

January 2009

Gender Difference in the Prevalence of Eating Disorder Symptoms

R.H. Striegel
rstriegel@wesleyan.edu

F Rosselli

N Perrin

L DeBar

G T. Wilson

See next page for additional authors

Follow this and additional works at: <http://wescholar.wesleyan.edu/div3facpubs>

 Part of the [Psychology Commons](#)

Recommended Citation

Striegel, R H.; Rosselli, F; Perrin, N; DeBar, L; Wilson, G T.; May, A; and Kraemer, H C., "Gender Difference in the Prevalence of Eating Disorder Symptoms" (2009). *Division III Faculty Publications*. Paper 330.
<http://wescholar.wesleyan.edu/div3facpubs/330>

This Article is brought to you for free and open access by the Natural Sciences and Mathematics at WesScholar. It has been accepted for inclusion in Division III Faculty Publications by an authorized administrator of WesScholar. For more information, please contact dschnaidt@wesleyan.edu, ljohnson@wesleyan.edu.

Authors

R.H. Striegel, F. Rosselli, N. Perrin, L. DeBar, G.T. Wilson, A. May, and H.C. Kraemer



Published in final edited form as:

Int J Eat Disord. 2009 July ; 42(5): 471–474. doi:10.1002/eat.20625.

Gender Difference in the Prevalence of Eating Disorder Symptoms

Ruth H. Striegel-Moore¹, Francine Rosselli¹, Nancy Perrin², Lynn DeBar², G. Terence Wilson³, Alexis May¹, and Helena C. Kraemer⁴

¹Department of Psychology, Wesleyan University, Middletown, CT, USA

²Center for Health Research, Kaiser Permanente Northwest, Portland, OR, USA

³Department of Psychology, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

⁴Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA, USA

Abstract

Objective—This study examined gender differences in prevalence of eating disorder symptoms including body image concerns (body checking or avoidance), binge eating, and inappropriate compensatory behaviors.

Method—A random sample of members (ages 18 to 35) of a health maintenance organization was recruited to complete a survey by mail or on-line. Items were drawn from the Patient Health Questionnaire and the Body Shape Questionnaire.

Results—Among the 3,714 women and 1,808 men who responded, men were more likely to report overeating whereas women were more likely to endorse loss of control while eating. Although statistically significant gender differences were observed, with women significantly more likely than men to report body checking and avoidance, binge eating, fasting, and vomiting, effect sizes (“Number Needed to Treat”) were small to moderate.

Conclusions—Few studies of eating disorders include men, yet our findings suggest that a substantial minority of men also report eating disorder symptoms.

Keywords

binge eating; eating disorders; body mass index; gender differences

Epidemiological studies have shown that anorexia nervosa (AN) and bulimia nervosa (BN) are more common among females than males.^{1,2} It is of note, however, that the gender disparity is reversed for subthreshold binge eating disorder (0.6% women and 1.9% men) and prevalence of “any binge eating” is roughly comparable in women (4.9%) and men (4.0%).³ The extent of gender differences reported in the literature depends on the particular eating disorder symptoms under investigation: girls or women are more likely than boys or men to report weight dissatisfaction, dieting for weight control, and use of purging but are either as likely as, or less likely than, boys or men to report binge eating and use of excessive exercise for weight control.^{4,5}

Address correspondence to: Ruth H. Striegel-Moore, Department of Psychology, Wesleyan University, 207 High Street, Middletown, CT, 06459-0408, USA. (email: rstriegel@wesleyan.edu).

Declaration of Interest
None.

Further exploration of gender differences in eating disorder symptoms is warranted for several reasons. One, few studies have examined eating and body image concerns in men using community samples and typically such studies have employed skip patterns whereby respondents who deny presence of criterion A for AN (i.e., refusal to maintain minimum average weight), or for BN (i.e., binge eating), are not asked any subsequent questions about the body image concerns or compensatory behaviors that are required for full syndrome diagnosis. Two, a growing literature, based entirely on female samples, suggests that a sizeable subgroup of individuals purge in the absence of binge eating^{6,7} and data are needed about the prevalence of purging in men. Three, overvaluation of weight or shape has been recognized as a defining symptom of AN and BN, yet few studies have examined body checking and body avoidance as behavioral manifestations of this symptom.⁸ Women have been shown to be more likely than men to report body checking behaviors, such as ritualistic weighing or trying on special clothing to check for fit, or to engage in body avoidance behaviors, such as not wearing form fitting clothes that would make the wearer more aware of her body shape.⁹⁻¹¹ However, this work is based on obese patients with BED or bariatric surgery patients, and community based studies of body checking or body avoidance are needed.

