literature.

The additional finding that severe body dissatisfaction predicts greater improvement in bulimic pathology and self-esteem is also inconsistent in the research literature. Distorted attitudes toward weight and body size and body image disturbance have been found to be related to good (Maddocks & Kaplin, 1991; Fairburn et al., 1992) and poor outcome (Ordman & Kirschenbaum, 1985; Walsh, Hadigan, Devlin, Gladis, & Roose, 1991) in bulimia nervosa. Hence, it is difficult to make any firm conclusions regarding body dissatisfaction as a predictor of good outcome until other studies consistently replicate this finding.

Although the current findings were only able to demonstrate two predictors of outcome, there are likely to be other predictors that weren’t assessed including, psychological characteristics of ineffectiveness and impulsivity, interpersonal functioning, personality traits, family psychiatric background, and family relationships. Unfortunately many of the studies that have examined predictors of outcome have similar shortcomings as does the current study, in that the samples have been small and have probably lacked sufficient power to even find predictors. Future research is required with larger, comparable studies that have used similar samples so the findings can be useful in clinical settings. The ability to detect individual characteristics that are predictors of outcome can help clinicians develop and choose the most appropriate intervention for an individual. This is becoming increasingly more important for the clinician with the development of new and alternative modes of treatment delivery to select from (e.g. brief psychotherapy, intense psychotherapy, self-help, guided self-help, group therapy, and Internet-based programs).
7.3 Ethical Issues for Consideration

As therapeutic interventions using the Internet are becoming more common in our society, it is essential to develop an appropriate standard of practice regarding psychological interventions using this new mode of treatment delivery. As previously mentioned, the Australian Psychological Society (APS, 1999) has already made specific considerations for psychologists providing services on the Internet. These should be strictly adhered to and followed. Guidelines regarding minimum on-line security protocols need to be established to ensure maximum precaution is taken for the privacy and confidentiality of all participants. In the current study, efforts were made to protect participants’ identity by providing a password protected web site. In addition, log files were deleted after each session and the chat room was turned off between sessions.

Safety and risk management should be a priority in any intervention program and particularly in Internet-based programs. In the current study, a weekly evaluation page was set up for participants in both groups to comment on their current mental state. Individuals who didn’t return the evaluation page each week were encouraged to do so by the group leader. Those participants with higher levels of depression and anxiety, or any other evident psychological problems, were also contacted and their current concerns were discussed. Emergency telephone numbers and a management plan of distress were provided and developed with participants at the beginning of treatment.

Knowledge regarding individual characteristics and presenting problems most suitable for on-line therapeutic interventions would provide protection for those participants who may not benefit from or be appropriate for such a mode of delivery. This study was not able to provide information on such treatment-specific individual characteristics. In the current study, the face-to-face assessment procedure allowed for comprehensive psychological assessments to be taken. If feasible, a face-to-face meeting would be highly recommended to ensure appropriate diagnosis and risk management. International Internet group programs would not be recommended at this stage with the limited existing evidence of the effectiveness of these programs, and uncertainties regarding legal and jurisdiction issues.
7.4 Limitations of the Study and Directions for Future Research

7.4.1 Generalizability of Findings

As with the vast majority of research in this area, the present study examined a relatively small sample of predominantly middle-class young Australian women. Therefore the present findings cannot be generalized to women of a lower socio-economic status, to older women, nor to women from all ethnic minorities. However, in the Internet-based group, there was more ethnic diversity with 33% of participants being Asian and 39% being Anglo-Saxon.

The current study and other related computer interventions in this area have been targeted towards young women, who in today’s society are regular users of Internet technology and chat rooms (Celio et al., 2000; Winzelberg et al., 2000; Zabinski et al, 2001a). Therefore the present findings cannot be generalized to women in different age groups. Although many professional women would be confident in computer technology, non-professionals may be less familiar and experience difficulty using this mode of treatment delivery.

In addition, the above research findings may not be generalizeable to a clinical eating disorder population because the present study was targeted at women with sub-clinical body image concerns and eating disturbances. However, research has demonstrated that the risk factors are similar between sub-clinical and clinical body image and eating behaviour disturbances (Killen et al., 1994; Killen et al., 1996).

7.4.2 Methodological Issues

When interpreting the results from the current study, certain limitations need to be considered. The sample size was small, which increased the risk of Type 2 error. A larger sample size would increase the power of our results. Conclusions could then be made with more confidence about the possible differences, if any, amongst the treatment modes of delivery. Furthermore, an understanding of the characteristics of individuals who may be more or less responsive to an Internet-based intervention is still required. A better understanding of these individual dimensions would assist in matching individuals to different modes of treatment delivery. Unfortunately this was unable to be investigated in the current study due to the small sample.
In addition, although participants were randomly allocated to group, there was not a delayed-treatment control condition. A randomised controlled trial would control for assessments and time effects. It would also control for expectation effects and perhaps other non expected group therapeutic influences. The comparative design used in the current study was not able to determine whether the Face-to-Face or Internet mode of delivery had specific effects for the treatment of body dissatisfaction and disturbed eating behaviours in relation to a control group.

The improvements made from baseline to end of treatment in both groups, on the body image, eating behaviour, and psychological outcome measures, were maintained at the two-month follow-up period. However, although the improvements were maintained, this was only a short period of follow-up. It didn’t allow for an investigation of the durability of treatment effects or long term changes. A longer period of follow-up (e.g. 12 months) to evaluate the efficacy of treatment should be examined in future research.

In this research the individual has been considered the unit of observation. It might be argued that observations were not independent as patients participated in groups. It would therefore be ideal to use group as the unit of observation. In this pilot study however, the number of groups was insufficient for this analytic approach. In future explorations of this treatment, using the group as a unit of observation should be considered.

In this study, the program was developed, recruitment conducted, and groups delivered by the same person. This could theoretically have led to some biases. Ideally, in future research, assessments should be conducted by an independent assessor who is unaware of the randomisation process and is not involved in the delivery of treatment. An independent assessor has the advantage of reducing investigator (e.g. assessments of outcome, including end of treatment interviews) and participant bias (e.g. social desirability responses).

Other potential methodological limitations include the use of the EDE-Q self-report questionnaire instead of the interview version for examining the extent of eating pathology and making a formal eating disorder diagnosis at assessment. Clinical interviews have been found to be superior compared to self-report measures in making accurate diagnoses of eating disorders (Fairburn & Beglin, 1994). However, in the current study, time constraints prohibited the use of the EDE interview. Nevertheless, the self-report questionnaire was valuable as it is a standardized measure, is economical, and takes little time to complete which was important due to the number of other assessment instruments utilised (Garner, 1991).
The other measures used in this study have been widely validated which provide support for the overall results found. However, the stage of change measure (URICA) did not predict outcome in the current study and this may have been due to measurement error. Although the URICA has been found to be a reliable instrument for measuring stages of change in psychotherapy (Blake et al., 1997; Feld et al., 2001), other studies have identified problems with the methodology of measuring the stages of change concept and have also found that it has not predicted outcome (Treasure et al., 1999; Ward et al., 1996). Sullivan & Terris (2001) identified the difficulty in measuring behavioural change on a one-dimensional scale with complex eating disorder behaviours and suggested that this difficulty can result in multiple stage allocation. This was found to be one of the problems in the current study.

The URICA was modified in this study in an attempt to make the scale more disorder-specific. Participants were asked to think about problems that were specifically related to their body, food, and eating. However, it may be that even these directions were too broad. Sullivan and Terris (2001) suggested that a common problem with the URICA is that each participant responds to different behavioural aspects of their problem. For example, stage categorization is difficult if a participant who is resistant to change dieting behaviour, selects an item on the URICA such as, “I am doing something about the problems that have been bothering me”, if she sees her problems as being related to “vomiting”, and not dieting behaviour. This could result in over interpretation of the participants readiness to change. Over the past few years these issues of measuring discrete stages of change have been examined and new instruments have been developed to assess readiness to change (e.g. Geller & Drab’s (1999) Readiness and Motivation Interview). Unfortunately these instruments were not available in the earlier design stages of this research.
7.5 Conclusion

In conclusion, this study indicates that the integrative Body Image and Eating Behaviour Program for the treatment of sub-clinical body dissatisfaction and disturbed eating in young women can be administered successfully using Internet or Face-to-Face modes of treatment delivery. To our knowledge, these findings are unique in illustrating that an on-line Internet group intervention in synchronous time is effective at improving body dissatisfaction, extreme weight loss behaviours, bulimic eating pathology, and psychological functioning, such as depression, anxiety, and self-esteem.

As therapeutic interventions using the Internet are becoming more common in our society, it is essential to develop an appropriate standard of best practice regarding psychological interventions and this new mode of treatment delivery. These findings now need to be validated with the inclusion of a delayed-treatment control group, a larger sample size, and a longer term follow-up. Internet-based treatments are not being developed to replace face-to-face therapy but rather to be used as an adjunct to face-to-face consultations or as an alternative mode of treatment delivery to increase access to care for those individuals who are usually unable to benefit from traditional psychological services. This new mode of treatment delivery has demonstrated impressive changes in body dissatisfaction, and its utility and efficacy should continue to be examined with different psychological problems.
References


Appendix A: Program Manual (CD-ROM)

Please contact Emma Gollings for a copy of the
Body Image and Eating Behaviour Program CD-ROM
(email: emg@smart.net.au).
Appendix B: Recruitment Flyer
Tired of living with body image and eating problems?

