Published in final edited form as:

J Am Coll Health. 2011 January ; 59(4): 266–272. doi:10.1080/07448481.2010.502205.

A description of disordered eating behaviors in Latino males

Mae Lynn Reyes-Rodríguez, Ph.D.¹, Margarita Sala², Ann Von Holle, M.S.¹, Claudia Unikel, Ph.D.³, Cynthia M. Bulik, Ph.D.^{1,4}, Luis Cámara-Fuentes, Ph.D.⁵, and Alba Suárez-Torres, MPHE⁶

¹Department of Psychiatry, University of North Carolina at Chapel Hill

²Department of Psychology, University of North Carolina at Chapel Hill

³Epidemiological and Psycho-Social Research Head Office of the Ramón de la Fuente Muñiz, National Institute of Psychiatry, Mexico City

⁴Department of Nutrition, University of North Carolina at Chapel Hill

⁵Department of Political Sciences, University of Puerto Rico, Rio Piedras Campus

⁶Quality of Life Offices, Central Administration, University of Puerto Rico

Abstract

Objective—To explore disordered eating and eating disorders (ED) in Latino males.

Participants—722 male college students from a larger prevalence study conducted in the University of Puerto Rico (UPR) system.

Method—Participants were selected from a list of sections of required courses for first-year students on each campus. Self report instruments were used to explore ED symptoms (EAT-26 & BULIT-26) and depression (BDI).

Results—Overall, 2.26% scored above the cut-off point on the BULIT-R and 5.08% score above the cut-off point on the EAT-26. Of the males, 4.43% reported sufficient frequency and severity to approximate DSM-IV criteria for BN. Depression symptomatology was found in those who scored above the cut-off point on both instruments of ED.

Conclusion—College health practitioners should be aware of disordered eating in Latino males and include them in efforts to detect disordered eating behaviors in college students.

Keywords

Mental Health; Nutrition

Eating disorders (ED) have been inaccurately stereotyped as a female concern. Consequently, disordered eating in males remains understudied. Both assessment measures and diagnostic criteria are typically normed on and designed for women, which may inhibit detection in males.¹ 2 Prevalence estimates indicate that approximately 90% of individuals with anorexia nervosa (AN) and bulimia nervosa (BN) are female with a lifetime prevalence of 0.5% for AN and 1–3% for BN.³ Elevated risk for ED in males have been reported in certain subgroups such as athletes,⁴ homosexuals⁵ 6 and men with histories of childhood sexual abuse.⁷ Other factors such as psychiatric comorbidity⁸ and personality traits have been explored^{9, 10} as risk factors.

Historically, EDs were reported in males as early as the late 17th century. The first case of a male with an ED was described by Morton in his *Physiologia or Treatise on Consumptions* in 1694, where Morton concluded that a young man suffered from nervous “consumption” or what we now refer to as AN.¹¹ The second male case of AN was presented by Robert Whytt in 1765, who described a 14 year old boy who had symptoms of AN.¹²

Prevalence estimates of ED in males range between 0.3% and 2.5%, depending on the sample and the DSM criteria used.^{13–15} The National Comorbidity Replication Study, a US nationally representative face-to-face household survey, yielded prevalence estimates of BN of 1.5% for women and 0.5% for men, the prevalence of binge eating disorder (BED) of 3.5% in women and 2.5% in men, and the prevalence of AN of 0.9% in women and 0.3% in men.¹⁵ International studies concur with these estimates. A study of large cohort of Swedish twins reported the prevalence of AN to be 1.2% in females and 0.29% in males.¹⁶ A nationwide study of Finnish twins reported a lifetime prevalence of AN in men of 0.24% with a prevalence in women almost nine times greater.¹⁷ Another study with a Canadian sample using a multistage cluster face-to-face interviews in Ontario reported ED (AN and BN) in 0.3% of men and 2.1% of women.¹⁴