To examine the prevalence of this broad range of eating disorder symptoms in a mixed gender community sample we utilized data that were collected as part of the Binge Eating Self-Help treatment (BEST) study which was conducted among the members of a health maintenance organization in the Northwestern U.S.

Methods

Participants and Recruitment

A random sample of plan members between the ages of 18 and 35 who had been insured for at least 12 months was established. Excluded from sampling were individuals with diagnostic codes indicative of severe cognitive impairment or current treatment for severe physical illness (e.g., cancer), as well as plan members whose records indicated that they opted out in general from being considered for any study recruitment.

Of 23,134 plan members invited to participate, 3714 women and 1808 men returned a completed survey (24% participation). Men (mean = 27.5, $SD = 5.6$) and women (mean = 27.4, $SD = 5.4$) did not differ in age ($t(5520) < 1, p = .54$), race (88.3% and 88.9% white, $\chi^2(1) < 1, p = .54$), ethnicity (6.5% and 6.7% Hispanic, $\chi^2(1) < 1, p = .75$), or marital status (61.3% and 62.9% married/partnered, $\chi^2(1) = 1.40, p = .24$). More women (81%) than men (76%) had at least some college education ($\chi^2(1) = 17.25, p < .001$). Men had higher mean BMI (mean = 26.89, $SD = 5.8$) than women (mean = 26.04, $SD = 6.7, t(5395) = 4.5, p < .001$).

Instrument and Procedure

Eligible health plan members were mailed the study recruitment materials, which invited them to complete a brief questionnaire about eating habits and body image. The recruitment materials emphasized that the invitation applied to all recipients, regardless of whether or not they experienced concerns with eating or body image. There was no indication that some respondents might later be invited to enter a randomized clinical trial for binge eating. Participants could complete the questionnaire online (for which they received a \$3.00 coffeehouse gift card) or return the completed questionnaire by pre-paid envelope (no compensation was offered).

Eating disorder symptoms were assessed with the Patient Health Questionnaire 12 eating disorder module which includes binary (yes/no) response items concerning binge eating and

compensatory behaviors. Participants were asked to indicate if they often feel that they cannot control what or how much they eat (“loss of control”) and if they often eat, within any 2-hour period, what most people would regard as an unusually large amount of food (“overeating”). Those responding ‘yes’ to either of these items were then asked whether the behavior(s) in question occurred as often as *twice* a week in the last 3 months; and to indicate if the behavior(s) in question occurred as often as *once* a week in the past 3 months. Participants were asked if they had often engaged in any of four compensatory behaviors in the last three months to avoid gaining weight after binge eating: making oneself vomit, taking more than twice the recommended dose of laxatives, fasting (i.e., not eating anything at all for at least 24 hours), and exercising for more than an hour. Participants endorsing any of these items were then asked whether the behavior(s) had occurred as often as twice a week on average in the past three months.

Two items with demonstrated validity as indicators of body checking and avoidance^{13,14} were adapted from the Body Shape Questionnaire.¹⁵ Participants were asked to rate, on a scale from 1 (never) to 6 (always) how often they engaged in activities designed to check their body shape or weight (“body checking”), such as pinching certain areas to measure body fat or checking to see if their fat jiggles or spreads, or tried to avoid checking their body shape or weight (“body avoidance”), such as avoiding seeing oneself in the mirror, wearing baggy clothing, or avoiding weighing oneself. These measures were dichotomized such that responses > 4 indicate clinically high levels of body checking or avoidance and responses ≤ 4 indicate low levels of these behaviors.

Participants reported their gender, race (recoded to White yes/no), ethnicity (recoded to Hispanic yes/no), highest level of education (recoded as high school graduate or less and some college or more), and current height and weight.

Data analyses

Chi-square analyses were used to test for differences between men and women in binge eating, compensatory behaviors, and body checking and avoidance. Analyses adjusting for differences in BMI did not substantively alter the results; therefore, only unadjusted results are shown. The effect size reported was Number Needed to Take (NNT), which is recommended because it takes into account base rates of each of the conditions of interest.¹⁶ Initially developed to address the questions of the efficacy of one treatment compared to another (“how many patients would need to be treated in order to prevent one ‘failure’ or negative outcome that would have occurred had the patient received the comparison treatment?”), NNT applied in the present study is the answer to the question: “How many women do you have to see to find one more ‘failure’ (e.g., one more woman who vomits) than if you had sampled men?” An $NNT < 4$ is considered a “strong” effect, an NNT between 4 and 9 is considered a “moderate” effect, and an $NNT > 9$ is considered a “weak” effect.

