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Actual/Ideal Body Images of High School Girls and how it affects their Self-Esteem: Implications for educational and clinical institutions

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Given that adolescence is a critical period for the development of a positive self-concept and body image, it is imperative that educators have an understanding of adolescent students' body image. Negative body image is an issue that is rife within the adolescent student population in Australia and around the world, and is a factor that is commonly associated with disturbed eating behaviours and chronic eating disorders like Anorexia Nervosa (AN). Despite the intuitive appeal and importance of investigating adolescents' body image in terms of what adolescents would like to look like and what they think that they look like now, very little research has investigated these concepts. Furthermore, very little research has explored whether there is a difference between these two constructs how this may affect adolescents' self-esteem. This study therefore aimed to explore the actual and ideal body images of adolescent high school girls aged between 12 and 18 years in two samples of adolescents, one with eating disorders ($n=76$, clinical sample) and one without ($n=823$, high school sample). Additionally, this study investigated these constructs in relation to self-esteem levels. The results of this study have important implications for educators and clinicians within educational and clinical settings.

Adolescence is a period of major growth and development; physical, emotional and psychological. Throughout history, researchers and writers have referred to the adolescent period as one of trial and turmoil (de Brun, 1981; Tiggemann, 2001); a period in which individuals seek to clarify their identities and their roles within society. It is also a time in which individuals must make psychological and emotional adjustments to accommodate the physical and physiological changes that occur to the body (Koff & Rierden, 1993). As a result of the various changes that occur (biological and psychological) during the adolescent period, it is no surprise that there are fluctuations and alterations in the way that individuals evaluate themselves. Research in a variety of areas has identified that positive development of self-concept and body image is both encouraged and desired. For example, there has been an increase in the amount of research conducted within the educational psychology discipline investigating the role of the development of the self in learning (eg Marsh & Craven, 1997), academic achievement (eg Marsh, 1992) and student motivation (eg Martin & Marsh, 2003), with researchers indicating that a positive self-concept is not only a desired outcome, but also an important mediating variable for other positive and desired outcomes.

Over the last few decades there has been a proliferation of research and promotion programs for the positive and healthy psychological development within the adolescent population, possibly in response to increased incidence mental health issues such as depression and particularly eating disorders. It has been argued that the ever-increasing rate of eating disorders amongst the adolescent population (particularly within the female adolescent population) is (in part) due to the increased emphasis that society has placed on beauty and the value of physical attractiveness (Haworth-Hoepfner, 2000; Wiseman, Gray, Mosimann, & Ahrens, 1992) within the female population. Researchers have found that over the last three decades the shape of the ideal body being presented to society through the media has become progressively thinner, whereas the average person today is larger than that of three decades ago (Stevens & Tiggemann, 1998; Barber, 1998; Spitzer, Henderson, & Zivian, 1999).

Furthermore, it has been suggested that due to the overexposure of the population to these thin ideal body shapes, women desire what they can not biologically obtain (Tiggemann &

Pickering, 1996), considering that this 'thin ideal' that women desire is much smaller than most women are biologically capable of acquiring. Not surprisingly then, body image dissatisfaction within the female population is rife (Sheffield, Tse, & Sofronoff, 2005; Wolf, 1994). This is concerning for several reasons, firstly, body image dissatisfaction is consistently cited as a precursor for chronic and serious eating disorders such as anorexia and bulimia nervosa (DSM-IV-TR; American Psychological Association, 2004) irrespective of ethnicity and culture (Lee, Ho, & Hsu, 1993; Taylor et al., 1998), and secondly, body image dissatisfaction has been found to be closely associated with negative self-esteem (Sheffield et al., 2005; Ricciardelli & McCabe, 2001; Smolak & Levine, 2001), disturbed eating attitudes, eating behaviours and maladaptive methods to control weight and eating (Griffiths et al., 2000; Hermes & Keel, 2003; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), particularly in adolescent girls (Sheffield et al., 2005).

Body Image in Schools

Body image concerns and eating disturbances are widespread amongst the adolescent female population (McVey & Davis, 2002). Numerous studies have found that a major proportion of adolescent students want to be thinner than they actually are and engage in dieting mainly through food restriction and weight loss/management methods, such as the use of laxatives, self-induced vomiting and exercise, to decrease their weight (McVey, Pepler, Davis, Flett, & Abdolell, 2002; Barker & Galambos, 2003). More recent research has indicated that body image disturbance is evident in younger children as young as 8 years of age (Schur, Sanders, & Steiner, 2000). Researchers have shown that even children as young as 5 years have indicated that they would like to be thinner than they are currently and further, are aware of the types of methods that can be used to lose weight or maintain a low body weight (Dohnt & Tiggemann, 2005).

