Eating Disorders in Males: A Report on 135 Patients

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Objective: The goal of this study was to better understand the etiology, clinical characteristics, and prognosis of eating disorders in males. Method: All males with eating disorders who had been treated at Massachusetts General Hospital from Jan. 1, 1980, to Dec. 31, 1994, were identified. Hospital charts and psychiatric departmental records were reviewed to verify that the eating disorders met DSM-IV criteria and to abstract demographic and clinical data. Results: One hundred thirty-five males with eating disorders were identified, of whom 62 (46%) were bulimic, 30 (22%) were anorexic, and 43 (32%) met criteria for an eating disorder not otherwise specified. There were marked differences in sexual orientation by diagnostic group; 42% of the male bulimic patients were identified as either homosexual or bisexual, and 58% of the anorexic patients were identified as asexual. Comorbid psychiatric disorders were common, particularly major depressive disorder (54% of all patients), substance abuse (37%), and personality disorder (26%). Many patients had a family history of affective disorder (29%) or alcoholism (37%). Conclusions: While most characteristics of males and females with eating disorders are similar, homosexuality/bisexuality appears to be a specific risk factor for males, especially for those who develop bulimia nervosa. Future research on the link between sexual orientation and eating disorders would help guide prevention and treatment strategies.

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The first report of an eating disorder in a male was published in 1689 by Dr. Richard Morton (1). He described a case of "nervous consumption" in the 16-year-old son of a minister and prescribed a resting cure of horseback riding and abstention from studies. Over 300 years later, information on eating disorders in males remains limited to sporadic case reports, small case series, and a few small case-control studies. Nonetheless, eating disorders are not rare among males. In a review of the literature (2), we concluded that males account for 10%–15% of all bulimic patients, and that 0.2% of all adolescent and young adult males meet stringent criteria for bulimia nervosa. Similar prevalence figures have been reported for male anorexic patients (3, 4).

Researchers have studied males with eating disorders for both clinical and theoretical reasons. From a clinical standpoint, there is a need for practical information on males with eating disorders to help guide diagnostic and treatment decisions. From a theoretical standpoint, the study of males with eating disorders contributes useful information to the question of eating disorder etiology. If it is found that men with eating disorders do not differ significantly from their female counterparts, this finding may support a more biologically based view of a discrete and relatively invariant disease entity, like schizophrenia (5). However, if men with eating disorders are found to share certain cultural or psychological risk factors, then the sociocultural view of eating disorder etiology would gain support (6). In this study we addressed both clinical and theoretical concerns by compiling the largest case series to date and then focusing on variables of particular clinical interest, such as diagnostic distribution, age, sexuality, weight history, psychiatric and medical comorbidity, family psychiatric history, and clinical course.

METHOD

We identified all males with eating disorders who had been evaluated at Massachusetts General Hospital, Boston, including its three affiliated community clinics, from Jan. 1, 1980, to Dec. 31, 1994. Massachusetts General Hospital is an 800-bed hospital that provides both primary care to the local community of northern Boston and tertiary care to patients from surrounding areas of New England. In addition to its inpatient service, an active outpatient service supports 600,000 patient visits per year, many of them in the community clin-

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ics. In order to identify *all* males with eating disorders seen at Massachusetts General Hospital over the study period, we began with a manual search of patients' files in the Eating Disorders Unit, a clinic founded in 1981 to provide multidisciplinary evaluations and treatment. We supplemented this list with computerized searches of several Massachusetts General Hospital databases, including all inpatient medical records, primary care outpatient medical records, and hospital billing data for both inpatients and outpatients. Finally, we concluded our search with informal case finding through the Massachusetts General Hospital psychiatric community.

