Body Image: A Multidimensional Approach To Measurement In Individuals With Eating Disorders

WENDY CROWTHER - RAKOCHY ©

SUPERVISOR: DR. W. MELNYK

Running Head: Body Image

ISBN 0-612-09204-6

ACKNOWLEDGEMENTS

The author wishes to thank W. Melnyk, Ph.D. for supervising this thesis and to thank A. Thompson, Ph.D., Prof. K. Allen, and M. Olmstead, Ph.D. for their assistance and willingness to act as second, internal and external readers. Also acknowleged is the Sudbury General Hospital Eating Disorder Clinic, coordinated by V. MacDonald, for their help in providing the client population for this study. Special thanks to the sixty women who volunteered their time to make the study possible, and to D... for his ongoing assistance and support throughout.

TABLE OF CONTENTS

ABSTRACT

Body image disturbance is an important aspect of both anorexia nervosa and bulimia nervosa. To date, there has been little agreement on how to define and measure this. The current study views body image as a complex concept which requires a multidimensional approach to measurement. Participants consisted of 60 women between the ages of 16-42. Thirty women diagnosed with either anorexia or bulimia formed the clinical group and thirty women drawn from the general population and screened using the Eating Disorder Symptom Checklist (EDI-SC) formed a control group. Subjects completed a battery of psychometric tests which included the Eating Disorder Inventory-II (EDI-2), the Multidimensional Self-Esteem Inventory (MSEI), the Beck Depression Inventory (BDI), and the Image Marking Procedure (IMP). Analysis revealed significant group differences on all subscales of the EDI-2, MSEI, and BDI as well as unanticipated significant mean differences on three of the measures on the IMP, ($F=17.74$, $df=27,32$, $p<0.01$). In addition, several significant correlations were found among the various measures within each group. Results of the study suggest that body image includes

cognitive, attitudinal and perceptual components, is a significant part of a womans' self-concept, and that with respect to the groups in this study, body image disturbance can accurately differentiate between women with eating disorders and those without.

INTRODUCTION

A disturbance in body image is considered by the majority of clinicians to be a central component of both anorexia nervosa and bulimia nervosa. Hilde Bruch in 1962 described a, "disturbance of delusional proportions in the body image and body concept" as one of three key symptoms in the development of eating disorders and began a new area of investigation (Slade, 1985). This disturbance was formally incorporated into the DSM-III-R diagnostic manual for the diagnosis of both anorexia and bulimia.

The DSM-III-R (1987) proposed the following diagnostic criteria for anorexia nervosa:

A. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight 15% below that expected; or failure to make expected weight gain during period of growth, leading to body weight 15% below that expected.

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.

D. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration). (p. 67).

New to the DSM-III-R was the incorporation of the concept of body dissatisfaction, or preoccupation with body image, into the criteria for bulimia nervosa. The diagnostic criteria for bulimia are as follows:

A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).

B. A feeling of lack of control over eating behaviour during the eating binges.

C. The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.

D. A minimum average of two binge eating episodes a week for at least three months.

E. Persistent overconcern with body shape and weight. (pp. 68-69).

There is a significant body of literature which has attempted to clarify the concept of body image but in general there has been little agreement concerning how to define and measure this aspect of eating disorders (Cash & Brown, 1987; Cash & Pruzinsky, 1990; Cooper & Taylor, 1988; Rosen, 1990; Thompson, Penner, & Altabe, 1990; Warah, 1989). Thompson et al. (1990), concluded from their review of the literature in this area that, "the phrase body image has been used as an

umbrella label with its specific meaning dependent on an individual researchers definition" p.22. A further problem with the body image terminology, is that the terms body image disturbance, dissatisfaction, distortion, etc. have all been used interchangeably to refer to the same underlying concept. This has resulted in confusion when attempting to integrate the literature in this area.

In the past, body image has generally been measured in terms of size estimation. Size overestimation was viewed to be one component of body image disturbance and a variety of techniques have been developed for this purpose such as the silhouette body image test, distorting-mirror, distorting-photograph, and distorting-television-image procedure.

Silhouette tests such as the 'Revised Silhouette Body Image Test' (SBIT) have been developed and used to measure body image disturbance. These tests generally involve showing the subject a number of cards containing pictures of female bodies varying in both size and shape from very thin to very large. The subject is asked to chose the card which they feel accurately represents their present body shape. They are then weighed and measured to determine their

'actual' body shape and the difference between these two measures is calculated (Cash & Brown, 1987; Williamson, Davis, Goreczny & Blouin, 1989). The distorting-mirror involves a metal mirror which can be bent in both a horizontal and vertical direction resulting in an image distortion. The subject has to reset the mirror in order to produce a correct image of themselves. The distorting-photograph technique involves taking a slide-photograph of the subject, then using a lens to distort the image in the direction of under or over estimation. The subject's task is to select the image which corresponds with their current view of their body. The distorting-television-image technique involves using an on-line TV image distortion procedure. The subject has to alter the image to correspond with their present view of themselves. For a detailed explanation of these techniques see Slade's (1985) review of body-image study's.

The Image Marking Procedure (IMP), developed by Askevold (1975) and Barrios et al. (1989) is a much simpler and more economical measure of size-estimation, and has been found to offer results similar to the measures mentioned above. In this procedure, subjects' size estimations are obtained by instructing the

subject to stand before a piece of paper attached to the wall in front of them. The subjects take a pencil in each hand and imagine that they are facing themselves in a mirror. The subjects then mark the points that they think represent the width of various body regions (hips, shoulders, waist, thighs etc.)(Cash & Brown, 1987). Two independent study's utilizing the IMP conducted by Miller, Coffman, & Link (1980) and Sunday, Halmi, Werdam, & Levey, (1992) found no differences in size estimates between subgroups of anorexic and bulimic women. This suggests it is possible to treat them as a combined eating disorder group with respect to body image disturbance for research purposes.