Some authors have highlighted that school environments play a large role in the existence of body image dissatisfaction and increased levels of concern with regard to physical appearance in adolescent and preadolescent students. These authors have argued that part of the reason that body image disturbance emerges during this earlier developmental period is that they become exposed to peer influences and comparison processes during their school years (Dohnt & Tiggemann, 2005; Paxton, 1996). Research has indicated that peers may actually influence body image in a number of ways. Firstly, higher levels of peer acceptance of body image dissatisfaction and disturbed eating attitudes and behaviours is linked to higher body image dissatisfaction and higher levels of dieting and weight loss behaviours (Paxton, Schutz, Wertheim, & Muir, 1999) and secondly, preadolescents believe that if they were thinner then they would be more liked by their peers (Taylor et al., 1998). Furthermore, researchers have found that the risk of developing body image dissatisfaction and disturbance increases as a result of negative comments and teasing from peers at school (Barker & Galambos, 2003; Dohnt & Tiggemann, 2005; McVey & Davis, 2002; McVey et al., 2002).

Hence, body image (or the perception of physical appearance) and the development of body image dissatisfaction has become an increasing concern for educators and mental health practitioners in Australia and around the world. Additionally given its link with disordered eating, it has become vital that a clearer and more in depth understanding of body image dissatisfaction is understood to thus foster the development of effective programs that target the positive development of body image and thus self-esteem in school aged children and adolescents.

The Structure of the Self-Concept and Self-esteem

Self-concept has traditionally been construed as a global and unidimensional construct that refers to an individuals' overall evaluation of themselves. Often referred to as self-esteem,

global self-concept, and overall self-worth, researchers have generally assessed self-concept using instruments such as the Rosenberg Self-esteem Scale (Rosenberg, 1965) and the Coopersmith Self-esteem Inventory (Coopersmith, 1967, 1984). More recent research within various disciplines of psychology (eg education and sport psychology) however, has emphasized the importance of the multidimensional model of the self-concept, arguing that individuals' evaluations comprise of various assessments of themselves dependant on context (Marsh & Craven, 1997; Harter, 1990), and that self-esteem is the general component of self-concept. Self-concept researchers have thus been interested in the association between the various specific facets of the self-concept and self-esteem, such as the relationship between physical appearance self-concept and self-esteem and thus as an integral component of self-concept, it is vital that we further our understanding of body image, and its association with general evaluations of the self, particularly during adolescence, in which the benefits of positive mental health and self-concept are undeniable.

The Self-discrepancy Model of the Self-concept

Although research has investigated body image in relation to the self-concept, much of the research has employed the unidimensional construct of both body image and self-esteem. Although results have been consistent in suggesting that body image dissatisfaction negatively impacts self-esteem, little is known about whether actual ratings or ideal ratings of body image have better predictive power, or whether it is the discrepancy between the actual and the ideal constructs that affects evaluations of the self.

Consistent with the multidimensional approach to the self-concept, the self-discrepancy model of the self-concept asserts that the self can be understood in terms of actual perceptions of the self (how an individual thinks that they actually are) and ideal evaluations of the self (if they were free to choose, how an individual would like to be) (Wylie, 1974). Hence, the actual and ideal conceptions of the self both act to influence global evaluations of the self (ie self-esteem). According to this assertion, actual ratings of the self should positively contribute to self-esteem (in that the more positive an individual rates their actual self, the higher their self-esteem). However high ideal standards for what you would like to be has negative effects on global evaluations of the self (Marsh, 1999; Marsh & Roche, 1996; Wells & Marwell, 1976). Despite being intuitively appealing, support for the model has not been strong and the model has received much criticism particularly due to the usefulness of simple difference scores, its reliability (Hattie, 1992; Marsh & Roche, 1996).

More recent conceptualisations of the self-discrepancy model in terms of possible selves (Markus, Hamill, & Sentis, 1987) and body image (Jacobi & Cash, 1994) has led to renewed interest in the area, and the development of different methods of measurement. In examining actual and ideal ratings of body image, researchers have adopted a silhouette-matching task in which respondents are asked to respond to various questions with a scale of silhouettes of body shapes (see for example: Marsh, 1999; Marsh, Hau, Sung, & Yu, in review; Marsh & Roche, 1996; Tiggemann, 1992). Contrary to the traditional paper pencil assessments, in which participants were asked to respond to verbal labels, the advantage of this method is that it avoids the ambiguity of verbal likert scales, and secondly ideal ratings are unlikely to correspond with the end points of the response continuum (Marsh & Roche, 1996).

Research adopting this form of measurement has produced more consistent evidence and support for the importance of the actual/ideal constructs and their association with various self-concept domains such as physical appearance self-concept and self-esteem. For example Marsh and Roche (1996) found that actual ratings of the self (based on silhouette matching task) were highly correlated with Body Mass Index (BMI), and other objective body composition indexes, and that the discrepancy between actual and ideal ratings of body shape

were more significantly related to body fat self-concept and self-esteem, than actual ratings of body image alone. Marsh (1999) also provided strong evidence for the self-discrepancy model demonstrating that firstly, actual ratings positively impacted the self-concept, whereas ideal ratings had a negative effects on self-concept, and secondly that prior actual and ideal ratings of body image have significant effects on subsequent self-concept, over and above the prior self-concept levels, hence illustrating that the higher the actual selves and lower ideal ratings of body image lead to higher self-concepts.

