

Eating and Exercise Disorders in Young College Men

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Abstract. The authors used the computerized Eating and Exercise Examination to investigate eating, weight, shape, and exercise behaviors in a convenience sample of 93 male college students. One fifth of the men worried about their weight and shape, followed rules about eating, and limited their food intake. Between 9% and 12% were unhappy with their body shape, felt fat, and seriously wanted to lose weight. Exercise was important for the self-esteem of 48% of the students. Thirty-four percent were distressed when they could not exercise as much as they wanted, 27% followed rules about exercising, and 14% worried about the amount of exercise they were doing. The respondents met clinical diagnoses for objective binge eating (3%), self-induced vomiting (3%), bulimia nervosa (2%), and exercise disorders (8%). Although 9% reported disordered eating, none had sought treatment. Health professionals should be aware that eating and exercise disorders may be present in college men and that screening may help in the early identification of these problems.

Key Words: body image, disordered eating, eating disorders, exercise, male college students

Eating problems—*anorexia nervosa*, *bulimia nervosa*, eating disorders not otherwise specified (EDNOS), and disordered eating—have been studied extensively among adolescent girls, young women, and college women.¹⁻⁵ The few existing studies of eating problems in young men suggest that eating disorders are less prevalent among men than among women.⁶⁻⁹

A recent study of a clinical population¹⁰ found that men were more likely than women to have a later onset of eating

disorders (20.6 y vs 17.2 y, respectively). Furthermore, the data showed that men constituted an increasing percentage of eating disorder admissions between 1984 and 1997, suggesting that eating problems may be increasing among young men. Studies of adolescents have found that although boys report less body dissatisfaction than girls do,¹¹⁻¹⁵ significant numbers of boys (5%–20%) report restrained eating, vomiting, laxative abuse, or smoking cigarettes for weight control.¹⁶⁻¹⁸

In their study of adolescent males from a school-based sample, Keel and associates¹⁹ found that disordered eating existed among some of the boys irrespective of whether they had low body-weight problems. That finding suggests that disordered eating may be difficult to detect among young men because they may not necessarily appear to be underweight. The self-esteem of overweight boys is lower than that of their normal-weight counterparts,²⁰ and this may make them more likely to develop disordered eating behaviors.

These studies indicate that eating problems are likely to be significant among young men, but the description of these problems is usually limited to patients who present for treatment of their clinical eating disorders. Our aim in conducting the current study was to investigate disordered eating and eating and exercise disorders in a male college population.

METHOD

Participants

The Human Ethics Committee of the University of Sydney approved our study design and protocol. We approached students during class times and invited them to participate. Ninety-three undergraduate college men from randomly selected class groups in the faculties of education, science, and medicine volunteered. We included students from a vari-

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ety of study programs and faculties to reduce selection bias. All students present in class on the day of the study agreed to participate, and all provided written consent (see Table 1).

Instrument

Participants completed the Eating and Exercise Examination (EEE-C)²¹ in a computer laboratory under our supervision. The time to complete the examination was 15 to 30 minutes, including the introduction. The EEE-C is a validated, efficient, self-report, computer-generated, and computer-reported examination of eating and exercise behaviors, attitudes, and feelings that can be used with clinical and community groups. The EEE-C scales and the body appearance rating²¹ have been validated against the Eating Disorders Inventory (EDI)²² subscales of drive for thinness, bulimia, body dissatisfaction, interoceptive awareness; the Eating Attitudes Test (EAT)²³; the Eating Disorders Examination (EDE)²⁴; the Beck Depression Inventory,²⁵ and the STAI Spielberger State/Trait Anxiety Inventory.²⁶ The average Spearman correlation coefficients were greater than .60 ($p < .005$), indicating that EEE-C scores relate well to established questionnaire measures of eating disorder attitudes, behavior, and psychological measures.

An eating disorders specialist conducted clinical examinations using the EDE²⁴ to validate the EEE-C diagnoses of eating disorders. The results of these validation tests produced Spearman correlation coefficients greater than .55 ($p < .005$), indicating that the EEE-C scales were closely related to the EDE subscale scores in the clinical examination. Specific details of all of the validation tests are presented in the EEE-C clinical manual.²¹

The EEE-C report was printed immediately and a copy offered to the participants, whom we asked to use pseudonyms to ensure the data remained anonymous. Height and body weight were self-reported. Included in the background information of the EEE-C are the demographic details: body mass index (BMI = weight [kg]/height [m]²); desired BMI (based on the weight respondents would like to be); number of meals eaten; physical activity; and sports status (eg, professional athlete, in a training program, in a study program that contains sport, other); self-reported current medical status; psychiatric status; and medications being taken.