Once a potential case had been identified, the Massachusetts General Hospital medical record was abstracted onto a standardized form that was created for this study; one of us (D.J.C.), a psychiatrist, performed all of the chart reviews. DSM-IV criteria were used to confirm eating disorder diagnoses. The DSM-IV criteria differ from the DSM-III-R criteria in classifying anorexia as either a bulimic or nonbulimic subtype, in specifying purging versus nonpurging subtypes of bulimia, and in introducing binge eating disorder as a subtype of eating disorder not otherwise specified; binge eating disorder involves recurrent binge eating without purging episodes. For data analysis, bulimic and nonbulimic anorexic subtypes were combined into a single group with "anorexia," and binge eating disorder was combined with all other examples of eating disorder not otherwise specified into a single group with "eating disorder not otherwise specified."

Diagnoses were based on clinical notes in the medical records. When the Massachusetts General Hospital chart did not contain sufficient information to establish the presence of DSM criterion symptoms, an attempt was made to review the clinic psychiatrist's notes and to interview the patient's primary clinician. If this further review did not provide sufficient data to confirm the diagnosis, the case was excluded from the case series.

Information on demographic factors, sexuality, weight, psychiatric and medical comorbidity, family history, referral source, and clinical course were abstracted directly from clinical notes. Information was classified as to whether it pertained to onset (date the patient first developed an eating disorder), first treatment (date the patient was first treated for an eating disorder), or entry (date the patient entered the Massachusetts General Hospital system for treatment of an eating disorder). Self-reported homosexuality and bisexuality were combined for data analysis. Asexuality was defined as the lack of all sexual interest for 1 year prior to assessment; if an asexual patient stated an earlier sexual preference, this preference was recorded, but the patient remained in the asexual category. Information on sexual orientation was obtained primarily from detailed evaluation and progress notes from psychiatrists, psychologists, and social workers. Such notes provided information on sexuality for 95% of the 122 patients for whom such data were available. Most of these mental health notes (70%) were from the Eating Disorders Unit, where practitioners are trained to elicit detailed information on sexuality. For adults only (age ≥18 years), the Metropolitan Insurance Company height and weight norms (7) were used to calculate the patients' percentages of ideal body weight. Information on psychiatric comorbidity was obtained from clinicians' written diagnoses, which may have been based on DSM-III, DSM-III-R, or DSM-IV, depending on the patients' date of entry. Outcome information was based on a patient's clinical status 1 year after entry; status was classified as full recovery (no symptoms for at least 8 weeks), partial recovery (did not meet full criteria at least once), or no recovery.

The data were summarized with the use of standard descriptive statistics and 95% confidence intervals for proportions. The chi-square test, Fisher's exact test, Student's t test, and one-way analysis of variance (or the Kruskal-Wallis test, when appropriate) were used to test a priori hypotheses. Two-sided p values less than 0.05 were considered statistically significant.

RESULTS

We initially identified 176 males with a probable eating disorder; 135 diagnoses (77%) were confirmed by DSM-IV criteria, whereas 41 cases were excluded because of insufficient chart data. Compared with the 135 subjects in the final case series, the excluded patients were similar in average age at entry, year of entry, and probable diagnostic distribution. Furthermore, similar percentages of patients with confirmed (65%) and unconfirmed (59%) diagnoses had been seen in the Eating Disorders Unit. All further analyses were performed with data from the 135 males who had a confirmed eating disorder (table 1).

Bulimia nervosa was the most common diagnosis, affecting 46% of the group (95% confidence interval= 38%–54%). Eating disorder not otherwise specified affected 32% (95% confidence interval=24%–40%), while anorexia nervosa affected 22% (95% confidence interval=15%–29%). The most common subtype of eating disorder not otherwise specified was binge eating disorder, which affected 11 patients (26% of the group with eating disorder not otherwise specified). The patients with other subtypes of this category included 10 (23%) with subdiagnostic anorexia, 10 (23%) with self-induced vomiting without binge eating, six (14%) with bulimia without excessive weight concerns, and six (14%) in a miscellaneous subtype (e.g., one patient regurgitated food secondary to a swallowing phobia).