More recently, Marsh et al (in review) investigated the self-discrepancy model in an obese sample of adolescents in Hong Kong, and compared the effect of the actual and ideal ratings of body image on self-concept between an obese sample and a non-obese sample of adolescents in Hong Kong, and adolescents in Australia. Their results indicated that Australian students place more emphasis on being thin than their Hong Kong counterparts and that this has a greater effect on self-concept for the Australian students. Additionally, results indicated that there were also cultural and gender differences for ideal body image ratings. These results thus highlighted the generalisability of the discrepancy model.

Despite the emergence of this silhouette-matching task as a technique that holds many advantages over the traditional verbal paper pencil tests, only a handful of other researchers have adopted this technique for the assessment of body image and body image dissatisfaction. Those that have adopted similar silhouette matching techniques (eg: Barker & Galambos, 2003; Schur et al., 2000) have consistently shown that girls and women have smaller ideal ratings of body image than actual ratings of body image. However, to determine body image dissatisfaction, many of these authors have logically subtracted ideal ratings from actual ratings, thus using the simple discrepancy score as an indicator of body image dissatisfaction in which, discrepancies are generally positive (in that actual ratings will be larger than ideal ratings). Very few studies however, have attempted to determine the effect of these two constructs and the discrepancies between them in relation to self-esteem in adolescents. Furthermore, very little research has attempted to investigate how these constructs and associations differ in girls with anorexia in comparison to girls without eating disorders.

The Current Study

Schools and education institutions are in a unique position in that they are able to develop and maintain programs for individuals undergoing the most important phase of physical, social and personal development; that is adolescence. Given that negative body image, and body image dissatisfaction is cited as one of the most consistent predictors of eating disorders, and that much of the research within the field has indicated that this dissatisfaction with the body emerges during adolescence and even late childhood, it is important that we have some understanding of how these constructs firstly affect one's overall sense of self, and secondly how this may differ between non-clinical adolescents and adolescents who characterised by a chronic level of body image distortion. Furthermore, given that body image dissatisfaction is so closely linked to a drive for thinness, and thus disturbed eating behaviours and attitudes in adolescents, it is important that we can develop some preventative programs to help tide the increasing numbers of girls developing disturbed eating attitudes and behaviours, and develop educational programs to highlight the dangers of abnormal food restriction and drastic weight loss methods.

The aim of this study then is to adopt the silhouette-matching task (as adapted by Marsh & Roche, 1996) to investigate the self-discrepancy model of body image. More specifically, this study attempts to bridge current gaps in the literature concerning actual, ideal and actual-ideal discrepancies of body image in adolescent girls with and without anorexia nervosa. Given the importance of body image to self-esteem and the development of positive mental health, eating attitudes and eating behaviours, it is imperative that a better understanding of adolescents' body image and how it relates to self-esteem is gained. Furthermore, increased

knowledge about the differences between actual and ideal ratings of body image in girls with and without anorexia will assist not only mental health clinicians develop better aetiology and treatment models for patients with anorexia, but can also act to inform educators about these constructs, so as to assist the development of eating disorder education and prevention programs for schools and adolescent students, and programs that foster positive mental health and self-esteem development.

Methodology

Participants

Clinical Participants

The clinical sample consisted of 76 adolescent girls who had been medically diagnosed with anorexia nervosa were recruited from two Eating Disorder Clinics in two of the largest public hospitals in Sydney, Australia. Clinical participants were aged between 12 and 18 years ($M=14.93$, $SD= 1.81$), and had an average Body Mass Index (BMI) of 17.27 kg/m^2 ($SD=2.42$), which is well below the healthy range of BMI for adolescent girls (World Health Organization, 1995).

All clinical participants were involved in some form of treatment (inpatient or outpatient) with one of the two Eating Disorder clinics. At the time of data collection, 35 of the participants were being treated as inpatients, in which they were being monitored 24 hours a day within the clinical setting, whilst the remaining 46 participants were receiving outpatient treatment (however, data for 3 participants were eliminated for the purposes of this analysis as a result of incomplete responses).

After providing informed consent, girls were asked to complete a questionnaire battery during their assessment/consult visit. Administration of the questionnaire battery was done on a one on one basis, in which the researcher sat with the participant while they were completing the questionnaire. In the event that the participant had questions about any of the items within the questionnaire battery, the researcher would answer the questions directly.