Although initial study's which utilized these techniques indicated that anorexics and bulimics demonstrated significant size overestimation, these findings are now recognized as misleading (Slade, 1985, Yates, 1989). A number of more recent study's have shown evidence that control groups of 'normal' females also overestimate their body size. Although anorexics and bulimics consistently overestimate slightly more on average, there is substantial overlap between subjects with eating disorders and controls. Slade (1985)

reviewed the existing study's which employed size-estimation techniques and found that indeed all of the anorexic groups overestimated their body-size but that nine out of eleven control groups also overestimated, although to lesser degree. The results of one study employing size-estimation found that 79% of the eating disordered group and 74% of control group significantly overestimated their size (Slade, 1985). When comparing the size estimation of individuals with eating disorders to their actual size, a significant effect of over-estimation is invariably found. However, when comparing the degree of over-estimation of anorexics and bulimics to the over-estimation of controls, the significance of this effect is, in many instances, no longer significant.

It appears that when body image is defined and measured as size estimation alone, disturbance in this area has not proven to be unique to individuals with eating disorders. This particular finding has generated some debate with respect to the incorporation of the whole notion of body image disturbance into the DSM-III-R criteria for anorexia and bulimia nervosa. It has lead some investigators (e.g., Hsu 1982), to

suggest that the concept of body-image disturbance be abandoned as a diagnostic item, at least until research has demonstrated that the disturbance can be measured and accurately discriminates between individuals with eating disorders and controls. The response to this charge has been vast amounts of anecdotal and self-report evidence suggesting that body image disturbance is indeed an important aspect of eating disorders and that the fault thus far has been on the part of researchers who have used narrow or inadequate measures.

Study's investigating current sociocultural trends have consistently revealed that as many as 80% of women polled state that they are unhappy or dissatisfied with their current body shape and size. This suggests that dissatisfaction with physical appearance has become prevalent and possibly even a cultural norm for the majority of North American women. These study's have also identified that as many as 40% of North American women are currently dieting even though most fall within acceptable weight levels (Rice, 1988). It is therefore possible to conclude that these women experience a distortion in perception of personal size

which has led them to undertake weight loss diets in an attempt to alter this.

It may well be that size overestimation does represent an important component of body image disturbance and previous size-estimation study's have revealed a significant number of North American women (even those without eating disorders) experience disturbance in this aspect or component of body image. However, not all women experience this disturbance to the magnitude where it leads them to undertake potentially life threatening behaviours which take over their lives and their ability to meet their own physical and emotional needs - such as is the case with Anorexia and Bulimia. With eating disorders, it may be that disturbance in body image is a more complex phenomena than originally thought. Non-eating disordered women may commonly experience a milder form of the disturbance which is restricted to just one component of body image as a whole. Size estimation techniques may still be important tools for measuring one component of body image, but not broad enough to measure the many other aspects of body image disturbance.

There has been increasing evidence that body image is actually a more complex or global concept and requires a more multidimensional approach to assessment (Johnson, Connors, & Tobin, 1987; Kearney-Cooke & Streichen-Asch, 1990; Pruzinsky & Cash, 1990; Rosen, 1990; Slade, 1985; Thompson & Dolce, 1989; Thompson et al., 1990; Warah, 1989). Body image disturbance is now being recognized not as a one-dimensional construct but as one that involves perceptual, attitudinal, emotional and behavioral features (Cash & Brown,1987, Garfinkel & Garner, 1982; Rosen, Saltzberg, & Srebnik, 1989; Thompson, 1990, Williamson, 1990).

Body image is not confined to the realm of the physical body. It does include perception of body size (size estimation), but it also includes related feelings and judgements such as satisfaction with body size, shape and functioning and the belief that one is physically attractive. In addition, it includes a sense of being connected to the body through recognition of cues of hunger, satiety and the physical sensations that accompany emotions (Kearne-Cooke & Streichen-Asch, 1990; Pruzinsky & Cash, 1990; Rosen, 1990; Thompson & Dolce, 1989). Body Image can also be viewed as one component of the "Self" and may be

adversely affected by decreased satisfaction with self or self-esteem. Cash & Pruzinsky (1990) have proposed that the term body image is narrow in focus and should be abandoned in favour of a term such as 'body experience' which is more encompassing of the concept's complexity.

The concept of 'body experience' incorporates and recognizes multiple aspects of body image. Cash & Brown (1987) and Ben Tovim and Walker (1991) argue that recognition that body image is multidimensional in nature will lead to the identification and greater understanding of the various components involved. There is currently no tool which can adequately measure disturbance in all of the areas that have been noted and a variety of complementary measures must be used. The degree of convergence and divergence between these measures is of theoretical and practical importance (Thompson et al., 1990). To date, there have been relatively few attempts to incorporate multiple measures of body image disturbance in the study of individuals with eating disorders. Recent investigators have concluded that a variety of well-designed and properly tested measures are required to examine the multidimensional nature of body image

disturbance (Cash & Brown, 1987; Johnson et al., 1987; Slade, 1985; Thompson et al., 1990).

A greater understanding of this concept would enable clinicians to assess and understand the nature of a patient's body-image disturbance and the function that the disturbance has for the individual (Johnson et al., 1987; Thompson et al., 1990). This may lead to the development of more effective intervention programs. There is in fact some evidence that the level of body image disturbance may be an important tool for diagnosis and prediction of treatment outcome. Freeman et al., (1983), Slade and Russell, (1973), and Yates (1989) suggest that body image disturbance acts as an indicator of progress in treatment. More accurate tools for measuring this disturbance may in turn lead to the development of a more precise means of identifying areas of difficulty and more useful recommendations for treatment of such problems.

A number of study's have examined the relationship between body image disturbance and self-esteem and shown evidence that there is, in fact, a significant relationship. Thompson and Thompson (1986) revealed a significant negative correlation between size-overestimation and self-esteem. In their study, women

experiencing the greatest size distortion also experienced the lowest self-esteem. This relationship between body-image disturbance and self-esteem in individuals with eating disorders has been consistently noted in the literature (Ben Tovim, Walker, Murray, & Chin, 1990; Cooper & Taylor, 1988; Dworkin & Kerr, 1987; Eldredge, Wilson, & Whaley, 1990; Pruzinsky & Cash, 1990; Secourd & Jourard, 1962; Thompson et al., 1990; Thompson & Thompson, 1986). The cause of this relationship is unclear. Many theorists postulate that a poor body concept leads to a self-schema which is weight focused and leads to a lower evaluation of one's self and one's body (Eldredge et al., 1990). Worsley (1981) contended that "women's nonacceptance of their bodies generalizes to almost every aspect of their lives, including self-concept". It is also possible that a negative self-concept leads to a poor body image. Regardless of the cause, the existence of this relationship is clearly documented and may prove to be an important link for intervention.