Results and Discussion

Consistent with prior research¹⁻⁵ we found significant gender differences on most behavioral symptoms of eating disorders (except for laxative abuse and excessive exercise) (see Table 1). The literature rarely has reported effect sizes; we note that in our study, although statistically significant, the gender differences were quite small. The emphasis on statistical significance rather than effect size may contribute to an under appreciation of the extent and clinical significance of disordered eating in men.

Significantly more women than men reported that they often feel that they cannot control what or how much they eat; however, more men than women reported overeating. When

presence of binge eating is determined by asking about overeating and loss of control with one question this gender pattern is obscured and insufficient attention placed on overeating as a behavior of interest in its own right because overeating may increase risk for weight gain. More women than men met the binge eating criterion at the diagnostic level, as well as at the lesser frequency level of at least once per week. We note, however, these differences, although statistically significant, are weak: for every 50 women studied one more case that meets the particular binge eating criterion would be expected than for every 50 men studied.

The present study sought to expand upon previous community based studies by assessing symptoms among all participants rather than only a subset of respondents with binge eating. Our findings suggest that inappropriate compensatory behaviors occur at disconcertingly high levels among women and men. For example, almost 4% of women reported vomiting “often” during the past three months in order to compensate for overeating. Increasingly, vomiting has become recognized as a clinically significant behavior in its own right, regardless of whether it occurs in the context of binge eating.¹⁷

To our knowledge, ours is the first study to report gender differences in body checking or body avoidance in a community sample. About one in five women and almost one in ten men acknowledged that they checked their body size at least “very often” during the past 3 months (a moderate effect). Women were also significantly more likely than men to report consciously avoiding checking body weight or shape (a weak effect). Shafran and colleagues¹⁸ asserted that body checking is culturally normative for women, yet our data showed that, while present among a sizable minority of women, the behavior is not “statistically normal.” Body avoidance was far less common, suggesting that excessive vigilance in form of checking is a more typical behavioral indicator of overvaluation of weight and shape than avoidance. Based on recent studies of the clinical significance of weight or shape overvaluation, some experts now call for inclusion of this symptom among the diagnostic criteria for BED.^{19,20} Given the dearth of studies of body avoidance or checking in men our findings need to be replicated in future studies.

Several limitations warrant consideration. Despite considerable recruitment efforts, we achieved a disappointingly low response rate. We cannot determine the extent to which sampling biases may have influenced our results. However, the prevalence estimates for recurrent binge eating are consistent with estimates reported in comparable community surveys.¹ Like many other large-scale community based studies, we relied on a self-report questionnaire to measure eating disorder symptoms. This methodology overestimates binge eating prevalence (but not purging)²¹, yet there is no empirical evidence to suggest that it does so differentially by gender. The clinical significance of some of the eating disorder symptoms (e.g., body checking) as measured in epidemiological studies has not yet been fully established. Finally, due to the preponderance of white, non-Hispanic residents among the population surveyed, findings should not be generalized to non-White or Hispanic populations. These limitations notwithstanding, our study suggests that when taking into account effect size calculations, the gender differences in disordered eating are less pronounced than previous studies had assumed.

Acknowledgments

This publication was supported by National Institutes of Health (NIH) research grant MH066966 (Principal Investigator: R.S.M, Wesleyan University) funded by the National Institute of Mental Health (NIMH) and the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), awarded to Kaiser Foundation Research Institute. Its contents are solely the responsibility of the authors and do not necessarily represent the official of the NIH, NIMH, NIDDK, or the Kaiser Foundation Research Institute.