Information on disordered eating and ED among Latino males is scant. In a national epidemiological survey study of Latinos in the U.S., the estimated lifetime prevalences in males were: AN (0.03%), BN (1.34%), BED (1.55%) and any binge eating (5.43%).¹⁸ A study conducted by Smith and Krejci¹⁹ found that 12.8% of young Hispanic males engaged in binge eating at least once a month, 1.7% had engaged in laxative abuse, and 10.7% said that they were “never satisfied with their body shape.” In a younger sample, Ayala and collaborators²⁰ found that more male children reported dieting than female children and that an equivalent percentage of both sexes reported a desire to lose weight. They also found that 6.1% of Latino adolescent males had engaged in compensatory behaviors and 39.4% had dieted in the last year.²⁰ On the other hand, Ricciardelli and colleagues²¹ reviewed 26 studies with males comparing Hispanic Americans and Whites, finding no differences in body image between both groups. From 16 studies on body image, only one reported that Hispanic adults have a more positive body image than Whites.²¹

Epidemiologic studies on disordered eating and ED are also scarce in Latin American countries. A study with a representative sample of Mexican adolescent students reported a prevalence of 3.4% of disordered eating,²² whereas the 2006 National Survey on Health and Nutrition carried out in 10 to 19 year old adolescents reported a disordered eating prevalence of 0.4% in males.²³ Another study conducted in Mexico City with a probabilistic sample (N=3,005) of 12 to 17 year olds with the Composite International Diagnostic Interview (CIDI), found a 12 month prevalence of AN of 0.1% and 0.4% of BN in males.²⁴ In a psychiatric prevalence study conducted in Chile, no cases of ED in males were found in lifetime and 12-months diagnostic evaluation.²⁵ However, Tapia and Ornstein,²⁶ using the EAT-40 in a college sample in Chile, found a 3.5% prevalence of disordered eating in males and 12.6% in females (n=284). Two different studies conducted in Venezuela with students aged between 16 and 35 found that .85%²⁷ and 1.94%²⁸ of males scored above the cut-off point on the EAT-40.

ED are prevalent in college populations.^{29–31} A study of campus-wide mental health conducted in a large public university in the U.S. reported that ED were among the most prevalent mental problems with a prevalence of 18–19%.³⁰ ED are not limited to females, as college males display both ED and disordered eating behaviors^{29, 31} and they are increasingly adopting potentially harmful body image related behaviors.³² In a study of Australian college males, 21% reported the presence of disordered eating behaviors.²⁹ Mental health problems among college students is one of the growing concerns facing

college administrators,³³ and this is further compounded by underutilization and disparity of campus mental health services.³⁴

The current study was designed to address the paucity of information in disordered eating and ED in college Latino males. The goals of this study were: (1) to determine the prevalence of disordered eating behaviors in a freshman male sample at the University of Puerto Rico; (2) to describe the characteristics of disordered eating (binge eating, purging, and other compensatory behaviors) in males; and (3) to compare low and high scorers on measures of disordered eating on depression and stressful life events in males.

Methods

Participants

The sample comprised 722 male college students from a larger prevalence study conducted in nine of the eleven campuses from the University of Puerto Rico (UPR) system during the academic years 2004 to 2006.³⁵ We excluded 13 participants with missing questionnaire data. The final sample included in the analysis was 709. The original sample included both sexes, but for the purpose of the current study, we analyzed data from males only. The UPR is a public educational system made up of eleven campuses distributed throughout Puerto Rico, including metropolitan and rural areas. The mean age of the male students was 18.26 years ($SD = 1.28$). The vast majority (96.14%) of the participants were single at the time of the study.

Instruments

To evaluate ED symptoms, we used two self-report questionnaires; The Bulimia Test-Revised (*BULIT-R*);³⁶ and Eating Attitudes Test (*EAT-26*).³⁷ The Beck Depression Inventory (BDI) was used to evaluate depressive symptoms.³⁸ All measures had been previously used with the Puerto Rican population. In the present study, the *BULIT-R* had a Cronbach's alpha index of 0.89. A cut-off point of 85 is suggested to indicate symptoms of clinical concern.³⁶ In the present study we used the cut-off point of 91 as suggested in the cultural adaptation and validation of the *BULIT-R* in the Puerto Rican college sample.³⁹ For this sample, the *EAT-26* had an internal reliability index of 0.77. The cut-off score for the *EAT-26* is a total score of 20. We used the *EAT-26* in the present study to identify disturbed eating patterns associated with restrictive behaviors.