Non-clinical participants

This sample comprised of 823 female adolescent high school students. All students were recruited from 3 private schools in western Sydney, Australia. One of the schools was a coeducational secondary school, whilst the other 2 schools were single sex schools. Girls in this non-clinical sample were aged between 12 and 19 years ($M= 14.08$, $SD= 1.59$), and were recruited from grades 7 through to 12. The largest proportion of this sample was in enrolled in year 9 (accounting for 27.6% of the sample) at school. Only 6.50% of this non-clinical sample was enrolled in year 12. Participants were relatively evenly distributed across years 7 (22.8%), 8 (19.4%), 10 (10.5%) and 11 (13.0%). Although this sample of adolescent girls appeared relatively culturally diverse, majority of the participants were born in Australia (88.7% of the total non-clinical population), and identified themselves as being Australian (42.5% of the non-clinical population). The next largest ethnic group was Lebanese, with 7.1% of this sample identifying themselves as Lebanese. A further 6.2% identified themselves as being Italian. Most of the students in this sample spoke English at home (80.7%). As compared to the clinical sample, whose average BMI was below the healthy range, the non-clinical population had an average BMI within the healthy range for adolescent girls ($M= 20.35 \text{ kg/m}^2$, $SD= 3.24$).

Instrumentation

Silhouette Matching Task (SMT): Two adapted versions of a silhouette-matching task were utilised in this study. When originally developed, the SMT (Marsh & Roche, 1996; Stunkard, Sorenson & Schulsinger, 1983) consisted of 9 silhouettes that varied from very thin to very fat, in which respondents would be asked to respond to a variety of questions regarding their body shape, using the silhouettes as a response scale. Marsh in 1999 however, argued that the scale of silhouettes needed to be extended, so that there was more differentiation between the two extreme ends of the scale, and thus developed a 12-figure response scale. This 12-figure response scale was used in this study, and questions were developed to identify respondents' assessments of their body shape. Two modified versions of the questions were developed, however for the purposes of this study, only actual and ideal ratings of body image were utilised in the analysis and comparison of the two adolescent samples. Ratings for actual silhouette matching have been found to be very well correlated with objective measures of body composition, with correlations ranging from 0.57-0.65 (Marsh & Roche, 1996).

Self-Description Questionnaire II (Short Version) (SDQII-S; Ellis, Marsh & Richards, 2002): Although there are 11 different scales in this instrument, the global self-concept scale (referred to as self-esteem in this investigation) was the focus of this particular investigation and analysis. Previous reliability estimates have indicated that all the SDQII-S scales (including the general scale) have high internal consistency levels with Cronbach's α ranging from .80-.90 (Marsh, Ellis, Parada, Richards & Huebeck, 2003). For clinical samples, the SDQII-S has also been shown to have strong psychometric properties, with Cronbach's α estimates for scales ranging from .80- .93 (Ha, Marsh & Halse, 2004).

Statistical Analysis

The statistical analysis for the study at hand included correlations and multiple regression analyses. Although there were a large number of items and constructs that could have been assessed in this study, the focus of this investigation is on the actual and ideal ratings of the clinical and non-clinical samples of adolescents and the discrepancy between these ratings, on the basis of the self-discrepancy model.

Support for the self-discrepancy model would entail that the effect of the combination of actual and ideal ratings of body image needs to be greater than actual and ideal ratings alone. This result would be thus based on the assumption that ideal ratings of body image are smaller (thinner) than actual ratings, and that actual ratings negatively affect self-esteem (that is, the bigger I am, the lower my self-esteem) whereas ideal ratings of body image positively contribute to self-esteem (that is the bigger my ideal body image, the higher my self-esteem). Hence, the discrepancy between the actual and the ideal is positive (that is that the actual is larger than the ideal body image), and the larger these discrepancies the lower the level of self-esteem. Marsh and Roche (1996) have argued however, it is possible that large discrepancies between actual and ideal regardless of direction should negatively impact self-esteem. And thus to address this issue, both signed discrepancies (ie raw discrepancies) and absolute discrepancies (ie unsigned discrepancies) were calculated for this study. Support for the discrepancy model would require that either the raw or the absolute discrepancies would in fact predict self-esteem better than actual ratings alone. Hence to test this, several multiple regression models were tested to determine the effects of the actual and ideal ratings of the body image on self-esteem, and additionally, the predictive power of the raw and absolute actual/ideal discrepancies.

Furthermore, ANOVA's were employed to determine whether there was a difference between groups and within for the actual and ideal ratings, and the actual and ideal discrepancies that

may exist. It is expected that girls with anorexia nervosa would have smaller ideal ratings, and that their actual body ratings would also be smaller than their non-clinical peers.

For the purposes of this study we also constructed parcels of actual and ideal ratings. As the ratings for the items 'what do I look like today' and 'what I feel like most of the time' were very highly correlated, the mean rating of these two items were taken to construct a mean actual parcel. A similar parcel was also constructed for the ideal ratings (which included the means of the realistic ideal ratings and the fantasy ideal ratings). These parcelled items were also included in the analyses to investigate support for the self-discrepancy model.

Results and Discussion

Descriptive statistics of the mean ratings for each of the samples are presented in table 1.