YOU ARE NOT ALONE!

SUPPORT GROUPS CAN BE HELPFUL.

- Come and join a FREE group.
- For young woman aged 18-30 years.
- Face-to-Face or Internet (on-line chat) group sessions.
- Help us develop effective programs as we HELP you.
- All information treated as highly confidential.

Contact: Emma Gollings (ASAP)
Psychology Department, University of Melbourne
e.gollings@pgrad.unimelb.edu.au
8344 4032
0408 529 030
Appendix C: Body Image and Eating Behaviour Program – Interview Schedule
BODY IMAGE AND EATING BEHAVIOUR GROUP PROGRAM

COGNITIVE BEHAVIOURAL ASSESSMENT

1. Nature of the Problem
   - How do you see your problem?
   - Are other people worried about you?
   - What are they worried about?
   - Are you often on a diet or being careful to eat very little?
   - Do you overeat?
   - Do you binge eat? What do you mean by a binge?
   - How much food would you eat in a binge?
   - How often does this happen? (weekly/daily etc) How long does a binge last?
   - Do you think about food a lot even when you are not eating?
   - Do you do anything to try and counteract the effects of eating or of binges?
   For example:
     - strict dieting
     - miss out on meals
     - stick to a rigid meal plan
     - take measures to rid yourself of food (vomit, laxatives, diuretics)
   - Do you eat the same foods every day? What would be the effect of eating something outside what you usually plan for yourself?
   - Are there foods that you "avoid" eating or that are "forbidden" altogether?
   - Are there situations you avoid, such as going out for a meal to a restaurant or to a friends house, for fear that you will be confronted with food, or are worried about your body image?
   - How much exercise do you do?

2. History of Weight and Dieting
   - How long have these problems been going on for?
   - Are you on a diet now?
   - Have you dieted in the past?
   - How did you go about dieting?
   - How does dieting affect your eating habits?
   - Do you think about food more or less when on a diet?
   - What led you to diet in the first place?
   - What is your eating behaviour when you are not on a diet?
3. **History of attitudes to food and eating**
   - What was your attitude to food and mealtimes before you ever had a problem?
   - How would you describe your eating patterns as a child? As you grew up? In comparison to other people who lived with you at home?
   - What were family mealtimes like?
   - What kinds of foods do you like? What did you like before you developed these concerns?
   - What do you see to be a normal day's food intake? (in the past, as a child, and recently as an adult)

4. **Situational Factors**
   - Under what circumstances do you binge? Alone in secret/ with other people?
   - Under what circumstances do you under eat?
   - Do you binge eat/ under eat in response to specific moods or thoughts?
   - Is there anything that makes the problem worse/ better?
   - Has there ever been a time when the problem disappeared or was better? What was happening then?

5. **Attitude to weight and shape**
   - How do you feel about your body and shape?
   - Do you want to lose weight?
   - Are you aiming for a specific weight?
   - What would it mean to you to be fatter/ thinner? What would being fatter/ thinner say about you as a person?
   - What do you think will be the effect on you of losing weight? (ie. will the client look better, feel better, be meeting certain expectations)
   - How would if affect your life if you knew that you could not achieve this weight?

**BDD**
   - Is there any part of your body that you are satisfied with? Is there any part of your body that you are dissatisfied with in particular?

6. **Symptoms**
   - Do you feel unhappy?
   - Do you ever feel anxious or shaky?
   - Do you ever have giddy spells?
   - Do you have any difficulties with concentration?
   - Do you feel nervous/ have panic attacks?
   - Do you have regular monthly periods?
7. *Effects on Life*
In what ways has your body image or eating problem affected:
- Your physical health?
- Your psychological health?
- Your family life?
- Your social life?
- Your romantic life?
- Your education and career?
- Your financial security?
- Trouble with the Law?

8. *Past Psychological History*
- Previous psychological/ psychiatric help?
- How did any previous therapy end? Was it my mutual agreement?
- Current medications?
- Past medications?

9. *Current Goals/ Expectations*
- What are your current expectations of joining this Body Image and Eating Behaviour Group?
- What would you like to achieve?
- What are your goals?
- Does this seem realistic/ practical?
Appendix D: Assessment Questionnaire
D.1: Demographics
Demographics

Please fill in the following information:

1. Date: ________________

2. Name: ________________________________

3. Current Address: ________________________________
   ________________ pcode ________________

4. Contact details: (H) __________________________(W) __________________________
   (Mob) __________________________(email) __________________________
   (circle the number which is best to contact you on)

5. Age: ________________

6. Nationality: ________________________________

7. Average current weight: ___________ kg

8. Ideal weight: ___________ kg

9. Average current height: ___________ cm

10. Occupation: ________________________________
D.2: Body Shape Questionnaire (BSQ)
Body Shape Questionnaire (BSQ: Cooper, Taylor, Cooper, & Fairburn, 1987)

We should like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and circle the appropriate number. Please answer all the questions.

1 = Never  2 = Rarely  3 = Sometimes  4 = Often  5 = Very Often  6 = Always

OVER THE PAST FOUR WEEKS:

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Has feeling bored made you brood about your shape?</td>
<td></td>
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<tr>
<td>2. Have you been so worried about your shape that you have been feeling that you ought to diet?</td>
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<td>2</td>
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<tr>
<td>3. Have you thought that your thighs, hips or bottom are too large for the rest of you?</td>
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<td>2</td>
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<tr>
<td>4. Have you been afraid that you might become fat (or fatter)?</td>
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<td>2</td>
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<tr>
<td>5. Have you worried about your flesh not being firm enough?</td>
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<td>2</td>
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<td>6. Has feeling full (e.g. after eating a large meal) made you feel fat?</td>
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<td>7. Have you felt so bad about your shape that you have cried?</td>
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<td>2</td>
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<td>8. Have you avoided running because your flesh might wobble?</td>
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<td>9. Has being with thin women made you feel self-conscious about your shape?</td>
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<td>10. Have you worried about your thighs spreading out when sitting down?</td>
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<td>11. Has eating even a small amount of food made you feel fat?</td>
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<td>Question</td>
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<td>12. Have you noticed the shape of other women and felt that your own shape compared unfavourably?</td>
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<td>13. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching TV, reading, listening to conversations)?</td>
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<td>14. Has being naked, such as when taking a bath, made you feel fat?</td>
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<td>15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?</td>
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<td>16. Have you imagined cutting off fleshy areas of your body?</td>
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<td>17. Has eating sweets, cakes, or other high calorie food made you feel fat?</td>
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<td>18. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?</td>
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<td>19. Have you felt excessively large and rounded?</td>
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<td>20. Have you felt ashamed of your body?</td>
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<tr>
<td>21. Has worry about your shape made you diet?</td>
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<td>22. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)?</td>
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<td>23. Have you thought that you are the shape you are because you lack self-control?</td>
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<tr>
<td>Question</td>
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</tr>
<tr>
<td>24. Have you worried about other people seeing rolls of flesh around your waist or stomach?</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>25. Have you felt that it is not fair that other women are thinner than you?</td>
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<td>6</td>
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<tr>
<td>26. Have you vomited in order to feel thinner?</td>
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<td>4</td>
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<tr>
<td>27. When in company have you worried about taking up too much room (e.g. sitting on a sofa or a bus seat)?</td>
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<tr>
<td>28. Have you worried about your flesh being dimply?</td>
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<td>6</td>
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<tr>
<td>29. Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?</td>
<td></td>
<td></td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>30. Have you pinched areas of your body to see how much fat there is?</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>31. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?</td>
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<td>4</td>
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<td>6</td>
</tr>
<tr>
<td>32. Have you taken laxative in order to feel thinner?</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>33. Have you been particularly self-conscious about your shape when in the company of other people?</td>
<td></td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>34. Has worry about your shape made you feel you ought to exercise?</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
D.3: Body Image Avoidance Questionnaire (BIAQ)
### Body Image Avoidance Questionnaire (BIAQ: Rosen, Srebnik, Saltzberg, & Wendt, 1991)

Circle the number which best describes how often you engage in these behaviours at the present time.

0 = never    1 = rarely    2 = sometimes    3 = often    4 = usually    5 = always

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I wear baggy clothes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I wear clothes I do not like</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I wear darker colour clothing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I wear a special set of clothing e.g., my “fat clothes”</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I restrict the amount of food I eat</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I only eat fruits, vegetables, and other low calorie foods</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I fast for a day or longer</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I do not go out socially if I will be “checked out”</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I do not go out socially if the people I am with will discuss weight</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I do not go out socially if the people I am with are thinner than me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I do not go out socially if it involves eating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I weigh myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I am inactive</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I look at myself in the mirror</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I avoid physical intimacy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
16. I wear clothes that will divert attention from my weight
   0   1   2   3   4   5

17. I avoid going clothes shopping
   0   1   2   3   4   5

18. I don’t wear “revealing” clothes e.g. bathers, tank tops, or shorts
   0   1   2   3   4   5

19. I get dressed up or made up
   0   1   2   3   4   5
D.4: Dieting History
Dieting History

Please answer the following questions.