It was Hilde Bruch who first drew attention to the disturbance of interoceptive awareness which many individuals with eating disorder experience. They are often unable to accurately identify internal sensations

such as "emotions, hunger and satiety" (Rosen, 1990). Eating disorder individuals report a greater than 'normal' degree of confusion and uncertainty about physical and emotional cues. Poor interoceptive awareness has been hypothesized to be a significant factor relating to body image disturbance in eating disorder individuals and, although its presence is noted, few study's have attempted to incorporate it into the assessment of body experience.

Cooper and Taylor (1988), have also noted that depression appears to be closely linked with body image disturbance. They propose that the greater the degree of depressive symptomatology present for the individual, the more their weight and shape concerns are accentuated.

The goal of this study was to identify the various components which make up the concept of body image, incorporate a multidimensional approach to its measurement and to examine the relevance of these measures for discriminating between women with an eating disorder and those without.

It was hypothesized that individuals with eating disorders and a control group from the general population would differ significantly on measures of

several components or aspects of body image disturbance. These aspects included size estimation, desire for thinness, satisfaction with body shape and size, feelings of effectiveness and ability to identify internal body sensations and emotions. Subjects feelings of being lovable and likable and their degree of satisfaction with their physical appearance and level of body functioning were also included. It was also expected that the groups would be significantly different on global measures of self-esteem and that a negative correlation between body image disturbance and global self-esteem would exist in both groups. It was also expected that a positive correlation would exist in both groups between depressive symptomatology and feelings of body dissatisfaction.

METHOD

SUBJECTS

Thirty female clients were assessed by a team consisting of a psychometrist, clinical dietician, social worker, occupational therapist and clinical nurse and found to meet the criteria for anorexia nervosa or bulimia nervosa as outlined in the DSM-III-R. These women formed the eating disorder group in the present study. They were recruited from the Eating Disorder Clinic at the Sudbury General Hospital, in Sudbury, Ontario. They participated on a volunteer basis with approval from the clinic's therapeutic team.

Thirty non-eating disorder females from the general public participated on a volunteer basis to form a control group. These subjects were screened using the Eating Disorder Inventory Two (EDI-2) and the Eating Disorder Symptom Checklist (EDI-SC). Two volunteers with scales on the EDI-2 elevated in the clinical range and with a significant number of items endorsed on the EDI-SC were excluded from the control group and offered services from the clinics eating

disorder program. An additional two volunteers were recruited to replace them.

Subjects in the eating disorder group ranged in age from 16 to 36 years with an mean age of 23.3 years. Subjects in the control group ranged in age from 18 to 42 years with a mean age of 28.0 years.

MATERIALS

Standard consent forms outlining the purpose and requirements of the study were used (Appendix A).

The Eating Disorder Inventory-Two (EDI-2; Garner & Olmsted, 1991) is a widely accepted, 91 item, self-report questionnaire which measures various feelings and symptoms often present in individuals with eating disorders. Test-retest reliability ranges from .81 to .93 and internal consistency ranges from .83 to .93. The inventory has seven subscales labelled 'Drive for Thinness'(DT), 'Bulimia'(B), 'Body Dissatisfaction'(BD), 'Ineffectiveness'(I), 'Perfectionism'(P), 'Interoceptive Awareness'(IA), and 'Maturity Fears'(MF), as well as three provisionary scales Asceticism (A), Impulse Regulation (IR), and Social Insecurity (SI). For the purpose of this study, emphasis was placed on the DT, BD, I and IA subscales.

The Eating Disorder Symptom Checklist (EDI-SC; Garner, 1991) is a structured self-report form which provides detailed information about the history and frequency of various behaviors associated with eating

disorders such as binge-eating, purging, exercise patterns and weight history.

The Multidimensional Self-Esteem Inventory (MSEI; O'Brien & Epstein, 1988) is a self-report inventory which measures global self-esteem and its components, as well as global self-concept. It is one of the few measures which incorportates body satisfaction as a component of self-esteem. Test-retest reliability ranges from .78 to .89 and internal consistency ranges from .78 to .90. The inventory measures the following components of self-esteem: Global Self-esteem (GSE), Competence (CMP), Lovability (LVE), Likability (LKE), Personal Power (PWR), Self-Control (SFC), Moral Self-Approval (MOR), Body Appearance (BAP), and Body Functioning (BFN), Identity organization (IDN), and Defensiveness (DEF). Emphasis was placed on the GSE, LVE, LKE, BAP, and BFN subscales in the current study.

The Beck Depression Inventory (BDI; Beck & Steer, 1987) is a commonly used, twenty item, self-report inventory addressing both the physiological and emotional components of depression. Test-retest reliability ranges from .48 to .90 and internal

consistency from .80 to .90. Total scores on this test place individuals in one of three categories ranging from not depressed to extremely depressed.

The Image Marking Procedure (IMP; Askevold, 1975) provides a measure of body size-estimation. It has been utilized in several study's to measure body image disturbance among eating disordered individuals. Test-retest reliability is approximately .33 and internal consistency ranges from .25 to .62.

PROCEDURE

All of the testing took place at the Sudbury General Hospital Eating Disorder Clinic.

At the time of recruitment, the eating-disorder group participants were given consent forms, the EDI-2, EDI-SC, MSEI, and Beck Depression Inventory. Subjects were instructed to fill them out in a room provided for this purpose. The examiner gave the standard test instruction provided in respective test manuals.

Members of the control group were recruited through local newspaper advertisements. These ads requested volunteer participants who felt they had healthy eating habits and positive attitudes toward food and weight (Appendix B). At the time of recruitment, the control group participants were given consent forms, the EDI-2, EDI-SC, and asked to complete them as instructed by the examiner (standard test instructions provided in accompanying test manuals). Testing took place in a room assigned for this purpose, as with the eating disorder group. The EDI-2 and EDI-SC were scored immediately. Two subjects with scale scores in the clinical range on the EDI-2 and/or a significant number of items endorsed on the EDI-SC were

interviewed privately by the examiner. Their test results were presented to them and they were offered the assistance of a clinician for an intake assessment. These individuals were eliminated from the control group and consequently excluded from the rest of the study. The remainder of the participants were then administered the MSEI and BDI.