Table 1: Descriptive Statistics for actual and ideal body ratings for the clinical and non-clinical samples

Variable	Sample	Mean	SD
ACT	Clinical	5.75	1.95
	Non-clinical	5.63	1.70
FEEL	Clinical	7.79	2.71
	Non-clinical	6.57	2.40
R IDEAL	Clinical	4.49	1.41
	Non-clinical	4.90	1.34
F IDEAL	Clinical	4.02	1.63
	Non-clinical	4.39	1.21
EX-DIET	Clinical	5.08	1.20
	Non-clinical	4.56	1.33
A-I	Clinical	1.26	2.71
	Non-clinical	.72	1.69
MAct	Clinical	6.77	2.21
	Non-clinical	6.10	1.91
MIdeal	Clinical	4.25	1.45
	Non-clinical	4.65	1.13
mA-mI	Clinical	2.52	3.13
	Non-clinical	1.45	1.87
Self-esteem	Clinical	4.12	1.30
	Non-clinical	4.57	1.07

Note. ACT= Actual Body image rating, FEEL= rating of how individual feels most of the time, R IDEAL= Realistic Ideal rating, F IDEAL= Fantasy Ideal rating, EX-DIET= Rating if a regular exercise and diet regime was adopted, A-I= Actual-Ideal Discrepancy, MAct= Mean of actual and feel, MIdeal= Mean of realistic and fantasy ideal, mA-mI= discrepancy between mean actual and mean ideal.

Within Group Comparisons for actual, ideal and other SMT Ratings

Clinical sample

Paired sample t-tests were conducted to investigate within sample differences for actual and ideal body image differences (see table 2). T-tests revealed that for the clinical participants, there is a significant difference between how they think they look, and how they feel ($t_{(60)} = -9.49, p < 0.00$). The results indicate that generally girls with anorexia nervosa feel that they are bigger than they think that they look. Additionally, girls with anorexia think that their ideal body shape is substantially smaller than what they think that they look like (both their realistic ideal, $t_{(60)} = 3.64, p = 0.001$, and their fantasy ideal, $t_{(60)} = 4.66, p < 0.001$). Interestingly, girls thought that if they had a regular exercise routine, their body shape would be smaller than what they are now ($t_{(60)} = 4.54, p < 0.001$), and would approach that of what their ideal body shape was. This is fascinating because many of the girls who suffer from anorexia exercise compulsively and these results suggest that perhaps these patients do not think that they exercise enough.

However, results indicated that there was no significant difference between the body shapes that clinical girls picked out when asked what they would look like if they had a more healthy diet that consisted of 3 substantially sized meals, and their ratings of what they actually look like ($p > 0.05$). This is a curious result because most patients with anorexia do not eat 3 decent sized meals a day, and it seems that respondents perhaps feel that they do. It is however possible that this effect may have occurred as a result of the fact that all of these clinical participants were recruited from treatment centres, and approximately half of them were receiving inpatient care (in which they are constantly monitored and fed) at the time of recruitment, and thus were eating at least 3 meals a day.

Non-clinical sample

For non-clinical high school girls, similar paired sample t-tests were conducted to determine whether girls' perceptions of what they look like differ from what they would like to look like, and how they feel most of the time, and what they would look like if they had a healthy diet, and/or exercised (see table 2). All paired comparisons for this sample of adolescent girls revealed that there was a significant difference between actual and ideal ratings, perceptions of what girls think they look like and how they feel most of the time, actual ratings and ratings of what they would look like if they had a healthy diet and/or exercised ($p < 0.001$). This is somewhat similar to the results that were found for the clinical sample of girls with anorexia; except that girls without anorexia identified that if they did exercise they would be thinner than what they are now (and approach their ideal rating of body image). This has very important implications for both educators and health care professionals in that both girls with and without anorexia have similar patterns of body image dissatisfaction, and thus given the link between body image dissatisfaction and eating disorders, careful attention needs to be paid in preventing subsequent unhealthy eating behaviours and attitudes in non-clinical populations of adolescents.

Table 2: Results of the paired sample t-tests for the clinical and non-clinical samples of adolescent girls

Comparison	Group	Mean Difference	df	t
Actual and how I feel most of the time	Clinical	-2.03	60	-9.49*
	Non-clinical	-0.95	802	-16.15*
Actual and fantasy ideal	Clinical	1.74	60	4.66*
	Non-clinical	1.23	802	19.57*
Actual and realistic ideal	Clinical	1.26	60	3.64*
	Non-clinical	0.72	802	12.08*
Actual and if I exercised	Clinical	1.15	60	4.54*
	Non-clinical	0.98	802	19.25*
Actual and if I followed a healthy diet	Clinical	-0.03	60	-0.12
	Non-clinical	0.91	802	17.27*
Actual and if I followed a healthy diet and exercised regularly	Clinical	0.67	60	2.77*
	Non-clinical	1.07	802	19.51 *
Mean of actual and mean of ideal ratings	Clinical	2.52	60	6.28*
	Non-clinical	1.45	802	21.92*