1. Have you been on a diet before?

   YES   NO

2. When did you first start dieting?

   Please write your approximate age __________

3. What does dieting mean to you?

   (a) fasting
   (b) restricting food intake
   (c) counting the calories
   (d) avoid fattening foods
   (e) other _______________
D.5: Dutch Eating Behaviour Questionnaire – Restraint Scale
(DEBQ-R)
The Dutch Eating Behaviour Questionnaire - Restraint Subscale (DEBQ-R: Van Strien, Frijters, Bergers, & Defares, 1986)

Circle ONE number which best represents your answer to each question.

<table>
<thead>
<tr>
<th></th>
<th>1 = never</th>
<th>2 = Not Often</th>
<th>3 = Sometimes</th>
<th>4 = Often</th>
<th>5 = Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When you have put on weight do you eat less than you would usually eat?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>2</td>
<td>Do you try to eat less at meal times than you would easily eat?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>3</td>
<td>How often do you refuse food or drink offered to you because you are concerned about your weight?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>4</td>
<td>Do you watch exactly what you eat?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>5</td>
<td>Do you deliberately eat foods that are slimming?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>6</td>
<td>When you have eaten too much, do you eat less than usual the following day?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>7</td>
<td>Do you deliberately eat less in order not to become heavier?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>8</td>
<td>How often do you try not to eat between meals because you are watching your weight?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>9</td>
<td>How often in the evenings do you try not to eat because you are watching your weight?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>10</td>
<td>Do you take your weight into account with what you eat?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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</table>
D.6: Extreme Weight Loss Behaviours Scale (EWLB)
Extreme Weight Loss Behaviours Scale (EWLB: Paxton, Wertheim, Gibbons, Szmukler, Hillier, & Petrovich, 1991)

Tick how often you do the following with the specific purpose of losing weight.
(please refer to the Glossary page if you are unsure of any of the words mentioned below)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Occasionally</th>
<th>At least weekly</th>
<th>Daily</th>
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<tbody>
<tr>
<td>Eat diet foods</td>
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<tr>
<td>Crash diet</td>
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<tr>
<td>Count calories</td>
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<tr>
<td>Exercise</td>
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<tr>
<td>Fast for a day or longer</td>
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<tr>
<td>Vomit</td>
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<tr>
<td>Eat balanced diet</td>
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<tr>
<td>Use diet pill (appetite suppressants)</td>
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<tr>
<td>Eat low fat foods</td>
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<tr>
<td>Eat low sugar foods</td>
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<tr>
<td>Smoke cigarettes</td>
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<tr>
<td>Fluid tablets</td>
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<tr>
<td>Use laxatives</td>
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<tr>
<td>Eat meal substitutes (e.g. Limits)</td>
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<tr>
<td>Eat only when hungry</td>
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<tr>
<td>Skip meals</td>
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<tr>
<td>Cut out or reduce sweets</td>
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<tr>
<td>Drink lots of water</td>
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<tr>
<td>Follow a special diet</td>
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<tr>
<td>Not eat as much at meals or snacks</td>
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D.7: Eating Disorder Inventory – Drive for Thinness Subscale

(EDI-DT)
Eating Disorder Inventory 2 – Drive for Thinness Subscale (EDI-DT: Garner, 1991)

The following items ask about your attitudes, feelings, and behaviour. Some of the items relate to food or eating. Other items may ask about your feelings about yourself.

Respond to all the items, making sure that you circle the number which is true about you.

1 = Never   2 = Rarely   3 = Sometimes   4 = Often   5 = Very Often   6 = Always

1. I eat sweets and carbohydrates without feeling nervous. 
2. I think about dieting 
3. I feel extremely guilty after overeating 
4. I am terrified of gaining weight 
5. I exaggerate or magnify the importance of weight. 
6. I am preoccupied with the desire to be thinner. 
7. If I gain a pound, I worry that I will keep gaining.
D.8: Bulimia Test – Revised (BULIT-R)
The Bulimia Test – Revised (BULIT-R: Thelen, Farmer, Wonderlich, & Smith, 1991)

Please read each question and answer by placing a circle around the number of the response which best describes how you think or feel. Please respond to each item as honestly as possible; remember all the information you provide will be kept STRICTLY CONFIDENTIAL. Please answer all the questions.

*Binge eating is when one eats a large amount of food in a short period of time and where there is a feeling that one cannot stop eating even if he/she wants to.

1. I am satisfied with my eating patterns.
   1. Agree
   2. Neutral
   3. Disagree a little
   4. Disagree
   5. Disagree strongly

2. Would you presently call yourself a “binge eater”?
   1. Yes, absolutely
   2. Yes
   3. Yes, probably
   4. Yes, possibly
   5. No, probably not

3. Do you feel you have control over the amount of food you consume?
   1. Most or all of the time
   2. A lot of the time
   3. Occasionally
   4. Rarely
   5. Never

4. I am satisfied with the shape and size of my body.
   1. Frequently or always
   2. Sometimes
   3. Occasionally
   4. Rarely
   5. Seldom or never
5. When I feel that my eating behaviour is out of control, I try to take rather extreme measures to get back on course (strict dieting, fasting, laxatives, diuretics, self-induced vomiting, or vigorous exercise).

   1. Always
   2. Almost always
   3. Frequently
   4. Sometimes
   5. Never or my eating behaviour is never out of control

6. I use laxatives to help control my weight.

   1. once a day or more
   2. 3-6 times a week
   3. Once or twice a week
   4. 2-3 time a month
   5. Once a month or less (or never)

7. I am obsessed about the size and shape of my body.

   1. Always
   2. Almost always
   3. Frequently
   4. Sometimes
   5. Seldom or never

8. There are times when I rapidly eat a very large amount of food.

   1. More than twice a week
   2. Twice a week
   3. Once a week
   4. 2-3 times a month
   5. Once a month or less (or never)

9. I have been binge eating (eating uncontrollably to the point of stuffing yourself) for approximately ......

   1. Not relevant: I do not binge eat
   2. Less than 3 months
   3. 3 months – 1 year
   4. 1-3 years
   5. 3 or more years
10. Most people I know would be amazed if they knew how much food I can consume at one sitting.

1. Without a doubt
2. Very probably
3. Probably
4. Possibly
5. No

11. I exercise in order to burn calories.

1. More than 2 hours per day
2. About 2 hours per day
3. More than 1 but less than 2 hours per day
4. One hour or less per day
5. I exercise but not to burn calories OR I don’t exercise

12. Compared with girls my age, I feel preoccupied about my weight and body shape.....

1. A great deal more than average
2. Much more than average
3. More than average
4. A little more than average
5. Average or less than average

13. I am afraid to eat anything for fear that I won’t be able to stop.

1. Always
2. Almost always
3. Frequently
4. Sometimes
5. Seldom or never

14. I feel tormented by the idea that I am fat or might gain weight.

1. Always
2. Almost always
3. Frequently
4. Sometimes
5. Seldom or never
15. I intentionally vomit after eating ........

1. 2 or more times a week
2. Once a week
3. 2-3 times a month
4. Once a month
5. Less than once a month or never

16. I eat a lot of food when I'm not even hungry.

1. Very frequently
2. Frequently
3. Occasionally
4. Sometimes
5. Seldom or never

17. My eating patterns are different from the eating pattern of most people.

1. Always
2. Almost always
3. Frequently
4. Sometimes
5. Seldom or never

18. After I binge eat I try to keep from gaining weight by turning to one of several methods (eg. lots of exercise, strict dieting, fasting, self-induced vomiting, laxatives, or diuretics)

1. Never OR I don't binge eat
2. Rarely
3. Occasionally
4. A lot of the time
5. Most or all of the time

19. I have tried to lose weight by fasting or going on strict diets.

1. Not in the past year
2. Once in the past year
3. 2-3 times in the past year
4. 4-5 times in the past year
5. More than 5 times in the past year
20. I exercise a lot and for long periods of time in order to burn calories.
   1. Average or less than average
   2. A little more than average
   3. More than average
   4. Much more than average
   5. A great deal more than average

21. When having an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches).
   1. Always
   2. Almost always
   3. Frequently
   4. Sometimes
   5. Seldom OR I don’t binge

22. Compared to most people, my ability to control my eating behaviour seems to be:
   1. Greater than others’ ability
   2. About the same
   3. Less
   4. Much less
   5. I have absolutely no control

23. I would presently label myself a ‘compulsive eater’ (one who engages in episodes of uncontrolled eating).
   1. Absolutely
   2. Yes
   3. Yes, probably
   4. Yes, possibly
   5. No, probably not

24. I hate the way my body looks after I eat too much.
   1. Seldom or Never
   2. Sometimes
   3. Frequently
   4. Almost always
   5. Always
25. When I am trying to keep from gaining weight, I feel that I have to do a lot of exercise, strict dieting, fasting, self-induced vomiting, laxatives, or diuretics.

   1. Never
   2. Rarely
   3. Occasionally
   4. A lot of the time
   5. Most or all of the time

26. I believe it is easier for me to vomit than it is for most people.
   1. yes, it’s no problem at all for me
   2. yes, it’s easier
   3. yes, it’s a little easier
   4. about the same
   5. no, it’s less easy

27. I use diuretics (water pills) to help control my weight.

   1. Never
   2. Seldom
   3. Sometimes
   4. Frequently
   5. Very frequently

28. I feel that food controls my life.

   1. Always
   2. Almost always
   3. Frequently
   4. Sometimes
   5. Seldom OR Never

29. I try to control my weight my eating little or no food for a day or longer.

   1. Never
   2. Seldom
   3. Sometimes
   4. Frequently
   5. Very frequently
30. When consuming a large quantity of food, at what rate of speed do you usually eat?