After the consent forms, EDI-2, EDI-Sc, MSEI, and BDI had been completed, the participants of both groups were given the Image Marking Procedure individually at private testing sessions held at the Eating Disorder Clinic. For the purpose of this study, subjects were given the instruction to imagine they were viewing themselves in a mirror and to then mark the width of their head, waist, hips and thighs on a sheet of white paper on the wall before them. The actual widths of these areas were measured and the degree of over or under estimation calculated.

All subjects were thanked and debriefed. Subjects in both groups were informed that they could obtain a copy of this research study from the Eating Disorder Clinic upon its completion. Individual subjects were also offered the opportunity to discuss their

individual results of the assessment with the examiner at private sessions arranged by request.

Members of the Eating Disorder Clinic's Multidisciplinary Team were provided access to the results of the inventories completed by the eating disorder group, and, with clients consent, to specific data which could aid in determining appropriate treatment.

Each participant was assigned a number which appeared on all test data. Names and identifying information was stored separately in a locked file at the Eating Disorder Clinic to ensure confidentiality.

RESULTS

Test batteries were completed in their entirety by all subjects and data was collected on all participants for all variables. Table 1 contains means and standard deviations of these measures.

Insert Table 1 about here

A Multivariate Analysis of Variance (MANOVA) was performed on all variables.

Results revealed a significant mean difference between the eating disorder group and the control group, indicating that the two groups differed overall, $F(27,32)=17.74$, $p<.01$.

Table 1 also shows the results of univariate tests performed between the two groups on the individual variables. The eating disorder group overestimated the physical width of their waist, hips and thigh regions to a significantly greater extent than the control group. Members of the eating disorder group also reported a greater desire to achieve and maintain a low body weight than members of the control group. In addition they reported significantly greater feelings

TABLE #1
MEANS, STANDARD DEVIATIONS AND UNIVARIATE F TESTS WITH (1.58) D.F. ACROSS MEASURES FOR EATING DISORDER AND CONTROL GROUP

		CONTROL GROUP		EDI GROUP			
	VARIABLE	MEAN	STD. DEVIATION	MEAN	STD. DEVIATION	F	Sig. of F
IMP	HD	2.30	3.16	3.03	3.65	0.69	0.41
	WT	1.28	5.73	5.75	6.03	8.72	0.01
	HP	3.32	6.99	7.70	7.57	5.43	0.02
	TH	1.72	5.18	6.10	8.47	5.85	0.02
EDI-2	DT	3.17	4.53	16.27	4.05	139.27	0.00
	BD	7.27	7.49	21.33	6.05	64.08	0.00
	I	0.87	1.41	13.10	7.56	75.95	0.00
	IA	0.90	20.09	14.20	7.89	79.76	0.00
BDI	BDI	4.00	4.08	24.73	13.18	67.78	0.00
MSEI	GSE	33.70	9.90	18.30	7.12	47.87	0.00
	LVE	35.53	10.33	25.17	7.86	19.15	0.00
	LKE	33.83	9.28	26.53	8.06	10.59	0.00
	BAP	31.13	9.09	19.20	6.25	35.11	0.00
	BFN	32.00	9.44	24.00	8.26	12.22	0.00

NOTE: HD = head measure on image making procedure, WT = waist measure, HP = hip measure, TH = thigh measure, DT = drive for thinness, BD = body dissatisfaction, I = ineffectiveness, IA = interoceptive awareness, BDI = beck depression score, GSE = global self esteem, LVE = loveability, LKE = likeability, BAP = body appearance, BFN = body functioning

of dissatisfaction with their body shape and size, stronger feelings of ineffectiveness and inadequacy, and greater difficulty recognizing and responding to internal body sensations and emotions. Eating Disordered women also reported significantly lower levels of global self-esteem, felt they were less lovable and likable people, and were more unhappy and uncomfortable with their self-perceived level of physical attractiveness and body functioning.

Pearson Product Moment Correlations (Pearson R), were performed on all measures for both the eating disorder and the control group. Correlations were performed separately for both groups in order to examine the possibility that different patterns would emerge across the body image dimensions within each group. Table 2 shows the results for the eating disorder group and for the control group.

Insert Table 2 here

Significant positive correlations were found between the scores on the waist, hip and thigh estimates on the IMP for both groups. For both the eating disordered women and control women, increases in

overestimation of one of the lower body regions corresponded with increases in the other two lower body regions.

A significant positive correlation between depression and body image dissatisfaction was found in the control group only. It appears that their level of depressive symptomatology and their feeling of dissatisfaction with body size and shape increased at a similar rate. In the eating disorder group a significant positive correlation was found between scores on the Beck Depression Inventory (BDI) and scores on the Ineffectiveness (I) and Interoceptive Awareness (IA) subscales. For these women symptoms of depression seemed to be linked more with feelings of ineffectiveness and difficulty identifying internal body sensations and cues.

Correlational analysis revealed several other unpredicted relationships. Significant positive correlations were found between the Ineffectiveness (I) and Interoceptive Awareness (IA) scales, the Global Self-esteem (GSE) and Likability (LKE) scales, the GSE and Body Appearance (BAP) scales, the Lovability (LVE) and LKE scales and the LKE and BAP scales for both the eating disorder and control group. Thus, for all