Behaviors, attitudes, and feelings associated with eating disorders are measured as the number of days in the last 28 that they were present (0, 1–7, 8–14, 15–21, and 22–28 days) or the amount they were present in the last month (*not at all, a little, a moderate amount, a lot, a great deal*).

The EEE-C provides 8 examination scores. Each score is derived from 5 questions that are scored on a scale from 0 to 4. Each examination score therefore can range from 0 to 20. The mean scores are calculated so that a higher score indicates a greater susceptibility to the specific eating attitudes and behaviors. The examination scores are as follows: undereating behavior, eating behavior for weight and shape, overeating behavior, eating attitudes, exercise attitudes, weight feelings, shape feelings, and psychological feelings. The body-appearance rating²¹ is a validated self-rating that

TABLE 1
Description of Male College Students in Sample
($N = 93$)

Variable	%	<i>n</i>
BMI group		
< 20	2	2
20–24.9	65	60
> 25	33	31
Ethnicity		
Paternal		
White	57	53
Asian	30	28
Other	13	12
Maternal		
White	60	56
Asian	32	30
Other	8	7
Exercise status		
Professional career in sport	7	6
In athletic training program	5	5
Study program contains sport	26	24
Other	62	58

Note. BMI = body mass index; mean age = 24.0 ($SD = 4.0$); mean BMI = 24.1 ($SD = 3.0$).

is scored on a 10-point scale for perceived body appearance. We asked participants to give themselves a score from 0 to 10 for body appearance—a score of 10 being “perfect.”

The EEE-C clinical report indicates whether diagnostic criteria for anorexia nervosa, bulimia nervosa, eating disorders not otherwise specified, and exercise disorders have been fulfilled in the last month and in the last 3 months. The EEE-C report also indicates whether the behavioral criteria for objective binge eating, purging (vomiting at least 1/week or laxative misuse) and excessive exercise were fulfilled in the last month.

We also asked the students to answer 3 questions: “Have you ever suffered from disordered eating?” “Have you ever had problems controlling your body weight?” and “Have you had problems with binge eating?” In addition, the participants were to indicate whether they had ever sought help or been treated for any of these problems.

Analysis

We transferred computerized data from the EEE-C to SPSS for Windows 95, version 9.0 (1998, SPSS Inc, Chicago, IL) and performed multivariate analyses to examine any associations between EEE-C scores and age, BMI group (< 20 = underweight, 20–24.9 = normal weight; ≥ 25 = overweight), ethnicity (paternal origin, Table 1) and sports status (professional career, athletic training program, study program contains sports, other). We also used a multivariate analysis to compare the examination scores of the male students and 124 female students randomly drawn from the same undergraduate college population selected by the same sampling method.

Because of the skewness of the examination scores, we used the log transformation of the scores in both analyses with age as the covariate.

RESULTS

For the number of male college students who reported eating, weight, shape, and exercise concerns and behaviors, see Table 2. The figures we present are for those who reported specific behaviors or concerns *a lot* or *a great deal* on 14 or more days in the previous month. In addition, 17 respondents (18%) reported eating only 2 meals each day. Approximately one fifth of the students had significant worries about their weight and shape and regularly employed restrictive eating behaviors, such as limiting food intake and following specific rules about eating.

The results from the EEE-C are presented in Table 3 by BMI groupings of underweight, normal weight, and overweight. The student who fulfilled the criteria for bulimia nervosa was Asian/White and had a BMI of 21; 9 students

fulfilled the strict criteria for an EEE-C objective binge-eating rating.

The students who reported having ever experienced problems with disordered eating, controlling their body weight, and binge eating are also shown in Table 3. Eight students (9%) reported that they had suffered from disordered eating, 17 (18%) reported weight control problems, and 20 (22%) reported a binge-eating problem. Yet, none of them had sought help or been treated for eating disorders or eating problems.

We found no statistically significant differences between the EEE-C mean scores and ethnic groups, age, or categories of sports status. However, we noted significant differences between BMI status and the examination scores of eating behavior (undereating) for shape and weight, undereating behavior, and weight feelings (Table 3). When we compared the data for the male students with data from a group of 124 female students drawn from the same population, only 2 male examination scores were significantly lower than the female scores: weight feelings, $F(2, 216) = 5.21, p < .006$, and shape feelings, $F(2, 216) = 6.62, p < .002$.