1. More rapidly than most people have ever eaten in their lives
2. A lot more rapidly than most people
3. A little more rapidly than most people
4. About the same rate as most people
5. More slowly than most people (or not applicable)

31. I use laxatives to help control my weight.

1. Never
2. Seldom
3. Sometimes
4. Frequently
5. Very frequently

32. Right after I binge eat I feel:

1. So fat and bloated I can’t stand it
2. Extremely fat
3. Fat
4. A little fat
5. OK about how my body looks OR I never binge eat

33. Compared to other girls, my ability to always feel in control of how much I eat is:

1. About the same or greater
2. A little less
3. Less
4. Much less
5. A great deal less
34. In the last 3 months, on the average how often did you binge eat (eat uncontrollably to the point of stuffing yourself)?

1. Once a month or less (OR never)
2. 2-3 times a month
3. Once a week
4. Twice a week
5. More than twice a week

35. Most people I know would be surprised at how fat I look after I eat a lot of food.

1. Yes, definitely
2. Yes
3. Yes, probably
4. Yes, possibly
5. No, probably not OR I never eat a lot of food

36. I use diuretics (water pills) to help control my weight.

1. 3 time a week or more
2. Once or twice a week
3. 2-3 times a months
4. Once a month
5. Never
D.9: Eating Disorder Examination Questionnaire (EDE-Q)
Eating Disorder Examination Questionnaire (EDE-Q: Fairburn & Beglin, 1994)

The following questions are concerned with the PAST FOUR WEEKS ONLY (28 days). Please read each question carefully and circle the appropriate number on the right. Please answer all the questions.

<table>
<thead>
<tr>
<th>On how many DAYS out of the past 28 days.................</th>
<th>No days</th>
<th>1-5 days</th>
<th>5-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. Have you gone for long periods of time (8 hrs or more) without eating anything in order to influence your shape or weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>6</td>
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<tr>
<td>3. Have you tried to avoid eating any foods which you like in order to influence your shape or weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. Have you tried to follow definite rules regarding your eating in order to influence your shape or weight; e.g. a calorie limit, a set amount of food, or rules about what or when you should eat?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. Have you wanted your stomach to be empty?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. Has thinking about food or its calorie content made it much more difficult to concentrate on things you are interested in; e.g. read, watch TV, or follow a conversation?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. Have you been afraid of losing control over eating?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>On how many DAYS out of the past 28 days.................</td>
<td>No days</td>
<td>1-5 days</td>
<td>5-12 days</td>
<td>13-15 days</td>
<td>16-22 days</td>
<td>23-27 days</td>
<td>Every day</td>
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<tr>
<td>8. Have you had episodes of binge eating?</td>
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<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9. Have you eaten in secret? (Do not count binges)</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10. Have you definitely wanted your stomach to be flat?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>11. Has thinking about shape or weight made it more difficult to concentrate on things you are interested in; e.g. read, watch TV or follow conversation?</td>
<td>0</td>
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<td>2</td>
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<td>6</td>
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<tr>
<td>11. Have you had a definite fear that you might gain weight or become fat?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12. Have you felt fat?</td>
<td>0</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>13. Have you had a strong desire to lose weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Circle the number which applies over the past 4 weeks (28 days).

<table>
<thead>
<tr>
<th>15. On what proportion of times that you have eaten have you felt guilty because the effect on your shape or weight? (Do not count binges)</th>
<th>0 – none of the times</th>
<th>1 – a few of the times</th>
<th>2 – less than half the times</th>
<th>3 – half the times</th>
<th>4 – more than half the times</th>
<th>5 – most of the time</th>
<th>6 – every time</th>
</tr>
</thead>
</table>

16. Over the past 4 weeks (28 days), have there been any times when you have felt that you have eaten what other people would regard as an unusually large amount of food given the circumstances? (please put appropriate number in box)

0 – No
1 – Yes [ ]
17. How many such episodes have you had over the past four weeks?

18. During how many of these episodes of overeating did you have a sense of having lost control over your eating?

19. Have you had other episodes of eating in which you have had a sense of having lost control and eaten too much, but not eaten an unusually large amount of food given the circumstances?
   0 – No
   1 – Yes [ ]

20. How many such episodes have you had over the past four weeks?

21. Over the past four weeks have you made yourself sick (vomit) as a means of controlling your shape or weight?
   0 – No
   1 – Yes [ ]

22. How many times have you done this over the past four weeks?

23. Have you taken laxatives as a means of controlling your shape or weight?
   0 – No
   1 – Yes [ ]

24. How many times have you done this over the past four weeks?

25. Have you taken diuretics (water tablets) as a means of controlling your shape or weight?
   0 – No
   1 – Yes [ ]

26. How many times have you done this over the past four weeks?

27. Have you exercised hard as a means of controlling your shape or weight?
   0 – No
   1 – Yes [ ]
28. How many times have you done this over the past four weeks?  

---

**Please circle the number which best describes your behaviour over the past 4 weeks**  
(28 days)  
0 – Not at all  
2 – Slightly  
4 – Moderately  
6 – Markedly  

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. Has your weight influenced how you think about (judge) yourself as a person?</td>
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<tr>
<td>30. Has your shape influenced how you think about (judge) yourself as a person?</td>
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<tr>
<td>31. How much would it upset you if you had to weigh yourself once a week for the next 4 weeks?</td>
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<tr>
<td>32. How dissatisfied have you felt about your weight?</td>
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<td></td>
</tr>
<tr>
<td>33. How dissatisfied have you felt about your shape?</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>34. How concerned have you been about other people seeing you eat?</td>
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</tr>
<tr>
<td>35. How uncomfortable have you felt seeing your body; e.g. in the mirror, in shop window reflections, while undressing or taking a bath or shower?</td>
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<td></td>
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</tr>
</tbody>
</table>
36. How uncomfortable have you felt about others seeing your body; e.g. in communal changing rooms, when swimming or wearing tight clothes?
D.10: Brief Symptom Inventory (BSI)
Brief Symptom Inventory (BSI: Derogatis & Spencer, 1982)

Below is a list of problems people sometimes have. Please read each one carefully, and circle the number that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items.

0 = not at all  
1 = a little bit  
2 = moderately  
3 = quite a bit  
4 = extremely

How much were you distressed by:

1. Nervousness or shakiness inside 0 1 2 3 4
2. Faintness or dizziness 0 1 2 3 4
3. The idea that someone else can control your thoughts 0 1 2 3 4
4. Feeling others are to blame for most of your troubles 0 1 2 3 4
5. Trouble remembering things 0 1 2 3 4
6. Feeling easily annoyed or irritated 0 1 2 3 4
7. Pains in heart or chest 0 1 2 3 4
8. Feeling afraid in open spaces or on the streets 0 1 2 3 4
9. Thoughts of ending your life 0 1 2 3 4
10. Feeling that most people cannot be trusted 0 1 2 3 4
11. Poor appetite 0 1 2 3 4
12. Suddenly scared for no reason 0 1 2 3 4
13. Temper outbursts that you could not control 0 1 2 3 4
14. Feeling lonely even when you are with people 0 1 2 3 4
15. Feeling blocked in getting things done 0 1 2 3 4
<table>
<thead>
<tr>
<th>Item</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling lonely</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling blue</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling no interest in things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling fearful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Your feelings being easily hurt</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling that people are unfriendly or dislike you</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling inferior to others</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Nausea or upset stomach</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling that you are watched or talked about by others</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Trouble falling asleep</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Having to check and double-check what you do</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Difficulty making decisions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling afraid to travel on buses, subways, or trains</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Trouble getting your breath</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Hot or cold spells</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Having to avoid certain things, places, or activities because they</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Your mind going blank</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Numbness or tingling parts of your body</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The idea that you should be punished for your sins</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling hopeless about the future</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Trouble concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling weak in parts of your body</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling tense or keyed up</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Thoughts of death or dying</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>Question</td>
<td>0</td>
<td>1</td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>40. Having urges to beat, injure, or harm someone</td>
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<tr>
<td>41. Having urges to break or smash things</td>
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<tr>
<td>42. Feeling very self-conscious with others</td>
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<tr>
<td>43. Feeling uneasy in crowds, such as shopping or at a movie</td>
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<tr>
<td>44. Never feeling close to another person</td>
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<td>45. Spells or terror or panic</td>
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<td>46. Getting into frequent arguments</td>
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<tr>
<td>47. Feeling nervous when you are left alone</td>
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<td>48. Others not giving you proper credit for your achievements</td>
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<tr>
<td>49. Feeling so restless you couldn’t sit still</td>
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<tr>
<td>50. Feelings of worthlessness</td>
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<tr>
<td>51. Feeling that people will take advantage of you if you let them</td>
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<tr>
<td>52. Feelings of guilt</td>
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<tr>
<td>53. The idea that something is wrong with your mind</td>
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</tbody>
</table>
D.11: Beck Depression Inventory (BDI)
Beck Depression Inventory (BDI: Beck, Steer, & Brown, 1996)