*p<0.001

Between group comparisons for actual, ideal and discrepancy ratings

To determine whether there was a difference between the ratings of body image for the clinical and non-clinical samples, a one-way MANOVA were conducted, in which each of the body image ratings were entered as dependent variables. Results of this analysis revealed that in fact there was a significant difference between the two groups for various mean body image ratings (see table 3). Interestingly, there was not a significant difference between the ratings that girls with anorexia gave for their actual body image in comparison to the ratings given by the non-clinical sample of adolescent girls. This is fascinating because although there is a significant difference between their BMI's, these girls with anorexia nervosa on average perceive themselves to be very much the same as those girls who have significantly larger weight and height ratios. Additionally, it is interesting to note that although there is no difference between the two groups of girls in terms of what they feel is too skinny ($p = .44$) there is a significant difference between what they think is too fat. Girls with anorexia nervosa ratings of what is 'too fat' are substantially thinner than the opinions of the non-clinical sample. Thus indicating that perhaps girls with anorexia do have smaller (or higher) standards for themselves and others in terms of what makes them too fat.

Results also revealed that the anorexic sample of adolescents also had smaller ideals in comparison to non-clinical girls ($t_{(874)} = -3.72$, $p < 0.001$) which could possibly explain why girls with anorexia typically have such a high drive for thinness (which is a common characteristic of girls with anorexia nervosa). Furthermore, the analyses for the discrepancy between the actual and ideal ratings (as measured by the construct consisting of actual-ideal ratings) indicated that girls with anorexia have a much higher level of discrepancy than non-clinical adolescent girls. Authors have suggested that the discrepancy between actual and

ideal body image could be an indicator of body image dissatisfaction. If this is the case, the general assertion that girls with anorexia nervosa have higher levels of body image dissatisfaction than girls without anorexia is supported by this data.

Table 3: ANOVA results for the comparison between the two adolescent samples for body image ratings

Body image rating	df	F	Significance	η^2
Actual	1, 862	0.32	.57	.00
Feel	1, 862	14.27	.00	.02
Fantasy ideal	1, 862	5.16	.02	.01
Realistic ideal	1, 862	5.36	.02	.00
If exercised	1, 862	0.04	.83	.04
Healthy diet	1, 862	31.83	.00	.01
Exercised and diet	1, 862	8.82	.00	.00
Too thin	1, 862	0.59	.44	.07
Too fat	1, 862	68.39	.00	.01
BMI	1, 862	39.16	.00	.04
Actual/ideal discrepancy	1, 862	5.24	.02	.01
mAct	1, 862	6.88	.01	.01
mIdeal	1, 862	6.49	.01	.01
Self-esteem	1, 862	9.70	.00	.01

Do actual/ideal ratings of body image and the discrepancy between actual and ideal ratings have an effect on self-esteem?

According to the self-discrepancy model of the self-concept, support for the model requires that ratings of actual body image be negatively related to self-concept, whereas the ideal ratings should be positively related to esteem. Furthermore, the model implies that the discrepancy between the actual and ideal ratings of body image should have a greater affect on self-esteem in comparison to actual and ideal ratings alone. To determine whether the actual and ideal ratings and the discrepancy between the two constructs for each of the samples had any predictive power for self-esteem, separate regression analyses were employed.

The effects of actual/ideal ratings of body image and the discrepancy between actual and ideal ratings on self-esteem in Anorexic adolescents

For the clinical sample of girls who had been diagnosed with anorexia nervosa, results of the multiple regressions and initial correlations showed some support for the self-discrepancy model. Initial correlations between actual, ideal and the actual/ideal discrepancy revealed that all three constructs were significantly related to self-esteem in the expected directions ($r = -.51$ for mean actual ratings, $r = -.33$ for ideal ratings and $r = -.54$ for actual/ideal discrepancies, $p < .005$). When assessing girls' actual ratings however, it seemed intuitively appealing to combine actual ratings and ratings of how girls felt most of the time, as these two constructs would logically make up what we felt we looked like most of the time. When the two constructs were combined (mAct) the correlation with self-esteem increased and remained significant ($r = -.66$, $p < .05$), and thus this construct was employed in the subsequent multiple regression models.

Two different multiple regression models were tested to determine the effect that actual ideal and the discrepancy between actual and ideal ratings would have on self-esteem. The first model included mAct ratings, realistic ideal ratings and the raw (singled) actual/ideal

discrepancy. Model 2 tested the effect of mAct, ideal ratings and the absolute discrepancy between actual and ideal.

Results of the first multiple regression analysis (see model 1, table 4) revealed that the actual and the discrepancy between actual and ideal had a significant effect on self-esteem, although the effect of actual ratings on self-esteem was marginally higher than the effect of the discrepancy between actual and ideal. Ideal ratings of body image were also shown to have a significant effect on the girls' self-esteem level, though not as big an effect as compared to the actual ratings or the discrepancy ratings. These results indicate that although all three constructs significantly predict self-esteem levels for girls with anorexia, the best predictor of self-esteem is actual ratings of body image, which negatively affect self-esteem.