Sixteen students (17%) had a very low score (≤ 5) on the body appearance scale and 6 of those students (7% of total sample) rated themselves below 5. Two of the latter also had the highest examination scores for psychological feelings (scored 11 and 12 out of a possible score of 20). One of these students had been diagnosed with bulimia nervosa, and the other was restricting his food intake for reasons of mood, weight, and shape. We found a significant correlation between body appearance ratings and the examination scores of psychological feelings ($r = -0.31, p < .003$), weight feelings ($r = 0.34, p < .001$), and shape feelings ($r = 0.40, p < .001$).

COMMENT

Twenty percent of the young college men in our current study displayed eating attitudes and behaviors characteristic of eating disorders and disordered eating. They did not differ from a comparable group of female students in eating attitudes, undereating, and overeating behaviors or psychological feelings.

Among the findings of greatest concern in our current study were the reports from some of the young men that although they believed they had a problem with disordered eating, weight control, and binge eating, not one had ever sought any treatment for his problems.

This finding may be partially accounted for by the later average age of 21 years for the onset of eating disorders in men,¹⁰ compared with the average age of 24 years of the men in our study. A more likely explanation is young men's hesitancy to seek treatment for any illness, particularly weight and shape concerns, that have been stigmatized as a problem that only affects women.²⁷ In addition, Anderson,²⁷ noted a multiple-stigma effect among gay males with an eating disorder. Such young men may experience bias against recognition of their sexual orientation and treatment of their eating disorder. It may also be true that restrictive

TABLE 2
Male College Students Who Reported Their Eating Behavior and Concerns About Body Weight/Shape and Exercise > 14 Days in the Previous Month or Rated Feelings as "A Lot" or "Great Deal"

Variable	%	<i>n</i>
Eating behavior		
Following rules about eating for any reason	23	21
Following rules about eating for weight/shape	20	19
Limit what eat for weight/shape	20	19
Eat only 1 or 2 meals each day	19	18
Try to avoid eating liked foods for weight/shape	18	17
Body weight/shape concern		
Worry about shape and weight	25	23
Shape important for self-esteem	16	15
Feel fat	12	11
Unhappy about shape	10	9
Seriously want to lose weight	9	8
Feel inhibited about their body	9	8
Afraid of gaining weight and becoming fat	8	7
Unhappy about weight	8	7
Feel distressed if had to be weighed regularly	7	6
Thinking of food affects concentration on other things	3	3
Exercise concerns		
Exercise important for self-esteem	48	43
Distressed if not exercise as much as wanted	34	31
Exercise to feel good	33	31
Exercise for weight and shape	33	31
Follow rules about exercising	27	24
Worry about exercise	14	13

TABLE 3
Eating Disorder Behaviors and Attitudes Among
Underweight, Normal Weight, and Overweight College Men

Measure	Underweight (<i>n</i> = 2)		Normal weight (<i>n</i> = 60)		Overweight (<i>n</i> = 31)	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Eating disorder <i>EEE-C</i> †						
Anorexia nervosa	0		0		0	
Bulimia nervosa	0		2	1	0	
Exercise disorder	0		10	6	3	1
Behavioral criteria <i>EEE-C</i> ‡						
Objective binge	0		5	5	4	4
Objective binge eating	0		3	2	0	
Vomiting	0		2	1	7	2
Excessively exercising	50	1	23	14	19	6
Self-reported eating problems (ever)						
Disordered eating	50	1	8	5	7	2
Problems weight control	0		8	5	39	12
Problems binge eating	0		22	13	23	7
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Examination scores <i>EEE-C</i>						
Undereating behavior	0.0		4.0	4.0	6.8	4.5**
Eating behavior for weight/shape	0.0		2.7	4.2	6.5	4.6***
Overeating behavior	2.0	2.8	2.7	2.9	3.8	3.4
Eating attitudes	2.0	1.4	1.5	2.4	2.8	2.9
Exercise attitudes	10.0	2.8	7.4	5.5	8.3	5.0
Weight feelings	3.5	0.7	2.3	2.1	4.7	3.8*
Shape feelings	5.0	1.4	3.9	3.3	6.4	5.0
Psychological feelings	2.0	1.4	2.6	3.1	3.2	2.8
Other <i>EEE-C</i>						
BMI	19.3	0.4	22.6	1.3	27.3	2.7
Desired BMI	21.7	1.3	23.3	1.7	25.9	2.3
Body appearance score	7.8	1.8	6.6	1.4	6.8	1.4

Note. BMI = body mass index; underweight = BMI < 20; normal weight = BMI = 20–24.9; overweight = BMI ≥ 25; *EEE-C* = Eating and Exercise Examination.