For each set of statements, please circle the number next to the statement which corresponds to how you have been feeling during the last two weeks, including today. Only circle one number out of the options.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>1. I do not feel sad.</td>
<td>I feel sad much of the time.</td>
<td>I am sad all the time.</td>
<td>I am so sad or unhappy that I can’t stand it.</td>
<td></td>
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<tr>
<td>2. I am not discouraged about my future.</td>
<td>I feel more discouraged about my future than I used to be</td>
<td>I do not expect things to work out for me</td>
<td>I feel my future is hopeless and will only get worse</td>
<td></td>
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<tr>
<td>3. I do not feel like a failure.</td>
<td>I have failed more than I should have</td>
<td>As I look back, I see a lot of failures</td>
<td>I feel I am a total failure as a person</td>
<td></td>
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<tr>
<td>4. I get as much pleasure as I ever did from the things I enjoy.</td>
<td>I don’t enjoy things as much as I used to.</td>
<td>I get very little pleasure from the things I used to enjoy.</td>
<td>I can’t get any pleasure from the things I used to enjoy.</td>
<td></td>
</tr>
<tr>
<td>5. I don’t feel particularly guilty.</td>
<td>I feel guilty over many things I have done or should have done.</td>
<td>I feel quite guilty most of the time.</td>
<td>I feel guilty all of the time.</td>
<td></td>
</tr>
<tr>
<td>6. I don’t feel I am being punished</td>
<td>I feel I may be punished</td>
<td>I expect to be punished</td>
<td>I feel I am being punished</td>
<td></td>
</tr>
<tr>
<td>7. I feel the same about myself as ever.</td>
<td>I have lost confidence in myself.</td>
<td>I am disappointed in myself.</td>
<td>I dislike myself.</td>
<td></td>
</tr>
<tr>
<td>8. I don’t criticise or blame myself more than usual.</td>
<td>I am more critical of myself than I used to be.</td>
<td>I criticise myself for all of my faults.</td>
<td>I blame myself for everything bad that happens.</td>
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<tr>
<td>9.</td>
<td>0</td>
<td>I don’t have any thoughts of killing myself.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>I have thoughts of killing myself, but I would not carry them out.</td>
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<tr>
<td></td>
<td>2</td>
<td>I would like to kill myself.</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>I would kill myself if I had the chance.</td>
<td></td>
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<tr>
<td>10.</td>
<td>0</td>
<td>I don’t cry anymore than I used to.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>I cry more than I used to.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>2</td>
<td>I cry over every little thing.</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>I feel like crying but I can’t.</td>
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<tr>
<td>11.</td>
<td>0</td>
<td>I am no more restless or wound up than usual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>I feel more restless or wound up than usual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>I am so restless or agitated that it’s hard to stay still.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>I am so restless or agitated that I have to keep moving or doing something.</td>
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<tr>
<td>12.</td>
<td>0</td>
<td>I have not lost interest in other people or activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>I am less interested in other people or things than before.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>I have lost most of my interest in other people or things.</td>
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<td></td>
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<tr>
<td></td>
<td>3</td>
<td>It’s hard to get interested in anything.</td>
<td></td>
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<tr>
<td>13.</td>
<td>0</td>
<td>I make decisions about as well as ever.</td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>I find it more difficult to make decisions than usual.</td>
<td></td>
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<tr>
<td></td>
<td>2</td>
<td>I have much greater difficulty in making decisions than I used to.</td>
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<tr>
<td></td>
<td>3</td>
<td>I have trouble making decisions.</td>
<td></td>
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<tr>
<td>14.</td>
<td>0</td>
<td>I do not feel I am worthless.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>I don’t consider myself as worthwhile and useful as I used to.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2</td>
<td>I feel more worthless as compared to other people.</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>I feel utterly worthless.</td>
<td></td>
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<tr>
<td>15.</td>
<td>0</td>
<td>I have as much energy as ever.</td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>I have less energy than I used to have.</td>
<td></td>
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<tr>
<td></td>
<td>2</td>
<td>I don’t have enough energy to do very much.</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>I don’t have enough energy to do anything.</td>
<td></td>
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<tr>
<td></td>
<td>0</td>
<td>I have not experienced any change in my sleeping pattern</td>
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<td>-------------------------------------------------------</td>
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<tr>
<td>1a</td>
<td></td>
<td>I sleep somewhat more than usual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b</td>
<td></td>
<td>I sleep somewhat less than usual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td></td>
<td>I sleep a lot more than usual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2b</td>
<td></td>
<td>I sleep a lot less than usual</td>
<td></td>
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</tr>
<tr>
<td>3a</td>
<td></td>
<td>I sleep most of the day</td>
<td></td>
<td></td>
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<tr>
<td>3b</td>
<td></td>
<td>I wake up 1-2 hours early and can’t get back to sleep</td>
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<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I am no more irritable than usual</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>I am more irritable than usual</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>I am much more irritable than usual</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>I am irritable all the time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I have not experienced any change in my appetite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td></td>
<td>My appetite is somewhat less than usual</td>
</tr>
<tr>
<td>1b</td>
<td></td>
<td>My appetite is somewhat greater than usual</td>
</tr>
<tr>
<td>2a</td>
<td></td>
<td>My appetite is much less than usual</td>
</tr>
<tr>
<td>2b</td>
<td></td>
<td>My appetite is much greater than usual</td>
</tr>
<tr>
<td>3a</td>
<td></td>
<td>I have no appetite at all</td>
</tr>
<tr>
<td>3b</td>
<td></td>
<td>I crave food all the time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I can concentrate as well as ever</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>I can’t concentrate as well as usual</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>It’s hard to keep my mind on anything for very long</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>I find I can’t concentrate on anything</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I am no more tired or fatigued than usual</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>I get more tired or fatigued more easily than usual</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>I am too tired or fatigued to do a lot of the things I used to do</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>I am too tired or fatigued to do most of the things I used to do</td>
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<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I have not noticed any recent change in my interest in sex</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>I am less interested in sex than I used to be</td>
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<tr>
<td>2</td>
<td></td>
<td>I am much less interested in sex now</td>
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<tr>
<td>3</td>
<td></td>
<td>I have lost interest in sex completely</td>
</tr>
</tbody>
</table>
D.12: Rosenberg Self-Esteem Inventory (RSE)
Rosenberg Self-Esteem Inventory (RSE: Rosenberg, 1965)

Please circle ONE number for each statement.

1 = Strongly Disagree    2 = Disagree    3 = Agree    4 = Strongly Agree

1. On the whole I am satisfied with myself. 1 2 3 4
2. At times I am no good at all. 1 2 3 4
3. I feel that I have a number of good qualities. 1 2 3 4
4. I am able to do things as well as most other people. 1 2 3 4
5. I feel I do not have much to be proud of. 1 2 3 4
6. I certainly feel useless at times. 1 2 3 4
7. I feel I am a person of worth, at least as good as others. 1 2 3 4
8. I wish I could have more respect for myself. 1 2 3 4
9. All in all I am inclined to think I am a failure. 1 2 3 4
10. I take a positive attitude toward myself. 1 2 3 4
D.13: State Trait Anxiety Inventory (STAI)
State Trait Anxiety Inventory (STAI: Spielberger, Corsuch, Lushene, Vagg, & Jacobs, 1983)

Circle ONE number on each line to show how you GENERALLY FEEL.

1 = Not at all    2 = Somewhat    3 = Moderately so    4 = Very much so

1. I feel pleasant
   1 2 3 4
2. I feel nervous and restless
   1 2 3 4
3. I feel satisfied with myself
   1 2 3 4
4. I wish I could be as happy as others seem to be
   1 2 3 4
5. I feel like a failure
   1 2 3 4
6. I feel rested
   1 2 3 4
7. I am ‘cool, calm and collected’
   1 2 3 4
8. I feel that difficulties are piling up so that I cannot overcome them
   1 2 3 4
9. I worry too much over something that really doesn’t matter
   1 2 3 4
10. I am happy
    1 2 3 4
11. I have disturbing thoughts
    1 2 3 4
12. I lack self-confidence
    1 2 3 4
13. I feel secure
    1 2 3 4
14. I make decisions easily
    1 2 3 4
15. I feel inadequate
    1 2 3 4
16. I am content
    1 2 3 4
17. Some unimportant thought runs through my mind and bothers me
    1 2 3 4
18. I take disappointments so keenly that I can’t put them out of my mind
    1 2 3 4
19. I am a steady person
    1 2 3 4
20. I get in a state of tension or turmoil as I think over recent concerns and interests
    1 2 3 4
D.14: University of Rhode Island Change Assessment Scale
(URICA)
University of Rhode Island Change Assessment Scale (URICA: McConnaughy, DiClemente, Prochaska & Velicer, 1989)

The following statements describe how a person might feel when approaching problems in his/her life. In this instance, the questions are referring to how you see your problems relating to your body, food, and/or eating.

Please indicate the extent to which you tend to agree or disagree with each statement by circling a number. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel.

1 = Strongly Disagree  2 = Disagree  3 = Undecided  4 = Agree  5 = Strongly Agree

1. As far as I'm concerned, I don't have any problems that need changing.  
   1  2  3  4  5

2. I think I might be ready for some self-improvement.  
   1  2  3  4  5

3. I am doing something about the problems that have been bothering me.  
   1  2  3  4  5

4. It might be worthwhile to work on my problem.  
   1  2  3  4  5

5. I'm not the problem one. It doesn't make much sense for me to be here.  
   1  2  3  4  5

6. It worries me that I might slip back on a problem that I have already changed, so I am ready to continue working on my problem.  
   1  2  3  4  5

7. I am finally doing some work on my problem.  
   1  2  3  4  5

8. I've been thinking that I might want to change something about myself.  
   1  2  3  4  5

9. I have been successful in working on my problem, but I am not sure I can keep up the effort on my own.  
   1  2  3  4  5

10. At times my problem is difficult, but I'm working on it.  
    1  2  3  4  5
11. Working on my problem is pretty much a waste of time, because it does not have anything to do with me.