The mean age at onset for all patients was 19.3 years, (range=6–60), and there were no significant differences between diagnostic groups (table 1). Significant differences did emerge, however, with respect to mean age at first treatment and mean delay between onset of an eating disorder and its treatment: the bulimic patients were significantly older at first treatment and had a longer treatment delay. Of note, treatment delay also differed significantly among DSM-IV subcategories (data not shown); the patients with binge eating disorder waited a mean of 13.7 years (SD=11.5) before initial treatment, compared with 8.4 years (SD=8.2) for the bulimic patients, 4.3 years (SD=5.5) for the bulimic anorexic patients, and only 1.2 years (SD=1.4) for the nonbulimic anorexic patients ($F=5.6$, $df=4, 33$, $p<0.001$).

At the time of their first treatment, 73% of the subjects were single, 25% were either married or living with a partner, and 2% were divorced or widowed. Nearly all were Caucasian (N=131); there were two African Americans, one Hispanic, and one Arab patient. The subjects had an average of 1.6 years of college education at the time of first treatment, and most were either employed (46%) or students (32%).

Motivated by anecdotal reports that males with eating disorders may be overrepresented in certain "high risk" occupations, we categorized the 109 patients for whom we had occupational data and found that 17 (16%) were in potentially high-risk jobs; these included appearance-based jobs (e.g., modeling, acting) (N=7), jobs traditionally held by women (e.g., floriculture, nursing) (N=7), and food-related jobs (e.g., catering, restaurant managing) (N=3). In several cases, the job was clearly related to the onset of the eating disorder. One patient, for example, ingested appetite suppressant pills in an effort to keep slim for acting roles; within several months he began a pattern of binge eating and self-induced vomiting.

We ascertained the sexual orientation of 122 patients

TABLE 1. Characteristics of Male Patients With Eating Disorders (N=135)

Variable	All Patients (N=135)[a]		Patients With Anorexia Nervosa (N=30)[a]		Patients With Bulimia Nervosa (N=62)[a]		Patients With Eating Disorder Not Otherwise Specified (N=43)[a]		Analysis		
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*F*	*df*	*p*
Age (years)											
At onset	19.3	7.5	19.0	5.6	19.5	5.5	19.1	11.0	5.8	2, 125	0.94
At first treatment	25.9	8.6	20.3	6.0	28.0	6.0	26.9	11.0	8.5	2, 117	<0.001
Treatment delay[b]	6.7	8.0	2.1	3.4	8.4	8.2	7.6	9.1	6.5	2, 113	0.002
Percentage of ideal body weight											
Premorbid	133	29	114	23	143	26	131	32	4.7	2, 40	0.01
At entry into Massachusetts General Hospital system	108	33	79	10	118	24	115	41	19.0	2, 114	<0.001
Highest as an adult	137	36	106	22	145	30	144	44	9.8	2, 79	<0.001
Lowest as an adult	88	19	70	10	98	14	88	20	23.8	2, 79	<0.001
Weight fluctuation[c]	48	29	35	22	49	26	57	37	3.0	2, 74	0.05
Desired body weight	97	15	75	7	100	14	101	11	13.2	2, 45	<0.001
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	χ^2	*df*	*p*
Sexuality									26.8	4	<0.001
Heterosexual	50	41	11	42	26	46	13	33			
Homosexual or bisexual	33	27	0	0	24	42	9	23			
Asexual	39	32	15	58	7	12	17	44			
Psychiatric comorbidity											
Major depression	72	54	16	55	36	59	20	46	1.6	2	0.45
Alcohol abuse	38	29	4	14	28	46	6	14	16.6	2	<0.001
Cocaine abuse	15	11	1	3	12	20	2	5	8.0	2	0.02
Any substance abuse	49	37	5	17	37	61	7	16	27.5	2	<0.001
Anxiety disorder	23	17	1	3	12	20	10	23	5.2	2	0.07
Personality disorder	35	26	7	24	19	31	9	21	16.9	2	0.48
Family history											
Parental overweight	40	53	7	37	23	72	10	40	8.3	2	0.02
Parental affective disorder	26	29	4	20	13	33	9	28	1.2	2	0.56
Parental alcohol abuse	34	37	4	20	18	45	12	37	3.6	2	0.16
Sibling eating disorder	16	18	2	10	6	16	8	24	1.7	2	0.43

[a]The Ns on which means and percents are based vary because of missing data for some subjects on some variables.
[b]Age at first treatment minus age at onset.
[c]Highest adult weight minus lowest adult weight.