TABLE #2
CORRELATION OF MEASURES
IN THE EATING DISORDER GROUP AND
CONTROL GROUP

		EATING DISORDER GROUP													
		HD	**WT**	**HP**	**TH**	**DT**	**BD**	**I**	**IA**	**BDI**	**GSE**	**LVE**	**LKE**	**BAP**	**BFN**
	HD		.72*	.68*	.45	-.15	.39	.04	-.02	-.09	-.15	-.23	-.21	-.20	-.16
	WT	.38		.80*	.61*	-.13	.35	-.13	-.14	-.23	-.09	-.13	-.10	-.13	-.22
	HP	.66*	.84*		.80*	-.01	.48	-.10	.01	-.22	-.24	-.00	-.09	-.15	-.28
	TH	.26	.67*	.60*		-.02	.60*	-.05	.04	-.22	-.27	.03	-.02	-.21	-.04
	DT	-.28	.03	-.06	-.22		.41	-.01	.23	.18	-.08	-.03	.07	-.08	-.07
	BD	-.09	.19	.05	.06	.69*		.24	.22	.11	-.36	-.11	-.26	-.47	-.24
CONTROL	**I**	-.39	-.51	-.40	-.47	.51	.16		.74*	.76*	-.58*	-.31	-.43	-.28	-.35
GROUP	**IA**	-.42	-.51	-.50	-.62*	.61*	.27	.80*		.61*	-.40	-.19	-.21	.05	-.13
	BDI	-.19	.16	.09	.28	.51	.55*	.24	.07		-.32	-.18	-.23	-.13	-.16
	GSE	.15	.06	-.01	-.03	-.19	-.38	-.04	-.19	-.12		.45	.70*	.61*	.48
	LVE	.17	.20	.11	.03	-.11	-.21	-.09	-.32	.04	.83*		.70*	.45	.42
	LKE	.24	.10	.01	.04	-.17	-.29	-.02	-.24	-.02	.92*	.84*		.73*	.54
	BAP	.20	-.11	-.06	-.03	-.34	-.53	.06	-.16	-.18	.81*	.69*	.86*		.50
	BFN	-.10	-.16	-.26	-.00	-.15	-.42	-.18	-.05	.04	.81*	.61*	.85*	.87*	

NOTE: HD = head measure on image making procedure, WT = waist measure, HP = hip measure, TH = thigh measure, DT = drive for thinness, BD = body dissatisfaction, I = ineffectiveness, IA = interoceptive awareness, BDI = beck depression score, GSE = global self esteem, LVE = loveability, LKE = likeability, BAP = body appearance, BFN = body functioning
* = Significant LE.001 (2-tailed)

subjects, it seems that their feelings of ineffectivenss and their level of difficulty identifying internal body cues and emotions increased proportionally. In addition, their level of self-esteem, feeling of being likable to others and personal satisfaction with their physical appearance seemed to increase together.

DISCUSSION

Results of this study appear to support many of the initial questions that it set out to investigate. Individuals with anorexia and bulimia nervosa appear to respond significantly different from a group of non-eating disorder women (controls) on several measures of body image. Additionally, many of these measures appear to be significantly correlated and the pattern of these correlations was only slightly different in the two groups.

The initial hypothesis was supported. The eating disorder group and control group differed significantly on all subscales of the EDI-2. Individuals without significant eating disorder symptomatology exhibited far less disturbance in all areas. Of particular interest to this study were the subscales of Drive for Thinness, Body Dissatisfaction, Ineffectiveness, and Interoceptive Awareness. Eating disorder individuals, as expected, had a stronger desire to lose weight and maintain low body mass, were more dissatisfied with their body shape and size, were more intensely plagued by feelings of ineffectiveness and had greater

difficulty identifying and responding to internal body cues and affective states in accordance with a state of poor interoceptive awareness. It appears that body image disturbance with its various components is a more significant problem for women with eating disorders than for women without. The finding of a difference in interoceptive awareness in the two groups may be of particular interest. Interoceptive awareness overlaps with the concept of alexithymia defined as a "diminished capability to verbally describe and identify feeling states as well as restricted imaginal capacities", (Sifneos, 1973; Nemiah & Sifneos, 1970). The greater the degree of alexithymia, the more difficult it is to identify and label the physiological changes that accompany emotions. Some theorists suggest that this may result in the individual attending to the physiological changes accompanying feelings and mislabelling these bodily sensations resulting in body-image distortion or a sense of body alienation (Sifneous, 1973; Nemiah & Sifneous, 1970). It is also possible that this inability to correctly identify or cognitively label the cause of the body sensations may contribute to a feeling of being out of control of one's body. This may lead women to attempt

to regain control through manipulation of food intake. Results of the present study clearly suggest significant differences between the two groups in this area which lends support to suggestions that it may be theoretically and practically important for both prognosis and treatment. Further study's aimed at clarifying this rather difficult to define concept may result in treatment strategies geared to correcting these deficits. Many of the current treatment strategies used to alter body image in individuals with eating disorders use 'Guided Imagery' as the primary tool. This form of treatment may be asking clients to undertake and benefit from an approach to therapy that is inappropriate due to deficits in interoceptive awareness and the presence of alexithymia. These techniques ask anorexics and bulimics with poor imaginal abilities to imagine changes in themselves. Further research in this area would undoubtably be of great benefit in examining and improving current body image therapies.

The Image Marking Procedure responses were unanticipated. Several previous research study's have suggested that the IMP and other perceptual measures of body image are often misleading--failing to

significantly differentiate between those with eating disorders and women in the general population. Results of these study's have suggested that disturbance of this component of body image may be norm for the majority of North American women, (Cash & Brown, 1987; Cash & Green, 1986; Slade, 1985; Yates, 1989). Consequently, the significant differences on three of these measures between the two groups was unexpected. Group means differed significantly on the waist, hip and thigh estimates but not the head estimates. Results of the current study suggest that the more emotionally charged ratings of the lower body in the eating disorder group were overestimated to a larger extent than by the control group who were shown by differences on other measures to be less body dissatisfied or preoccupied.

It is possible that the way groups were sampled may have played a role in these findings. Many of the previous study's used a college sample of females for a control or comparison group. This population is widely accepted to have both a higher incidence of disordered eating and body dissatisfaction, (Whitaker & Davis, 1989). This may in part explain why the college women in the previous study's also overestimated body width,

although to a slightly lesser degree than the eating disordered women. In this study, the advertisement used to recruit subjects for the control group asked for "volunteers with healthy eating habits and healthy attitudes toward weight and food". This may have resulted in a control group which represents the "healthy" end of the normal curve and may not actually be representative of the attitudes and behaviours of women in general. It is also a possibility that having knowledge about the study's purpose may have in some way influenced the responses given by members of the control group. They may have been motivated to appear in a positive light. This sampling procedure may therefore have contributed to finding extreme differences on several other measures used in this investigation. It would be interesting to run the same battery of tests on a sample taken from the college population and compare results to this control group in an attempt to understand the role of sampling in this and previous study's. As it stands, the results of this study indicate that the IMP was an effective means of discriminating individuals with eating disorders from the group of women without eating disorders who participated in this study and that size overestimation

was not as significant a problem for non-eating disordered women.