12. I'm working on my problem in order to better understand myself.

13. I suppose I have problems, but there is nothing that I really need to change.

14. I am really working hard to change.

15. I have a problem and I really think I should work on it.

16. I am not following through with the changes I have already made as well as I had hoped, and I am working to prevent relapse of my problem.

17. Even though I'm not always successful in changing, at least I'm working on, my problem.

18. I thought once I had resolved my problem, I would be free of it, but sometimes I feel myself struggling with it.

19. I wish I had more ideas on how to solve my problem.

20. I have started to work on my problems, but I would like help.

21. Maybe someone will be able to help me with my problem.

22. I need a boost right now to help me maintain the changes I have already made.

23. I may be part of my problem, but I don't really think I am.

24. I hope that someone will have some good advice for me about my problem.
25. Anyone can talk about changing; I'm actually doing something about it.

26. All this talk about psychology is boring. Why can't people just forget about their Problems?

27. I am working to prevent myself from having a relapse of my problem.

28. It is frustrating, but I feel as if I am having a reoccurrence of the problem I thought I had resolved.

29. I have worries, but so does everyone. Why spend time thinking about them?

30. I am actively working on my problem.

31. I would rather cope with my problems than try to change them.

32. After all I have done to try to change my problem, every now and then it comes back to haunt me.
D.15: Glossary
GLOSSARY OF TERMS

**Binge eat:** To eat what you think is a lot of food in a short space of time (usually within two hours) and feel that you can't stop even if you want to.

**Calorie:** Another word for this is kilojoule and it means the energy value of food.

**Crash Diet:** Where you drastically cut down the amount of food you would normally eat for a short period of time to lose weight.

**Diet Pills:** Tablets which reduce your craving for food or feeling of hunger.

**Fast:** To go without food for a day or more.

**Fluid Tablets:** Tablets which make you urinate much more than usual so that there is not as much water in your body (also called diuretics).

**Laxative:** A tablet to get rid of the contents of the bowel.

**Mood:** A relatively pervasive and sustained emotional state.
Appendix E: University of Melbourne Behavioural and Social Sciences Human Ethics Committee Approval
20 March 2000

Dr S Paxton
Department of Behavioural Science

Dear Dr S Paxton

Thank you for providing the additional information about your project.

I am pleased to advise that the Behavioural and Social Sciences Human Ethics Subcommittee approved the following project at its 2/00 meeting:

A web based intervention program compared to face-to-face group therapy to modify body image dissatisfaction and unhealthy eating behaviours

Dr S Paxton
Ms E Gollings
HREC No. 000037

The Project has been approved for the period: 3/3/00 to 31/12/00

It is renewable annually for a maximum of 5 years.

Would you please note that the following standard conditions apply:

(a) Limit of Approval: approval is limited strictly to the research proposal as submitted in your application.

(b) Variation to Project: any subsequent variations or modifications you might wish to make to your project must be notified formally to the Sub-Committee for further consideration and approval. If the Sub-Committee considers that the proposed changes are significant, you may be required to submit a new application for approval of the revised project.

(c) Incidents or adverse affects: researchers must report immediately to the Sub-Committee anything which might affect the ethical acceptability of the protocol including adverse effects on subjects or unforeseen events that might affect continued ethical acceptability of the project.

(d) Annual Report: Please be aware that the Human Research Ethics Committee requires all researchers to submit an annual report on each of their projects at the end of the year, or at the conclusion of your project if it continues for less than a year. Failure to submit a progress report at the end of the year will mean approval for this project will lapse.

(e) Auditing: all projects may be subject to audit by members of the Sub-Committee.

If you have any further queries on these matters, or require additional information, please do not hesitate to contact me on telephone no. 8344 7507 or e-mail: k.murphy@research.unimelb.edu.au.

Please quote the HREC registration number and the name of the project in any future correspondence.

On behalf of the Sub-Committee I wish you well in your research.

Yours sincerely,

Kate Murphy,
Executive Officer, Human Research Ethics

c.c. Chair, DHEAG, Behavioural Science
Appendix F: Participant Information Letter and Consent Form
INFORMATION FOR PARTICIPANTS

Dear Participant,

You are invited to participate in a project being conducted by the University of Melbourne entitled *A comparison of an Internet-based and Face-to-Face group intervention to modify body dissatisfaction and disturbed eating in young women*. The project is being undertaken by Ms Emma Gollings as part of her Doctoral thesis, under the supervision of A/Prof. Susan Paxton. The study will involve approximately 100 young women and we would very much like you to be involved.

The purpose of the study, is to investigate two different types of interventions aimed at modifying body dissatisfaction and unhealthy eating behaviours, including dieting, fasting, binge eating, vomiting, or using laxatives, in university aged women (18-30 years). The group program will be offered through an Internet-based intervention using an on-line interactive web site compared to a Face-to-Face group intervention program. Current research and our experience indicate that eating issues and body image are important concerns for young women. There is also evidence to suggest that multimedia technology may be an effective way of providing treatment to women with body image and eating problems. It provides an anonymous immediate feedback environment where women can raise issues that are concerning them, it provides women with a sense of control over their mental health, it is cost effective, and it caters for individuals that may live in remote and rural areas where psychological services may not be available.

Participation in the project will involve completing a questionnaire and having an interview with the researcher of the study. Your height and weight measurements will also be taken in a private room and you will be required to remove your shoes. The questionnaire and interview will ask you how you feel about yourself and your body as well as asking about your eating and dieting patterns. After questionnaire and interview completion you will be assigned to one of the following two groups: Face-to-Face group therapy or an Internet-based intervention group. After the intervention of eight support sessions, you will complete these assessments two additional times, once immediately after the intervention has finished, and once for a 2-month follow up.

The group sessions will be for 90 minutes once a week for seven weeks followed by a one-month booster session. The Face-to-Face group sessions will be held in the Psychology Department at the University of Melbourne. The Internet-based intervention group will have access to an interactive web page and Internet site for the seven weeks. The same treatment as the Face-to-Face group program will be provided through this site, requiring the same reading material to be downloaded each week and homework tasks to be completed. Each participant will receive their own username and password to enable them to access the web site and write messages to the group.

All answers and information provided on the questionnaire and during the interview and intervention program will remain confidential, subject to legal limits. You will be given a number code so that your name will not be identified with or appear on any part of the questionnaire. The principal investigator of the study will keep the master list, however confidentiality will remain as...
all data will be stored in a locked cupboard at the University of Melbourne, and destroyed after five years. The results will be presented as group results only and you will not be identified in any reports resulting from this work.

If you agree to participate, you are of course, free to withdraw from participation in the research at any time and also free to withdraw any unprocessed data previously supplied. After you have completed the intervention program, if you decide that you would like to talk to somebody about your feelings from the study, or if you have any particular concerns, please contact A/Prof. Susan Paxton (her phone number is given below). Any discussions you have with her will be treated confidentially.

Thank you very much for your participation, we greatly appreciate it. If you have any concerns arising from the ethical conduct of this research project, please contact the Executive Officer, Human Research Ethics, the University of Melbourne, Parkville Vic 3052, on phone: 8344 7507, fax: 9347 6883. Further, if you have any personal questions regarding the treatment program please feel free to contact A/Prof. Susan Paxton, on phone: (w) 8344 6307, or Emma Gollings, on (w) 8344 4032, (m) 0408 529 030, or (email) e.gollings@pgrad.unimelb.edu.au.

Yours sincerely,

A/Prof. Susan Paxton
University of Melbourne

Emma Gollings
University of Melbourne

Please sign the attached consent form.
CONSENT FORM

Name of Participant: ____________________________

Project title: A comparison of an Internet-based and Face-to-Face group intervention to modify body dissatisfaction and disturbed eating in young women.

Name of investigators: A/Prof. Susan Paxton, University of Melbourne
Tel: (03) 8344 6307
Email: s.paxton@psych.unimelb.edu.au

Emma Gollings, University of Melbourne
Tel: (03) 8344 4032
Email: e.gollings@pgrad.unimelb.edu.au

1. I consent to participate in the above project, the particulars of which – including details of tests or procedures – have been explained to me and appended hereto.

2. I authorise the investigator or her assistant to use with me the tests or procedures referred to under (1) above.

3. I acknowledge that:

   (a) the possible effects of the tests or procedures have been explained to me to my satisfaction;

   (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied;

   (c) The project is for the purpose of research and for treatment;

   (d) I have been informed that the confidentiality of the information I provide will be safeguarded, subject to legal requirements.

Signature: ____________________________ Date: ________________

(Participant)
Appendix G: Chat Program and Bulletin Board Instructions
BODY IMAGE AND EATING BEHAVIOUR GROUP PROGRAM

INTERNET GROUP INSTRUCTIONS

Please keep this reference sheet handy when you use the internet site.

For the Bulletin Board and Chat Room:
Username: ______________
Password: ______________

Logging On
Once you have logged on to the internet, type in this address:
http://bodyimage.unimelb.edu.au
Type in:
User Name: bodyimage
Password: DoItNow
The password is case sensitive, so 'doitnow' won't work.