†Last 3 months.

‡Last month between-group differences.

* $p < .01$, $F(2, 92) = 4.29$; ** $p < .005$, $F(2, 92) = 5.40$; *** $p < .001$, $F(2, 92) = 8.9$.

eating behaviors and weight and shape concerns are becoming as “normal” among young men as they have been among young women; perhaps the “normative discontent” with body shape and size described in women in the 1980s²⁸ is increasingly becoming the norm among young men.

We identified significant exercise concerns in one third of the young men in our study. Seven men (8%) scored high enough to indicate a clinical exercise disorder as defined in the *EEE-C*.²¹ These young men were exercising at levels comparable to the more than 600 calories in exercise sessions of those who were not athletes or sports people and the more than 1,100 calories athletes burn. They exercised like this on at least 5 days per week and reported that they continued to exercise when they were ill or injured. They felt annoyed, angry, or agitated if their exercise was

changed or interrupted and said that exercise for weight or shape or to feel good was of more than average importance. That none of these young men felt that they had a problem with excessive exercise was cause for concern.

It is possible that some of these attitudes (eg, continuing to exercise when ill or injured) could be part of the male sports-hero image,²⁹ particularly related to contact sports. The experience of annoyance, anger, or agitation if exercise sessions were interrupted is more worrisome from a clinical viewpoint because it may indicate both physiological and psychological problems associated with exercise dependence,³⁰ withdrawal symptoms, anxiety and depression,³¹ and physiological symptoms related to the withdrawal of exercise.³²

The disordered eating, poor body image, weight and

shape concerns, and exercise disorders we identified among some of the young men in the current study suggest that health professionals, including college physicians and counselors, should be aware of such problems among young male patients. We suggest the initial use of simple body image questions such as those used in the body-appearance scale of the EEE-C: "What score would you give yourself on a scale from 0 to 10 for how your body looks?" (10 being perfect). This simple question identified 6 men in our study who scored below 5. Two of those, including the person suffering from bulimia nervosa, had high psychological distress scores and disordered eating.

The EEE-C eating and exercise examination is a quick (15–30 min for this group) and easy way to screen for eating, exercise, and body image problems in adolescents and young adults. This instrument is designed to report significant behaviors, attitudes, and feelings. For example, objective binge eating requires that the individuals be experiencing episodes of overeating that they feel are beyond their control and their feeling angry or upset if these episodes were interrupted at least once each week.

Two (2%) of the young men in our sample fulfilled the criteria for objective binge eating. One of them also induced vomiting after binge eating and was worried about his weight and shape. He was diagnosed by the test as having bulimia nervosa, but he was not receiving help for his eating disorder. The EEE-C can also be useful for identifying students who have subclinical rather than clinical eating behaviors (eg, binge eating [34%]).

Limitations of the current study include the absence of a clinical interview and clinical examination for diagnoses, although the EEE-C is used to diagnose patients according to the criteria listed in the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM IV)*.³³

Other limitations include the use of a convenience sample, the use of self-reported measures of height and weight, and the inclusion of participants from only 1 Australian university, which limits the generalizability of our results. Future studies should further investigate the presence of eating and exercise disorders in college men and should include a wide range of college men from different study programs, college campuses, and various racial groups.

In light of the findings from our study and current recommendations^{34,35} concerning the mental health of college students, we suggest that college health professionals be aware that young men of all shapes and weights may be sensitive about their bodies and that some may undertake extreme weight-control methods and indulge in excessive exercise as a means of achieving their ideal body shape. Body image concerns are likely to be linked to issues of masculinity, male gender roles, and gender-relations among college men.³⁶ Campus healthcare providers can examine these issues with male clients. College healthcare services and health education activities should address the weight concerns of young men to make education and treatments most relevant, effective, and available.

NOTES

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The clinical manual and computer program for the Eating and Exercise Examination—Computerised is available from the publisher at Ashwood Medical Publications, PO Box 777, Mt Waverley, Victoria, 3149, Australia.

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