Eating disorder individuals also differed significantly from the control group on all scales on the MSEI. The control group reported high levels of self-esteem both globally and across specific areas related to self-image such as Lovability, Likability, Body Appearance and Body Functioning. They had a much more positive view of themselves as a whole and their physical selves than the eating disordered women.

Within both the eating disorder group and control group, significant positive correlations were found between Global Self-Esteem, satisfaction with Body Appearance and the belief that one is Likable. This suggests that the more satisfied they were with their physical self in terms of appearance and functioning, the more they felt that people liked who they were. This in turn, appears to contribute significantly to an overall general level of self-esteem. This relationship is not surprising when one considers that we live in a society that values thinness- particularly in females. Study's indicate that 80% - 90% of women in North America currently believe they are "too fat", 80% have tried dieting by the time they are 18 years of

age, 70% presently "watch what they eat", 40% are actively "dieting" and up to 15% of women are engaging in more serious forms of weight and shape obsession, such as anorexia and bulimia nervosa (Rice, 1988). It appears that females in our culture are socialized to give emphasis to the physical aspects of the "self" in their overall self-concept, leaving them with an "unbalanced" sense of "self" and increasing their risk of developing eating disorders. The more one values physical appearance and believes it is central to a sense of self-esteem, the more likely one is to attempt to strengthen their self-esteem by trying to alter their physical appearance (Striegel-Moore, McAvery & Rodin, 1986). Results of the current study appear to support these assumptions. Physical appearance is linked to self-esteem and self-perception in both the eating disorder group and the control group. The greater the satisfaction or comfort with physical appearance reported, the greater the level of global self-esteem. While results of the study may suggest that physical appearance is more important to the self-concept of eating disorder individuals, it may also be that for some reason eating disorder individuals are less satisfied with their "self" in general and

dissatisfaction with the body is merely one expression of a greater "discontent". Results of this aspect of the study were correlational in nature and it may be that increased self-esteem from other sources protects one from being significantly dissatisfied with body appearance.

It was suggested by Cohen Toivee (1993), and Cooper and Taylor (1988), that depression may play a role in accentuating women's concerns regarding their weight and shape. Unexpectedly, this study did not find this effect in both the eating disorder group and control group. The level of depression was correlated with Body Dissatisfaction for the control group only. In this group levels of depression on the BDI and discomfort with physical shape and size, as well as desire to change or alter it by losing weight, increased together. In the eating disorder group, this effect was not found; rather, the level of depression was correlated with feelings of ineffectiveness and difficulty with interoceptive awareness. These results are confusing and on the surface appear to shed little light on clarifying the precise role depression plays in the body image of individuals. It seems that in normal women depressive feelings are readily attached

to feelings of dislike for one's personal appearance. For Individuals with eating disorders, however, depressive feelings do not increase proportionally with the level of body dissatisfaction. These results may also have been affected by the relatively small sample size used in the study and the differences in variability within the two groups. Depression scores in the control group were low with narrow variability (ie. $\underline{M}$=4, S.D.=4). For the eating disorder group, scores were higher with a high degree of variablity (ie. $\underline{M}$=24.7, S.D.=13). The eating disorder group were less homogeneous in their responses which may have influenced results.

The relatively small sample size utilized in the current study created additional limitations with respect to analysis. Further study using the same variables but with a sample size large enough to permit Factor Analysis might allow for more exact identification and definition of body image components than Analysis of Variance and Correlational analysis permit.

Scores on the Global self-esteem, body appearance, and likability subscales were positively correlated for both groups, as were ineffectiveness and interoceptive

awareness. A profile of body image disturbance emerged which included size overestimation, low self-esteem and feelings of ineffectiveness, dissatisfaction with physical appearance, decreased ability to identify internal body cues and emotions and a feeling of not being a likable person. In the eating disorder women, depressive symptoms did not emerge with the presence of body dissatisfaction only and may occur in response to other factors that have contributed to feelings of ineffectiveness and poor interoceptive awareness. This suggests that body appearance also plays a significant role in average (or non-eating disorder) women's level of self-esteem regardless of whether levels of self-esteem are high or low.

Even though in the current study body size estimates did seem to play a role in determining and measuring the presence of body image disturbance, other areas of delineation between the two groups on other body image components were noted. These areas include self-esteem, feelings and attitudes toward the self and body, and difficultly identifying internal body cues. It appears that both cognitive and affective processes contribute to women's self-perceptions. Size-estimation alone has offered little in terms of

treatment and these other aspects of body image may prove more useful in developing treatment techniques. The development of one reliable psychometric test that examined all of these body image components would undoubtedly be useful in assessing the nature of the problem and planning treatment in those presenting clinically with eating disorders.

The fact that Global self-esteem was correlated with satisfaction with body appearance in both groups may suggest that body image is an integral part of self-image in individuals with both healthy and unhealthy self-concepts. This study, then, may argue for Cash and Pruzinskys (1990) proposal that the term "body image" be changed to "body experience" to more adequately reflect the combined influence of physiological, sociocultural and psychological factors in the self-evaluation of women's bodies.

Work to formally broaden our definition of this concept has already begun and may prove to be a great contribution to our knowledge of eating disorders and our understanding of the North American women's experience of "self" in general. Changes were made to the diagnostic criteria for both anorexia nervosa and bulimia nervosa from the DSM-III-R to the DSM-IV.

Specifically, in anorexia, criterion C which stated "Disturbance in the way in which one's body weight, size or shape is experienced, (eg., the person claims to 'feel fat' even when emaciated, believes that one area of the body is 'too fat' even when underweight.)", was changed to "Disturbance in the way in which one's body weight or shape is experienced, (eg., undue influence of body shape or weight on self-evaluation or denial of the seriousness of the current low body weight)". For bulimia, criterion D, which stated, "Persistent over-concern with body weight and shape", was changed to, "Self-evaluation is unduly influenced by Body shape and weight", (Walsh, 1992).

Results of this, and recent study's by Brinded, Bushnell, McKenzie and Wells (1990), and Denniston, Roth and Gilroy (1992), lend strong support to the importance of approaching body image as a multidimensional concept recognizing and assessing the roles of affective, cognitive, and perceptual components in order to gain as complete a picture as possible of an individual's experience. It appears that when such a multidimensional approach is taken women with anorexia and bulimia can be discriminated from women without an eating disorder. Therefore, a

disturbance in "body experience" should be retained as a criteria for diagnosing these eating disorders. What role, if any, such disturbance plays in the newly proposed binge eating disorder (Walsh, 1992) is unclear and similar research conducted on this population could prove valuable.