The second regression model (which included mAct, ideal and Actual-Ideal discrep (absolute)) was conducted to investigate the effect of absolute discrepancies on self-esteem. Previous research by Marsh et al (in review) indicated that for adolescents from Hong Kong, discrepancies between actual and ideal discrepancies regardless of direction (ie absolute values of actual and ideal discrepancies) negatively affected self-esteem and that its contribution to self-esteem was larger than that of the raw (signed) discrepancy score. For this sample of adolescent girls with anorexia nervosa however, absolute discrepancies did not contribute significantly to self-esteem (as seen in table 4). In fact, when this model was tested, only actual ratings of body image were found to significantly predict self-esteem, and in comparison to actual ratings in model 1, the regression coefficient was smaller, and thus model 1 appears to explain the effects of actual and ideal ratings and the discrepancy between them on self-esteem in the clinical sample better than model 2. These results thus indicate that the self-discrepancy model does apply for the clinical sample of adolescents and that absolute and raw discrepancies between actual and ideal ratings have greater effects on self-esteem than ideal ratings.

Table 4: Standardised Regression coefficients when regressing self-esteem on actual, ideal and actual ideal discrepancies for the clinical sample

Model	Description	Standardised Beta	t	df	R ²
1	mActual,	-1.34*	-5.21	57	.52
	Ideal	0.57*	3.04		
	Actual-ideal discrep (raw)	1.04*	3.01		
2	mActual	-.72*	-5.00	57	.45
	Ideal	.15	1.22		
	Actual-Ideal discrep (abs)	.16	0.94		

*p<0.05

The effects of actual/ideal ratings of body image and the discrepancy between actual and ideal ratings on self-esteem in non-clinical high school adolescents

Correlations for the non-clinical sample of adolescent girls indicate that there are moderate significant correlations between actual and ideal ratings of body image and self-esteem. Interestingly, the ratings for fantasy ideal were not significantly related to self-esteem, and thus realistic ideal ratings were used in subsequent regression models. However, unexpectedly, results indicated that the ideal ratings (both realistic and fantasy ratings) were in the negative direction rather than the positive, as suggested by the self-discrepancy model. These correlations however were very small ($r < 0.20$ for both realistic and ideal ratings).

Furthermore, when the actual ratings and ratings for how girls feel most of the time were combined (forming the mAct), correlations marginally increased (and remained highly significant); hence this construct was used in the subsequent regression models. In support of previous results published by Marsh and colleagues (in review) correlations also revealed that the absolute discrepancy scores were more highly related to self-esteem, than raw discrepancies (signed), and that this correlation between absolute discrepancies and self-esteem was stronger than actual (both actual, and mAct ratings) and ideal ratings alone.

For the non-clinical sample, two regression models were tested to determine whether support for the self-discrepancy model could be attained (see table 5). Both of the models tested included the mAct construct and realistic ideal ratings. Model 1 included the raw (signed) actual ideal discrepancy and model 2 included the absolute value of the actual ideal discrepancy. The results suggested that model 2 was superior to the first model in which the actual, ideal and raw discrepancy was regressed in the model. In the first model (model 1), only the raw discrepancy was found to have a significant effect on self-esteem, and the actual and ideal ratings of body image, did not significantly contribute to self-esteem. Model 2 on the other hand had a marginally higher multiple R in comparison to model 1, and results indicated that the standardised regression coefficients for actual and absolute discrepancy scores were highly significant. Additionally, the predictive power of the mAct and absolute discrepancy constructs, as indicated by the standardised regression coefficients, were higher for this second model. These results thus provide support for the self-discrepancy model of the self-concept, and the results obtained by Marsh et al (in review), which suggests that although actual and ideal ratings have an impact on self-esteem, the actual ideal discrepancy has a larger effect on self-evaluations than actual or ideal alone. In this case, the actual ratings and discrepancies had significant negative effects on self-esteem, and ideal ratings had little.

Interestingly, these results are different for the two groups of adolescent girls, and thus provide different support for the self-discrepancy model. For the clinical sample of adolescent girls it was shown that the raw discrepancy had the larger effect on self-esteem rather than the absolute value, however for the non-clinical sample, the absolute value was shown to have the highest predictive power. For the non-clinical sample this indicates that regardless of whether their actual is smaller or larger than their ideal body shape, large discrepancies in either direction will significantly affect self-esteem. For the clinical sample however, it was shown that only when actual body image is larger than ideal ratings (ie when the discrepancy is positive), self-esteem decreases. These results may be reflective however of the samples, in that there would probably be a broad distribution of weight and height ratios (including girls that are both underweight and overweight) within the non-clinical sample, whereas in the clinical sample, most of the girls, if not all, would be underweight and may have body image distortion (whether that be within the ideal or actual).