(90% of the entire study group). Of these patients, during the active phase of their eating disorder, 41% were heterosexual (95% confidence interval=32%–50%), 27% were homosexual or bisexual (95% confidence interval=19%–35%), and 32% were asexual (95% confidence interval=24% to 40%) (table 1). Among the 83 with a recorded interest in sex, 60% (N=50) were heterosexual and 40% (N=33) were homosexual or bisexual. Of the 39 asexual subjects, 22 were aware of a specific sexual orientation; of these patients, 16 (73%) were heterosexual and six (27%) were homosexual or bisexual. Chi-square tests revealed that homosexuality/bisexuality was significantly more common among the bulimic patients, whereas asexuality was rare in bulimia but common in both anorexia and eating disorder not otherwise specified (table 1).

Table 1 shows the weight histories of 103 patients, 60% (N=62) of whom reported having been overweight at some point before the onset of their disorder. The bulimic men were significantly more likely to report a history of premorbid obesity, and were heavier at entry, at their highest lifetime weight, and at their lowest lifetime weight; 74% of the bulimic subjects reported a history of having dieted during the years preceding the onset of their disorder. Data on the desired body weight of 48 patients were available; as expected, the anorexic patients preferred a weight significantly below their ideal body weight.

A lifetime history of major depressive disorder was common among all subjects across diagnoses (54%; 95% confidence interval=46%–63%) (table 1). Substance abuse (primarily alcohol and cocaine) and personality disorders were also common, particularly among the bulimic patients. Among those with a discrete personality disorder, the six anorexic men were evenly divided across DSM clusters A, B, and C, whereas 10 (71%) of the 14 bulimic men had cluster B personality disorders (particularly borderline, antisocial, and narcissistic); this difference was not statistically significant (p=0.16, Fisher's exact test).

A parental history of being overweight was reported by 53% of all subjects (95% confidence interval=42%–65%) (table 1). The patients with bulimia were signifi-

cantly more likely to report a parental history of being overweight than the patients with anorexia or an eating disorder not otherwise specified. Parental histories of affective disorder or alcoholism were also common among the patients, as was a history of an eating disorder in a sibling.

The most common routes to treatment of eating disorders were self-referral (36% of all 135 patients), referral by a primary care physician (22%), and referral by a parent (18%); other sources included referral by a psychiatrist or psychologist (13%) and by other clinicians or friends (11%). Referral sources varied by diagnostic group; compared with the bulimic subjects, the anorexic subjects were more likely to be referred by their primary care physician or their parents (28% versus 55%) (χ^2=4.7, df=1, p=0.03).

Over the course of their illness, 68% (N=79 of 116) of the study group had suffered some medical complication as a result of their eating disorder. Myriad complications were reported, but not in a consistent manner, thereby precluding statistical analyses. Frequent findings in the anorexic patients were osteoporosis, anemia, and hypotension, and the bulimic patients were commonly diagnosed with dental enamel erosion, parotid gland swelling, electrolyte disturbances, leg cramping (usually secondary to hypokalemia), esophagitis, and obesity. While 30% (N=39) of 130 patients were hospitalized for either medical or psychiatric reasons during their illness, the anorexic patients had a disproportionate number of the medical admissions: 19% had medical admissions, compared with 1.7% of the bulimic patients and 2.3% of those with an eating disorder not otherwise specified (χ^2=22.8, df=6, p<0.001).