REFERENCES

American Psychiatric Association. (1987). Diagnostic & Statistical Manual of Mental Disorders (3rd ed. rev.). Washington, D.C. Author.

Andersen, A. (1990). A proposed mechanism underlying eating disorders and other disorders of motivated behaviour. In A. Andersen (Ed.), Males With Eating Disorders (pp.221-254). New York: Brunner/Mazel.

Beck, A.T, & Steer, R.A. (1987). Beck Depression Inventory Manual. New York: The Psychological Corporation Inc.

Ben-Tovim, D., & Walker, M.K. (1991). Women's body attitudes: a review of measurement techniques. International Journal of Eating Disorders, 10(2), 155-167.

Ben Tovim, D., Walker, M., Murray, H. & Chin, G.(1990). Body size estimates: body image or body attitude measures? International Journal of Eating Disorders, 9(1), 57-67.

Brinded, P., Bushnell, J., McKenzie, J., & Wells, J.E. (1990). Body image distortion revisited: temporal instability of body image disturbance in A-N. International Journal of Eating Disorders, 9(1)

Birtchell, S., & Lacey, J.H. (1985). Body image distortion in bulimia nervosa. British Journal of Psychiatry, 147, 408-412.

Cash, T., & Brown, T. (1987). Body image in anorexia nervosa and bulimia nervosa: a review of the literature. Behaviour Modification, 11(4), 487-521.

Cash, T., & Green, G. (1986). Body weight and body image among college women: perception, cognition and affect. Journal of Personality Assessment 50, 290-301.

Cooper, R., & Taylor, M. (1988). Body image disturbance in bulimia nervosa. British Journal of Psychiatry, 153(suppl 2), 32-36.

Cohen Toivee, E. (1993). Depressed mood and concern with weight and shape in normal young women. International Journal of Eating Disorders, 14(2).

Denniston, C., Roth, D., & Gilroy, F. (1992). Dysphoria and body image among college women. International Journal of Eating Disorders, 12(4), 449-452.

Dworkin, S., & Kerr, B. (1987). Comparison of interventions for women experiencing body image problems. Journal of Counselling Psychology,34(2), 136-140.

Eldredge, K., Wilson, G.T., & Whaley, A. (1990). Failure, self-evaluation, and feeling fat in women. International Journal of Eating Disorders, 9(1), 37-50.

Freeman, R., Thomas, C., Solyom, L., & Miles, J. (1983). Body image disturbances in anorexia nervosa: a re-examination and a new technique. In P. L. Darby, P. E. Garfinkel, D. M. Gainer, & D. V. Coscina (Eds.), Anorexia Nervosa Recent Developments in Research, (pp. 117-127). New York: Alan R. Liss.

Garner, D.M., & Olmsted, M. (1984). Eating Disorder Inventory Manual, Florida: Psychological Assessment Resources Inc.

Garner, D.M. (1991). Eating Disorder Inventory -2 Professional Manual, Florida: Psychological Assessment Resources Inc.

Johnson, C., Connors, M., & Tobin, D. (1987). Symptom management of Bulimia. Journal of Consulting and Clinical Psychology, 55(5), 668-676.

Johnson, C., Tobin, D., & Steinberg, S. (1989). Etiological, developmental and treatment considerations for bulimia. In L. Whitaker & W. Davis (Eds.), The Bulimic College Student: evaluation, treatment and prevention, pp. 57-73. New York: Haworth Press, Inc.

Kearney-Cooke, A., & Streichen-Asch, P. (1990). Men, body image & eating disorders. In A. Anderson (Ed.), Males With Eating Disorders, pp.54-74. New York: Brunner/Mazel Publishers.

Mable, H., Balance, W., & Galgan, R (1986). Body distortion & dissatisfaction in university students Perceptual & Motor Skills, 63, 907-911.

Mickalide, A. (1990). Sociocultural factors influencing weight among males. In A. Anderson (Ed.), Males With Eating Disorders, pp.30-39. New York: Brunner/Mazel Publishers.

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

Nemiah, J., & Sifneos, P. (1970). Affect & fantasy in patients with psychosomatic disorders. In Hillow (Ed.), Modern Trends in Psychosomatic Medicine. 2, (pp. 26-34). London: Butterworths.

Nudelman, S., Rosen, J. & Leitenberg, H. (1988). Dissimilarities in eating attitudes, body image distortion, depression, and self-esteem between high-intensity male runners. International Journal of Eating Disorders, 7(5), 625-634.

O'Brien, E.J., & Epstein, S. (1988). The Multidimensional Self-Esteem Inventory Professional Manual. Florida: Psychological Assessment Resources Inc.

Pruzinsky, T., & Cash, T. (1990). Integrative themes in body-image development, deviance, and change. In T. Cash, & T. Pruzinsky (Eds.), Body Images: Development, Deviance & Change, (pp.337-349). New York: Guilford Press.

Rice, C. (1988). Society's obsession with thinness. The National Eating Disorder Information Centre Bulletin, 3(1), 1-3.

Rosen, J. (1990). Body-image disturbances in eating disorders. In T. Cash, & T. Pruzinsky (Eds.), Body Images: Development, Deviance and Change, (pp.190-214). New York: Guilford Press.

Secord, P., & Jourard, S. (1962). The appraisal of body-cathexis: body-cathexis and the self.

Shisslak, C., Crago, M., Neal, M., Swain, B. (1987). Primary prevention of eating disorders: special issue: eating disorders. Journal of Consulting and Clinical Psychology, 55(5), 660-666.

Sifneos, P. (1973). The presence of alexithymic characteristics in psychosomatic patients. Psychotherapeutics & Psychosomatics, 22, 253-263.

Slade, P., & Russell, G. (1973). Awareness of body dimensions in anorexia nervosa: cross-sectional & longitudinal study's. Psychological Medicine, 3, 188-199.

Slade, P. (1985). A review of body-image study's in anorexia and bulimia nervosa. Journal of Psychiatric Research, 19(2-3), 255-265.

Striegel-Moore, R., McAvary, G., & Rodin, J. (1986). Psychological and behavioral correlates of feeling fat in women. International Journal of Eating Disorders, 5, 935-947.