Table 5: Standardised Regression coefficients when regressing self-esteem on actual, ideal and actual ideal discrepancies for the non-clinical sample

Model	Description	Standardised Beta	t	df	R ²
1	mActual,	-.12	-0.87	799	.17
	Ideal	-.14	-1.80		
	Actual-ideal discrep (raw)	-.30*	-2.39		
2	mActual	-.19*	-3.53	799	.20
	Ideal	-.05	-1.44		
	mActual- mIdeal discrep	-.27*	-5.25		
	(abs)				

*p<0.05

Summary and implications

Over the past several decades, there has been a plethora of research into body image in women and adolescent girls in various fields of psychology, education, media and preventative health and feminist studies. Although body image disturbance is an issue that affects both girls and boys, research has indicated that body image disturbance is more common in girls and women, with girls being 3 times more likely to believe that they are overweight and fat despite being of normal weight or underweight in comparison to boys (Barker & Galambos, 2003). According to much of the literature in the field, body image dissatisfaction is so common amongst this female population that the desire to be thinner has been classified as 'normative discontent' (Dohnt & Tiggemann, 2005; Rodin, Silberstein, & Striegel-Moore, 1985). As concerning as this is, of even greater concern for researchers, clinicians and educators alike is the increasing incidence of body image dissatisfaction in our youth, with many researchers identifying adolescence and preadolescence as the developmental periods that body image disturbance is developed and acquired (Dohnt & Tiggemann, 2005; Schur et al., 2000). Hence, the worrying issue about the commonality of body image dissatisfaction is that in an attempt to be thinner, girls and women alike are more likely to develop disturbed eating attitudes and behaviours (Barker & Galambos, 2003; Stice, 2002), and thus become more susceptible to chronic eating disorders such as anorexia nervosa.

Given the importance of body image and positive self-esteem in adolescents, the aim of this study was thus to investigate the actual and ideal body images of adolescent girls with anorexia nervosa, and adolescents without anorexia. Furthermore, this study attempted to gain some understanding of the influence of actual, ideal and discrepancy ratings on self-esteem by adopting the self-discrepancy model of body image.

There is a growing body of evidence to support the self-discrepancy model of body image, emphasizing the effect of actual, ideal and actual-ideal discrepancies on self-esteem. According to this discrepancy model, ratings of actual body image, should negatively affect self-esteem, whereas ideal ratings should contribute negatively to esteem. Furthermore, the model implies that the discrepancy between actual and ideal should also contribute to esteem. Recent research (Marsh et al., in review) has indicated however that support for this model is more complex than initially anticipated in that although discrepancy scores have been shown to contribute to esteem, it has not been consistently shown to have a higher effect on esteem than actual or ideal ratings alone. Furthermore, it has become evident in recent previous research that absolute discrepancy scores may be a better predictor of esteem than the signed raw discrepancy.

The current study although does provide strong support for the discrepancy model for both samples of adolescent girls, highlights the complexity of the model, as varying support was found for the model in correlations and multiple regression analyses. Firstly, for the clinical sample, it appears that raw discrepancy scores although significantly contribute to esteem, actual ratings of the body image more of an effect on esteem than the discrepancy. Ideal body image ratings were shown to have a smaller effect (although significant) on esteem in comparison to the other two constructs. On the other hand, for the non-clinical sample of high school girls, the absolute discrepancies had a larger effect on esteem than actual and ideal ratings (where ideal was non-significant).

Furthermore, this study highlighted that all adolescent girls, regardless of whether they have anorexia or not, have substantially thinner ideal body images than actual body images, thus supporting much of the literature that suggests that there is a high level of body image dissatisfaction amongst adolescent girls. However, results also indicated that as expected, although there was some dissatisfaction amongst non-clinical girls, there was a more significant discrepancy between actual and ideal ratings for girls with anorexia nervosa. Interestingly, when non-clinical girls were asked to indicate what they would look like if they

exercised regularly and ate a healthy diet, their responses significantly differed from their actual ratings (their body size would drop and approach their ideal ratings of body image). Although, this study did not examine how these ratings were related physical activity it would be interesting to investigate how these ratings correlated to physical activity.

Additionally, this study has not investigated the effect of peer relationships and interactions (positive or negative) on ratings of actual and ideal body image, and thus although it seems intuitively appealing to suggest that issues such as bullying and teasing affect actual and ideal ratings of body image rather than body dissatisfaction alone, more research is required to determine whether these issues are predictive of not only self-esteem but also later development of disordered eating behaviours and attitudes. Furthermore, it would be interesting to investigate whether bullying and teasing affect the positive and negative discrepancies equally.

As positive self-esteem and body image has many desired outcomes for both health and education, schools, teachers and clinicians are already targeting both of these constructs in health promotion programs for adolescents and students. Consequently, a more in depth understanding of these constructs and how they might be related is vital for the development of these programs. As educational institutions have a great deal of contact with the population that is most at risk of body image dissatisfaction and related mental health issues such as anorexia nervosa (of which body image dissatisfaction is a core component of), they are in a powerful position to develop and implement appropriate programs to enhance self-esteem and body image. Hence an increased knowledge about the factors that affect self-esteem and body image is vital.

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