The *BDI*³⁸ is a 21-item self-report instrument that assesses the severity of depressive symptoms. In the current study, the *BDI* had an internal reliability index of 0.92 using Cronbach's alpha. We used a cut-off point of 18 to indicate depressive symptoms of clinical concern. In addition, the study included a general information sheet to obtain demographic information, dietary practices, and attitudes regarding weight and stressful life events.

Procedures

The study was coordinated with the Quality of Life Offices at the UPR System. The study was approved by the Human Subjects Research Committee. A detailed description of the procedures was presented in a previous publication.³⁵ Briefly, the sample was selected from a list of sections of required courses for first-year students on each campus. Professors of each section selected were contacted and asked for permission to distribute a self-administered questionnaire to their students. Trained interviewers were dispatched and the questionnaire was distributed to all the students in each section. All questionnaires were anonymous and all students received a handout that included referrals for professional services. A waiver for parental authorization was granted by the Human Research Committee.

Data Analysis

Original source data were collected via self-report questionnaires and were entered to SPSS data entry builder's database. SAS/STAT, version 9.2 of the SAS System for Windows⁴⁰ was used for the analyses. Descriptive analyses were conducted on demographic and disordered eating variables. For all statistical tests, p values < 0.05 were considered statistically significant. The sample was divided in two groups: participants who met the cut-off points in one or both ED questionnaires constituted the disordered eating group (DE), and the second group included those individuals who scored below the cut-off points on both instruments (No-DE). The Pearson Chi-Square test was used to evaluate differences between groups in disordered eating and life stressful events with categorical outcomes. The non-parametric Cochran Mantel-Haenszel statistic was used to test group differences in the variable considered having an ordinal response, namely the BDI score.

Results

Disordered eating behaviors

To determine the prevalence of DE behaviors in the sample a descriptive analysis of primary outcome measures was conducted. The mean score on the BULIT-R was 48.3 (SD= 15.7) and for the EAT-26 was 6.6 (SD=7.0). Of the sample, 2.26% ($n=16$) scored above the cut-off point on the BULIT-R and 5.08% ($n=36$) score above the cut-off point on the EAT-26. We also identified, based on the BULIT-R, those males who reported sufficient symptoms to meet DSM-IV criteria for BN for binge eating (i.e., frequency and three months or more of binge eating) and compensatory behaviors. In the sample, 4.43% ($n=27$) reported sufficient frequency and severity to approximate DSM-IV criteria for BN.

Information regarding dieting behaviors was collected from the general information data sheet. A total of 21.33% ($n=148$) were dieting at the time of the study with the intention to lose weight and 37.41% ($n=260$) reported having been on one or more weight loss diets during the previous year. Using the World Health Organization (WHO) guidelines for obesity, 37.43% ($n=262$) of the sample was overweight or obese ($BMI \geq 25.0 \text{ kg/m}^2$). Around one quarter, 25.29% ($n=177$) evaluated themselves as overweight ($25 \leq BMI < 30$). The mean of BMI for the sample was 24.4 kg/m^2 (SD=4.8).

Characteristics of disordered eating

Table 1 presents the distribution and comparison of binge eating, purging, and other compensatory behaviors by group. Significant differences ($p < .05$) were found in binge eating and compensatory behaviors (fasting, diuretics and self-induced vomiting). In the DE group, 34.1% ($n=14$) reported binge eating behavior at a frequency of once or more per week in comparison with 9.9% in the No-DE group. Laxative use ($> 1 \times$ per week) was more prevalent in the DE group (34.9%) than the No-DE group (3.7%). Self-induced vomiting ($1 \times$ per month) was reported in 27.3% of the DE group and 1.9% of the No-DE group.