References

1. Hoek HW. Incidence, prevalence and mortality of anorexia nervosa and other eating disorders. *Curr Opin Psychiatry*. 2006; 19:389–394. [PubMed: 16721169]
2. Striegel-Moore RH, Bulik CM. Risk factors for eating disorders. *Am Psychol*. 2007; 62:181–198. [PubMed: 17469897]
3. Hudson JI, Hiripi E, Pope HG, Kessler RC. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biol Psychiatry*. 2007; 61:348–358. [PubMed: 16815322]
4. Anderson CB, Bulik CM. Gender differences in compensatory behaviors, weight and shape salience, and drive for thinness. *Eat Behav*. 2004; 5:1–11. [PubMed: 15000949]
5. Lewinsohn PM, Seeley JR, Moerk KC, Striegel-Moore RH. Gender differences in eating disorder symptoms in young adults. *Int J Eat Disord*. 2002; 32:426–440. [PubMed: 12386907]
6. Keel PK, Haedt A, Edler C. Purging disorder: An ominous variant of bulimia nervosa? *Int J Eat Disord*. 2005; 38:191–199. [PubMed: 16211629]
7. Mond JM, Hay PJ, Rodgers B, Owen C, Mitchell JE. Correlates of the use of purging and non-purging methods of weight control in a community sample of women. *Aust N Z J Psychiatry*. 2006; 40:136–142. [PubMed: 16476131]
8. Shafran R, Fairburn CG, Robinson P, Lask B. Body checking and its avoidance in eating disorders. *Int J Eat Disord*. 2004; 35:93–101.
9. Reas DL, Grilo CM, Masheb RM, Wilson GT. Body checking and avoidance in overweight patients with binge eating disorder. *Int J Eat Disord*. 2005; 37:342–346. [PubMed: 15856496]
10. Grilo CM, Masheb RM. Correlates of body image dissatisfaction in treatment-seeking men and women with binge eating disorder. *Int J Eat Disord*. 2005; 38:62–66.
11. Grilo CM, Reas DL, Brody ML, Burke-Martindale CH, Rothschild BS, Masheb RM. Body checking and avoidance and the core features of eating disorders among obese men and women seeking bariatric surgery. *Behav Res Ther*. 2005; 43:629–637. [PubMed: 15865917]
12. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ Primary Care Study. *JAMA*. 1999; 282:1737–1744. [PubMed: 10568646]
13. Reas DL, Whisenhunt BL, Netemeyer R, Williamson DA. Development of the body checking questionnaire: A self-report measure of body checking behaviors. *Int J Eat Disord*. 2002; 31:324–333. [PubMed: 11920995]
14. Reas DL, White MA, Grilo CM. Body Checking Questionnaire: psychometric properties and clinical correlates in obese men and women with binge eating disorder. *Int J Eat Disord*. 2006; 39:326–331. [PubMed: 16528695]
15. Cooper PJ, Taylor MJ, Cooper M, Fairburn CG. The development and validation of the Body Shape Questionnaire. *Int J Eat Disord*. 1987; 6:485–494.
16. Kraemer HC, Kupfer DJ. Size of treatment effects and their importance to clinical research and practice. *Biol Psychiatry*. 2006; 59:990–996. [PubMed: 16368078]
17. Austin SB, Ziyadeh NJ, Vohra S, Forman S, Gordon CM, Prokop LA, Keliher A, Jacobs D. Irregular menses linked to vomiting in a nonclinical sample. *J Adol Health*. 2008; 42:450–457.
18. Shafran R, Lee M, Payne E, Fairburn CG. An experimental analysis of body checking. *Behav Res Ther*. 2007; 45:1–9. [PubMed: 16516139]
19. Grilo CM, Habrosky JI, White MA, Allison KC, Stunkard AJ, Masheb M. Overvaluation of shape and weight in binge eating disorder and overweight controls: Refinement of a diagnostic construct. *J Abnormal Psychol*. 2008; 117:414–419.
20. Mond JM, Hay PJ, Rodgers B, Owen C. Recurrent binge eating with and without the “undue influence of weight or shape on self-evaluation. *Beh Res Therapy*. 2007; 45:929–938.
21. Mond JM, Hay PJ, Rodgers B, Owen C. Self-report versus interview assessment of purging in a community sample of women. *Eur Eat Dis Review*. 2007; 40:399–408.

Table 1

Prevalence of Eating Disorder Symptoms in Women and Men

Symptom	Women (%)	Men (%)	Chi-Square (df = 1)	p	NNI ⁵
Overeating ¹	18.0	26.0	47.40	<.001	13
Loss of control over eating ¹	29.6	20.0	57.17	<.001	10
Binge eating at least once/week ^{1,2}	10.0	8.0	5.11	.019	50
Binge eating at least twice/week ^{1,2}	7.8	5.8	6.70	.010	50
Vomiting ^{1,3}	3.7	1.5	20.50	<.001	46
Fasting ^{1,3}	6.3	4.0	11.84	.001	44
Laxatives ^{1,3}	3.1	3.0	<1	ns	1,000
Exercise ^{1,3}	6.0	5.6	<1	ns	250
Body checking ⁴	22.5	8.9	149.97	<.001	7
Body avoidance ⁴	11.3	4.4	68.82	<.001	14

¹Participants indicated that, during the previous 3 months, they had "often" engaged in the behavior²Binge eating was defined as overeating with a sense of loss of control over the eating episode³The behavior occurred for the purpose of avoiding weight gain after binge eating⁴The behavior occurred "very often" or "always," (no time frame specified)⁵Number Needed to Treat (Kraemer & Kupfer, 2006)¹⁶