Chart review revealed 1-year follow-up data for only 40% (N=54) of the patients in our case series. Lack of follow-up was primarily due to insufficient documentation in the medical record or to patients leaving Massachusetts General Hospital for further treatment. Nonetheless, 1 year after initial treatment, 22% (N=12) of the 54 patients had achieved full recovery (95% confidence interval=11%–33%), 19% (N=10) were partially recovered (95% confidence interval=8%–29%), and 59% (N=32) continued to suffer their full eating disorder syndrome (95% confidence interval=46%–72%).

DISCUSSION

This study was undertaken to better characterize eating disorders in males. Studies to date have had relatively small group sizes that have precluded meaningful statistical analyses. Furthermore, most studies have included only males referred to specialty eating disorder clinics or inpatient units; such patients may not be characteristic of patients seen in community mental health clinics or those seen by primary care physicians. This study is the first in which a large series of patients were located by searching all clinical units of a general hospital, rather than the psychiatric department alone. Over one-third (35%) of our study group were never seen in the Eating Disorders Unit and would have been missed if our search had been limited to that venue. Thus, our group is more likely to represent males seen primarily by general physicians as well as those treated by mental health professionals.

In general, our data suggest that the characteristics of males with eating disorders are similar to those seen in females with eating disorders. The diagnostic distribution of our case series is similar to figures reported for females, among whom prevalence rates for bulimia are estimated to be five to 10 times greater than those for anorexia (8). However, 32% of our series met the criteria for an eating disorder not otherwise specified, a figure which is higher than the 10% reported by Mitchell et al. (9) in their series of 25 women, suggesting that atypical eating disorders may be a particular problem in males.

The typical age at onset of eating disorders among our patients was late adolescence to early adulthood, consistent with reports regarding females (10). While age at onset did not differ significantly among diagnostic groups, age at first treatment was significantly later and treatment delay was significantly longer among the bulimic subjects than among the anorexic subjects. Anorexic males entered treatment an average of 2.1 years after onset, which is a shorter treatment delay than has been reported for women in our eating disorders clinic (11). This relatively brief delay between onset and treatment is consistent with our observation that anorexic men (as compared with bulimic men) were more likely to be referred by a primary care physician or by a parent. The extreme weight loss caused by their self-starvation attracts the attention of family and caregivers in a way that the private behaviors of persons with bulimia do not. In general, the bulimic men in our study group felt ashamed of having a stereotypically "female" disorder, which may explain their atypically long treatment delay.

With regard to core concerns about body image and weight, male anorexic patients may be more similar to their female counterparts than to male bulimic patients. Our male patients with anorexia clearly feared weight gain, as is implied by their desired body weight of only 75% of their ideal body weight. Our male patients with bulimia were more overweight before their illness than the typical female bulimic patient (12, 13), and their average desired body weight of 100% of ideal body weight was higher than the reported desired body weights of 80%–90% among female bulimic patients (13, 14). These data imply that bulimic males may be less concerned with strict weight control than their female counterparts. Our finding that bulimic men had the highest rate of parental obesity is intriguing, especially given recent data indicating that obesity may be partially under genetic control (15). To our knowledge, there is little (if any) published research on genetic vulnerability to obesity among bulimic patients.

Consistent with prior studies of males with eating disorders (16–19), our study group exhibited high rates of comorbid major depression, substance abuse, anxiety disorders, and personality disorders. This same pattern

of comorbidity has been reported in females with eating disorders (10, 11, 20), although the high proportion of substance abuse among our bulimic males (61%) is higher than comparable estimates in bulimic females, a difference that may reflect the higher prevalence of substance abuse among males in the general population (DSM-IV). The high prevalence of family psychopathology in our study group is also similar to published figures for females with eating disorders (21). While information on outcome was limited by the nature of the retrospective design, we found that over one-half of the 54 men for whom we had such data were doing poorly at 1-year follow-up; similar outcome figures have been reported for women with eating disorders (22).