Home Page
The links on the left of the Home Page take you to all 3 aspects of the program:
• the Manual
• the Bulletin Board
• the Chat Room

Manual
You are required to read each chapter of the manual before our on-line chat sessions each week.
The links on the left of the Manual Page take you to all 8 chapters of the manual (Week 1, etc.)
plus a Contacts page (if you need to contact Emma Gollings).
Each chapter has a number of pages. Just click on the next page link at the bottom of each page
to go to the next page.
The links on the left of each page take you to the Home Page, the Manual, and the chapter you
are reading (Week 1, etc.).
Evaluation Form

At the end of each week there is an online Evaluation Form that you should complete after our on-line chat session. This is an essential part of the program so please ensure you do it as soon as the chat session is over.

Bulletin Board

You are required to read the Bulletin Board each week and write at least two messages to the bulletin Board per week (at least one message should be in response to a group member).

Click on the link on the right hand side of the Bulletin Board page for the week you want (Week 1 Bulletin Board, etc.) (ignore the left hand side of the screen).

Click on the first topic listed (What are you worried about?, etc.). Read the messages on the Bulletin Board.

Post your own message (either a new message or a reply to someone else) by typing your message in the ‘Add a Message’ box. Then type in your Username and Password (remember, they are case sensitive). Click the ‘Preview/Post Message’ button to preview your message. Click the ‘Post this Message’ button if your message is okay.

Once you have read and posted messages for a topic click the Topics link in the top left corner. Go through the process again until you have read all the topics for the week.

Go back to the ‘Logging On’ section to go to the Manual or the Chat Room.

Chat Room

Only log on to the Chat Room at the arranged times (once per week).

Your time to log on is: ________________

Enter your Username. Click the ‘Use Frames’ button. Click the ‘Enter Chat’ button.

You “chat” using the box at the top of the screen.

To send a message: Type a message, click the ‘Send’ button.

To update the page: The page will update automatically a few times a minute, but to see your own message or other recent messages quicker, click the ‘Refresh’ button.

To find out who else is in the chat room, click the ‘Who’s Here’ button.

Leave chat: When the session is finished, click the ‘Leave’ button.

Note well: If you don’t do anything for more than 3 minutes, you are automatically removed from the chat! So please get in the habit of clicking the ‘Refresh’ button regularly.

Good luck!

Emma Gollings

If you have any trouble please contact me on: (W) 8344 4032; (email)e.gollings@pgrad.unimelb.edu.au
Enter Chat

To use Free Chat, all you need is any web browser. (No Java, or even graphical browser, is needed!)

Simply log in from the entry page. Enter your name or an alias and (optional) e-mail address, then click the "Enter Chat" button.

If you're using a browser capable of "frames" (like Netscape Navigator or Internet Explorer), and you'd like to participate in chat through frames (which has the advantage of letting you watch the chat as it happens without requiring that you refresh the screen manually), be sure the "Use Frames" checkbox is clicked. (Note: you won't be missing anything if you don't use frames, and you can switch back and forth at any time during chat!)

The Chat Screen

Free Chat, as seen in Netscape 3.0:

Close-up of the chat control panel:

- You can send secret messages by choosing the person's name here.
- Type your message here.
- Send your message.
- Find out who is in chat right now.
- Refresh the page now (To see any new messages)
- Switch between Frames mode and No Frames mode.

Sending a Message
Once within chat, you can enter a message and "Send" it out. Anyone else within the chat room will be able to read your message.

How Do I Send A "Private" Message?

To send a private message to another user, simply select their name from the pull-down menu next to your chat input field. Only that person will be able to see the message.

Private messages appear in italics...

How Do I Make Those Happy Faces?

The faces that appear in people's messages (like 🙂 are made by simply typing out a face.

If you're familiar with ASCII faces, you'll recognize some of these: 🙂 =^(_>:_p.
If you tilt your head to the left, you'll see the faces.

Free Chat understands these, and has a multitude of different faces that will appear in place of the ASCII faces!

How Do I Make Links to Other Pages?

To place a link to another website inside your message, simply type the address (including "http://") of the website. It will automatically appear as a hotlink to the address, so everyone else in chat can simply click what you typed to go there!

Note - If you want to write more message after the address, there must be a space (" ") after the address, otherwise some of your message or punctuation will be confused for part of the address... (ie, don't type: "See http://company.com...it's cool", because the "...it's" will be mistaken for part of the address!)

Who Else is There?

To find out who else is there, click "Who's Here." You'll see each user's name and e-mail address, what time they entered chat, and what time their last activity was (the last time they sent a message or refreshed their screen).

Refreshing the Page

If you're using the Frames mode of Free Chat, the bottom part of the screen, where the messages appear, will automatically refresh a few times per minute.

If you're impatient, or you're not using Frames mode, and want to see what else people have said since you last sent a message, simply click "Refresh."

Leaving Chat

When you are done chatting, please be polite and remember to click the "Leave" button. Everyone
else will be informed that you left, and you're name will be removed from the private message pull-down menu and the "Who's Here?" page. (If you don't do anything for over 3 minutes, you are automatically remove.)

More Help!

If you're interested in setting up Free Chat on your own website, please visit the Free Chat Website!
Welcome to this discussion board! This document gives you the basic knowledge that you need to use this board effectively. If you experience any difficulties with the board, contact one of the moderators listed under the Contact link from the Main Menu.

- Reading Discussions
- Contributing to Discussions
- Searching the Board
- Getting an Account
- Where to get further information
- Rules and "Netiquette"

Reading Discussions

Anyone with WWW access can read discussions on this board. To read discussions, navigate to the discussion of interest by single clicking on the links from the list of topics and subtopics. You can navigate backwards using the navigation bars at the top of each page.

Contributing to Discussions

To post a message to an existing discussion, fill in the "Add a Message" box at the bottom of the page. You may use formatting codes or basic HTML tags to improve the appearance of your post. At the discretion of the moderators, the discussion may allow public posting or may require a user account (username and password). Follow the instructions on the form to supply the necessary credentials for posting.

Where available, you may click on a "Create New Conversation" button to start a new discussion. This will add a subtopic with the subject you specify and start a conversation with the initial message that you specify. After filling in the subject line, post a message as described above.

Searching the Board

This discussion board can be searched by time of post (New Messages search) or by matching text (Keyword Search). Each of these searching mechanisms provide convenient methods to locate discussions of interest.

To search for new messages, click the New Messages link from the Main Menu. If you have an account with a valid username and password, fill in your username and password in the appropriate boxes to search for messages since your last check. If you do not have an account, you can still search for new messages posted since a given date. The Last Day and Last Week options on the Main Menu are equivalent to searching for messages posted within the last day and messages posted within the last seven days, respectively.

To search the board by keywords, click the Keyword Search link from the Main Menu. You can then specify the words that will be used in the search. Additional instructions for using the Keyword Search option are displayed on the search screen itself.

When you have performed the search, click on any of the links to the pages to view the page, or click on a link in the result to go to the post where that text occurs.

Getting an Account

Having a user account on this discussion board gives the following benefits:

- Ability to specify your full name and e-mail address to be included on your post
- Ability to enable e-mail notification of all posts to topics you select
- Ability to change your own password
- In some versions, the ability to specify miscellaneous preferences for operation of the board, and to give more information about yourself that others can view
To get a user account, first click the Edit Profile link from the Main Menu of this board and see if "Instant Registration" is available. If not, e-mail one of the moderators listed on the Contact page and request a user account. Be sure to include your e-mail address, full name, and desired username if you e-mail a moderator.

Where to get further information

For additional information on using this system, read the Formatting document and the Troubleshooting document, available from the Main Menu. If you have additional questions or concerns, post them to an appropriate area on the discussion forum, or contact one of the moderators or the board administrator from the Contact page.

Rules and "Netiquette"

When writing your messages, please use the same courtesy that you would show when speaking face-to-face with someone. Flames, insults, and personal attacks will not be tolerated. It's fine to disagree strongly with opinions, ideas, and facts, but always with respect for the other person. Great minds do not always think alike, and that's where the fun is! Also, note that messages express the thoughts of the writers, not the board or its moderators.
Appendix H: Main Effects of Treatment in both the Face-to-Face and Internet Groups Across Time Figures
Figure 11. Main Effects Across Time for BSQ in the Face-to-Face and Internet-based Groups.

Figure 12. Main Effects Across Time for EWLB in the Face-to-Face and Internet-based Groups.
Figure 13. Main Effects Across Time for EDI-DT in the Face-to-Face and Internet-based Groups.

Figure 14. Main Effects Across Time for BULIT-R in the Face-to-Face and Internet-based Groups.
Figure 15. Main Effects Across Time for EDE-Q in the Face-to-Face and Internet-based Groups.

Figure 16. Main Effects Across Time for BDI in the Face-to-Face and Internet-based Groups.
Appendix I: Intention-to-Treat Analyses
Table 20.