Sunday, S., Halmi, K., Werdam, L., & Levey, C. (1992). Comparison of body size estimates & EDI scores in anorexic and bulimic patients with obese and restrained and unrestrained controls. International Journal of Eating Disorders, 11(2),

Thompson, J.K., Penner, L., & Altabe, M. (1990). Procedures, problems and progress in the assessment of body images. In T. Cash, & T. Pruzinsky (Eds.), Body Images: Development, Deviance and Change, (pp.21-48). New York: Guilford Press.

Thompson, J. K., & Dolce, J. (1989). The discrepancy between emotional v.s. rational estimates of body size, actual size and ideal body ratings: theoretical and clinical implications. Journal of Clinical Psychology, 45(3), 473-478.

Thompson, J.k., & Thompson, C. (1986). Body size distortion and self-esteem in asymptomatic normal weight males and females. International Journal of Eating Disorders, 5(6), 1061-1068.

Walsh, T. (1992). Diagnostic criteria for eating disorders in DSM-IV: work in progress. International Journal of Eating Disorders, 11(4),

Warah, A. (1989). Body image disturbance in anorexia nervosa: beyond body image. Canadian Journal of Psychiatry, 34, 898-905.

Wendel, G., & Lester, D. (1988). Body cathexis and self-esteem. Perceptual & Motor Skills, 67(2), 538.

Whitaker, L., & Davis, W. (1989). The Bulimic College Student: Evaluation, Treatment and Prevention. New York: Haworth Press.

Williamson, D., Davis, C., Goreczny, A., & Blouin, D. (1989). Body-image disturbances in bulimia nervosa: influences of actual body size. Journal of Abnormal Psychology, 98(1), 97-99.

Woodside, D. B., Garner, D., Rickert, W., & Garfinkel, P. (1990). Eating disorders in males: insights from a clinical and psychometric comparison with female patients. In A. Anderson (Ed.). Males With Eating Disorders, (pp.100-115). New York: Brunner/Mazel Publishers.

Yates, A. (1989). Current perspectives on the eating disorders I. history, psychological & biological aspects. Journal of Am. Acad. Child Adolesc. Psychiatry, 28(6), 813-828.

Zakin, D. (1989). Eating disturbance, emotional separation and body image. International Journal of Eating Disorders, 8(4), 411-416.

APPENDIX A

Dear Participant:

I am conducting a study entitled "Body Image: A Multidimensional Approach to Measurement". I am conducting this study under the supervision of Dr. W. Melnyk, Professor of Psychology at Lakehead University, as partial fulfilment of the requirements of a Master of Arts degree in Clinical Psychology.

The purpose of this study is to identify both the direction and degree that individuals with Eating Disorders differ from non-eating disorder individuals with respect to the multi-faceted components of body image.

If you agree to participate in the study, you will be asked to complete several self-report type tests concerning eating disorder symptomatology and participate in a size-estimation exercise. The time required to complete this will be approximately 1 hour. All names and identifying information will be kept confidential. Each participant will be assigned a identification number which will appear on all of their test results and their names will be stored separately.

Your decision to participate is completely voluntary and you may withdraw at any time if you wish. If you agree to participate please sign the attached consent form and turn it in. Your participation would be greatly appreciated.

If you are interested in the results of this study, a brief description of our findings can be obtained from the Psychology Office located in the Braun Building at Lakehead University and the Sudbury General Hospitals Eating Disorder Clinic after September, 1993.

Wendy Crowther
M.A. Student

W. Melnyk, Ph.D
Professor of
Psychology, L.U.

STATEMENT OF INFORMED CONSENT

My signature on this sheet indicates that I will participate in a study by Wendy Crowther and DR. Melnyk entitled, "Body image: A multidimensional approach to measurement", and indicates that I understand the following:

1) I am a volunteer and can withdraw at any time from the study.
2) I have received explanations about the nature of the study, it's purpose and procedures.
3) There is no risk of psychological or physical harm.
4) My name and any identifying information will be kept confidential.
5) If I wish, I may obtain a brief summary of the results of the project, following its completion.

_____ _____

SIGNATURE OF PARTICIPANT DATE

SUDBURY GENERAL HOSPITAL
OF THE IMMACULATE HEART OF MARY
Always there to Care.

HOPITAL GENERAL
DU COEUR IMMACULÉ DE MARIE À SUDBURY
Toujours là pour vous.

EATING DISORDERS CLINIC

AUTHORIZATION FOR USE OF CLINICAL INFORMATION

I hereby agree that information provided by me or obtained in respect of me may be used at the Eating Disorders Clinic for research, clinical training, or clinical supervision.

Further, I agree to observation or videotaping of sessions by authorized team members.

I understand that all such information will be kept at the Eating Disorders Clinic and held in strictest confidence. My name will not be used in data compiled for research purposes.

Signed:_____

Date:_____

CLINIQUE DES TROUBLES DU COMPORTEMENT ALIMENTAIRE

CONSENTEMENT À L'UTILISTATION DE RENSEIGNEMENTS CLINIQUES

Par la présente, je consens au fait que les renseignements que je vous fournis ou qui sont obtenus par rapport à moi soient utilisés à la Clinique des troubles du comportement alimentaire aux fins de recherche, de formation ou de surveillance cliniques.

De plus, je consens à ce que les membres autorisés de l'équipe observent ou enregistrent par vidéocaméra la séances.

Je comprends que tous les renseignements seront gardés à la Clinique des troubles du comportement alimentaire et seront strictement confidentiels. Mon nom ne paraîtra pas dans les données rassemblées aux fins de recherches.

Signature:_____

Date:_____

P-1171
JULY/90

Community Programs/Programmes Communautaires: 584 Clinton, Sudbury, Ontario P3B 2T2 FAX: (705) 671-9364;

• Psychogeriatric Clinic/Clinique de Psychogériatrie (705) 671-3186
• Interact/Interaction (705) 671-3330
• Eating Disorder Clinic/Clinique des problèmes du comportement alimentaire (705) 671-3320

APPENDIX B

WANTED

Female volunteers with healthy eating habits and attitudes toward food and weight, to participate in a Body Image Research Study at the Sudbury General Hospital Eating Disorder Clinic. Requires approx. 1 hour of time.

If interested please call Wendy Crowther at 671-3320.