Without question, the most striking finding concerns sexual orientation. We found that 27% of our study group reported being primarily homosexual or bisexual, and 32% were asexual. Most prior studies also have reported unexpectedly high rates of homosexuality and bisexuality (12, 14, 18, 23), but study groups have generally been too small to either confirm or refute this finding. For example, a recent study reported in this journal (19) found a lower prevalence of homosexuality/bisexuality—12%—among 25 males with eating disorders recruited through college newspaper advertisements. This figure is lower than those from many other studies (12, 14, 18, 23) and may reflect the fact that the subjects were volunteers from the community, only four of whom had ever sought treatment for their disorder. Concurrent homosexuality may aggravate the course of eating disorders in males, leading to their overrepresentation in treatment centers. Alternatively, the 12% finding may be simply an imprecise estimate because of the small size of the study group; the 95% confidence interval is quite broad (3%–31%) and actually encompasses our estimated prevalence of 27%.

In assessing the significance of our data on sexuality, it is important to estimate the prevalence of homosexuality both in the healthy male population and in females with eating disorders. Recent data on sexuality in the general population indicate a 1%–6% prevalence of homosexuality in healthy males (24) and a 2% prevalence of homosexuality in females with eating disorders (25), both far below the 27% prevalence reported by our male patients. The high prevalence of asexuality in our anorexic group is similar to reports of anorexic women (26, 27) and probably reflects the testosterone-lowering effect of protein-calorie malnutrition (28–30) combined with active repression of sexual desire, as observed in other case series of anorexic males (23, 31).

Homosexuality/bisexuality was particularly common among the bulimic males in this study (42%). We have discussed some of the implications of this finding in an earlier review (2). In general, survey studies of homosexual men have shown that they are more dissatisfied with their body weight and shape than heterosexual men and that they consider their physical appearance to be more important to their sense of self (32–34), thus potentially increasing their vulnerability to developing eating disorders. In our case series, many subjects reported that their sexuality played an important role in the development of their eating disorder, and five homosexual men explicitly stated that their eating disorder began in response to pressures toward thinness in the gay subculture.

There are several limitations of this study, including potential problems with selection and information bias. Since our study subjects were identified at a tertiary care institution, their conditions may have been more serious than those of males treated at private offices or community clinics. This problem is to some extent mitigated by our identification of patients in all of the community-based clinics affiliated with Massachusetts General Hospital, a route of entry for several of the subjects in our study. Another potential concern is our reliance on data compiled from chart review, a method that often results in incomplete and inconsistently collected information. We attempted to overcome these problems by using a standardized chart review form and by contacting patients' primary clinicians to clarify any ambiguous information. In addition, we had a single psychiatrist review all of the charts. Finally, the use of a case series precludes direct comparison with unaffected subjects or female patients. The primary goal of this study, however, was to better characterize males with eating disorders, about whom very little is known. When we examined risk factors that might predispose to the condition, we relied on published literature on healthy males and females with eating disorders.

The results of this study, combined with other findings from the small but growing research literature on eating disorders in men, indicate that eating disorders appear quite similar in both sexes but point to homosexuality/bisexuality as a specific risk factor for males, especially in bulimia nervosa. The high rate of homosexuality and bisexuality among males with eating disorders can serve equally as evidence for psychosocially or biologically based views of the etiology of eating disorders. For those who believe that cultural pressures toward thinness cause eating disorders, homosexuality can be seen as a risk factor which puts males in a subcultural system that places the same premium on appearance in men as the larger culture places on women. Those seeking support for a biological etiology can point to research implying similarities in brain structure between homosexual men and heterosexual women (35) and argue that homosexual men may react to environmental stressors in a biologically feminine way, thereby increasing their risk of eating disorders. Future research on the nature of the link between sexual preference and eating disorders in men would be useful, both for answering such theoretical questions and for guiding prevention and treatment strategies.

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