Intention to Treat Means (standard deviations) at Time 1, Time 2, and Time 3 for Outcome Measures in the Face-to-Face and Internet Groups.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Face-to-Face (n = 19)</th>
<th>Internet (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
</tr>
<tr>
<td><strong>Body Image Concern</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>140.8 (37.2)</td>
<td>109.6 (47.7)</td>
</tr>
<tr>
<td>BIAQ</td>
<td>43.0 (14.4)</td>
<td>34.2 (16.2)</td>
</tr>
<tr>
<td><strong>Weight-Loss Behaviours</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>3.6 (.9)</td>
<td>2.9 (.9)</td>
</tr>
<tr>
<td>EWLB</td>
<td>3.0 (2.6)</td>
<td>1.5 (2.4)</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>34.7 (8.1)</td>
<td>28.2 (9.9)</td>
</tr>
<tr>
<td><strong>Eating Behaviours</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>100.9 (22.2)</td>
<td>77.7 (25.3)</td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>2.6 (1.9)</td>
<td>1.4 (1.3)</td>
</tr>
<tr>
<td>EDEQ</td>
<td>91.1 (25.8)</td>
<td>60.5 (39.2)</td>
</tr>
<tr>
<td><strong>Psychological Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>22.3 (12.8)</td>
<td>11.9 (11.0)</td>
</tr>
<tr>
<td>STAI</td>
<td>58.4 (11.5)</td>
<td>45.9 (14.3)</td>
</tr>
<tr>
<td>RSE</td>
<td>2.4 (.5)</td>
<td>2.9 (.5)</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005
Table 21.
Intention to Treat Summary Statistics for Repeated Measures ANOVAs (F, p, and effect size values) for Each Outcome Variable.

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Time Effect (n = 39)</th>
<th>Group Effect (n = 39)</th>
<th>Interaction (n = 39)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$ value</td>
<td>$p$ value</td>
<td>$\eta^2$</td>
</tr>
<tr>
<td>Body Image Concern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>36.64$^2$</td>
<td>.000***</td>
<td>.50</td>
</tr>
<tr>
<td>BIAQ</td>
<td>29.51$^2$</td>
<td>.000***</td>
<td>.44</td>
</tr>
<tr>
<td>Weight-Loss Behaviours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBQ-R</td>
<td>12.21$^2$</td>
<td>.000***</td>
<td>.25</td>
</tr>
<tr>
<td>EWLB</td>
<td>17.22$^2$</td>
<td>.000***</td>
<td>.32</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>30.96$^2$</td>
<td>.000***</td>
<td>.46</td>
</tr>
<tr>
<td>Eating Behaviours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULIT-R</td>
<td>43.52$^2$</td>
<td>.000***</td>
<td>.54</td>
</tr>
<tr>
<td>BE-FREQ</td>
<td>26.81$^2$</td>
<td>.000***</td>
<td>.42</td>
</tr>
<tr>
<td>EDEQ</td>
<td>39.24$^1$</td>
<td>.000***</td>
<td>.52</td>
</tr>
<tr>
<td>Psychological Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>24.08$^2$</td>
<td>.000***</td>
<td>.39</td>
</tr>
<tr>
<td>STAI</td>
<td>33.48$^2$</td>
<td>.000***</td>
<td>.48</td>
</tr>
<tr>
<td>RSE</td>
<td>28.47$^2$</td>
<td>.000***</td>
<td>.44</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005  
1 Huynh-Feldt adjusted F test procedure (e > 0.75). 2 Greenhouse-Geisser adjusted F test procedure used (e < 0.75).

Eta squared: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 22.

Intention to treat summary data ($F$, $p$, and $\eta^2$ values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the body image concern outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BSQ</th>
<th></th>
<th>BSQ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$F$ value</td>
<td>$p$ value</td>
<td>$\eta^2$</td>
<td>$F$ value</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>36.50</td>
<td>.000***</td>
<td>.50</td>
<td>28.03</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>2.01</td>
<td>.17</td>
<td>.05</td>
<td>.40</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>.00</td>
<td>.96</td>
<td>.00</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>1.51</td>
<td>.23</td>
<td>.04</td>
<td>.26</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05. **p** < .01. ***p*** < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 23.

Intention to treat summary data (F, p, and \( \eta^2 \) values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the weight loss behaviour outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>DEBQ</th>
<th></th>
<th>EWLB</th>
<th></th>
<th>EDI-DT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>F value</strong></td>
<td><strong>p value</strong></td>
<td><strong>( \eta^2 )</strong></td>
<td><strong>F value</strong></td>
<td><strong>p value</strong></td>
<td><strong>( \eta^2 )</strong></td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>8.93</td>
<td>.005***</td>
<td>.20</td>
<td>14.75</td>
<td>.000***</td>
<td>.29</td>
</tr>
<tr>
<td>Time</td>
<td>Time 2 vs. Time 3</td>
<td>8.42</td>
<td>.006**</td>
<td>.19</td>
<td>.84</td>
<td>.37</td>
<td>.02</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>2.43</td>
<td>.13</td>
<td>.06</td>
<td>5.60</td>
<td>.02*</td>
<td>.13</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 2 vs. Time 3</td>
<td>1.16</td>
<td>.29</td>
<td>.03</td>
<td>.84</td>
<td>.37</td>
<td>.02</td>
</tr>
</tbody>
</table>

*Note. *p < .05. **p < .01. ***p < .005

Etas squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 24.

Intention to treat summary data (F, p, and η² values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the eating behaviour outcome measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BULIT-R</th>
<th></th>
<th></th>
<th></th>
<th>BEFREQ</th>
<th></th>
<th></th>
<th></th>
<th>EDEQ</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>42.15</td>
<td>.000***</td>
<td>.53</td>
<td>29.35</td>
<td>.000***</td>
<td>.44</td>
<td>36.26</td>
<td>.000***</td>
<td>.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>5.50</td>
<td>.02*</td>
<td>.13</td>
<td>2.17</td>
<td>.15</td>
<td>.06</td>
<td>2.07</td>
<td>.16</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>.92</td>
<td>.35</td>
<td>.03</td>
<td>.52</td>
<td>.48</td>
<td>.01</td>
<td>.08</td>
<td>.78</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.02</td>
<td>.89</td>
<td>.00</td>
<td>.07</td>
<td>.80</td>
<td>.002</td>
<td>1.46</td>
<td>.24</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Table 25.

*Intention to treat summary data (F, p, and η² values) of repeated contrasts for time main effect and interaction effects for the repeated measures ANOVA for each of the psychological status outcome measures.*

<table>
<thead>
<tr>
<th>Source</th>
<th>Time</th>
<th>BDI</th>
<th></th>
<th></th>
<th>STAI</th>
<th></th>
<th></th>
<th>RSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
<td>η²</td>
<td>F value</td>
<td>p value</td>
</tr>
<tr>
<td>Time</td>
<td>Time 1 vs. Time 2</td>
<td>24.66</td>
<td>.000***</td>
<td>.40</td>
<td>30.06</td>
<td>.000***</td>
<td>.45</td>
<td>28.87</td>
<td>.000***</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.73</td>
<td>.40</td>
<td>.02</td>
<td>3.50</td>
<td>.07</td>
<td>.09</td>
<td>1.73</td>
<td>.20</td>
</tr>
<tr>
<td>Time x Group</td>
<td>Time 1 vs. Time 2</td>
<td>.32</td>
<td>.58</td>
<td>.01</td>
<td>1.83</td>
<td>.18</td>
<td>.05</td>
<td>1.07</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>Time 2 vs. Time 3</td>
<td>.01</td>
<td>.93</td>
<td>.00</td>
<td>.001</td>
<td>.98</td>
<td>.00</td>
<td>.003</td>
<td>.96</td>
</tr>
</tbody>
</table>

*Note.* *p < .05. **p < .01. ***p < .005

Eta squared values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988).
Appendix J: Body Image and Eating Behaviour Program

Evaluation Questionnaire
BODY IMAGE AND EATING BEHAVIOUR GROUP PROGRAM

PROGRAM EVALUATION QUESTIONNAIRE

Were there aspects of the program that were more helpful for you? What were they?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Have you noticed any changes in feelings towards yourself? If so, what are they?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Have you noticed any changes in your attitudes or behaviours? If so, how have you changed?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What aspects of the program were least useful for you?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

How could the program have been more beneficial for you? In what ways?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Are there parts of the manual that you feel could have been extended?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Are there parts of the manual that you feel could have been shortened?


Did you find the group sessions helpful for you? If so, in what way?


Are there aspects of the group sessions that you would have liked to be different? If so, how could they be different?


Please comment on the 7-week length of the program?


Any further comments or suggestions?


Thank you all very much for your time and effort.
Appendix K: Body Image and Eating Behaviour Internet-based Intervention Telephone Interview Schedule
Body Image & Eating Behaviour Group Program

Web Based Intervention Group
Qualitative Telephone Interviews

Name: 
Group Number: 
Date: 

1. In your opinion, what are some of the advantages of a web-based therapeutic program?

2. What are some of the disadvantages of a web-based therapeutic program?

3. If you had another choice between participating in a web based or a face-to-face group, what would your preference be? Why?

4. Did you encounter any technological difficulties throughout the program? What were they? How did you try and overcome them?
5. How could the web based program be more beneficial to you? What could be improved?

6. How did you find the process of the on-line chat sessions? Were the on-line chat sessions helpful?

7. In your opinion, what size web based group would be optimal?

8. How comfortable did you feel in sharing information in the web based group? Would you have felt the same way in a traditional face-to-face group? Explain.
On a five-point Likert scale, when (0) is not at all comfortable and (5) is extremely comfortable, where would you place yourself?
9. Did you find all aspects of the web-based program helpful and useful?
   e.g. did you use the:
   - on line manual?
   - Bulletin Board?
   - On-line chat room?

10. Any further comments or suggestions about the program?

   Thank you very much
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