Depressive symptoms and life stressful events

DE and No-DE groups were compared on secondary outcomes of depressive symptoms and stressful life events. In the DE group, 30.0% ($n=12$) scored above the BDI cut-off point of 18 compared with 6.6% ($n=41$) of the No-DE group ($\chi^2(1)=27.83$, $p < 0.05$). Defined as a BDI score ≥ 26 , 17.5% of the DE group and 1.8% of the No-ED group scored in the severe depression range. A detailed distribution on BDI scores by group is presented in Table 2.

Participants were asked about stressful events occurring during the past year of their life. In the DE group, 63.0% ($n=29$) reported one or more stressful events compared with 46.7% ($n=308$) of the No-DE group ($\chi^2(1)=4.62$, $p < 0.05$). Death of family member or significant

other was the most prevalent stressful event in the DE group (37.0%) and was significantly more common than in the No-DE group (20.1%) ($\chi^2(1)=7.36$, $p<0.05$). Breakup of a relationship was most prevalent in the DE group (26.1%) than in the No-DE (17.1%) but no significant difference was found ($p<0.15$). Illness was the other stressful event more prevalent in the DE (19.6%) and was significantly more common than in the No-DE group (6.5%) ($\chi^2(1)=10.83$, $p<0.05$). See Table 3 for a detailed distribution of stressful events by groups.

Comment

This study contributes to our understanding of disordered eating and ED in Latino males and broadens our understanding of college mental health. Of the males studied, 2.26% scored above the cut-off point on the BULIT-R and 5.08% scored above the cut-off point on the EAT-26. Moreover, 3.81% reported severity that approximated DSM-IV criteria for BN. These results are consistent with other studies conducted with Latino population in the U.S.^{19, 20, 31} and in Latino countries,^{22, 26} confirming that disordered eating does affect Latino males.

Sex differences in the manifestation of body dissatisfaction have been acknowledged.⁴¹ Females tend to engage in dieting behaviors to lose weight while males engage in behaviors to increase muscle mass to build a sculptured body.⁴¹ Although 12.36% of our sample engaged in dieting behaviors to gain weight, we also observed that 65.2% in the DE and 18.2% in the No-DE groups were engaged in dieting behaviors with intention to lose weight. This finding is consistent with the fact that students in the DE group were in the overweight range (BMI: 27.3 kg/m²) compared with the No-DE group (BMI: 24.2 kg/m²) which was in the healthy weight range. As expected, binge eating behavior was more prevalent and severe (using the frequency by week) in the DE group (34.1%) compared with the No-DE group (9.9%). This result is comparable to other studies that found that binge eating is the most common disordered eating behavior reported by Latinos¹⁸ and at greater frequencies than Whites.²¹ Compensatory behaviors that are less common in males² like purging, misuse of laxatives, and diuretics were also found in this sample. A review study across different ethnic groups found that Latinos are more likely to engage in extreme behaviors to lose weight than Whites.²¹ Other longitudinal studies with Latinos suggest an increase of compensatory behaviors in males across time.^{22, 42} However, issues related to how males define and conceptualize binge eating and compensatory behaviors have yet to be explored. In order to fully understand the high prevalence of compensatory behaviors in Latino males, more in depth qualitative and comprehensive research is required.

One of the factors to be considered in this study is the developmental life stage of the participants. As freshmen, these students were facing many changes in their lifestyle due to university entrance. Although moving away from home for university entry was not significantly different between groups (DE vs. No-DE) and was not commonly listed as a stressor, repercussions in eating habits as part of participants' routine and environment changes should not be overlooked. Other factors such as depression and stressful life events also influence eating behaviors. More individuals in the DE group reported depressive symptoms, and when symptoms were reported, they were more severe than in the No-DE group. We also observed significant differences in stressful life events, particularly in the death of a family member or significant other and dealing with an illness. Together, these findings concur with another study of male college students that revealed an association between disordered eating and depression.¹³

Our results illustrate the importance of further exploring patterns of disordered eating and ED in the male college population. ED are associated with considerable psychiatric and

medical morbidity, often impairing several areas of functioning¹⁵ including academic achievement. In addition to the medical consequences of ED behaviors, emotional and psychological repercussions also emerge. ED are commonly associated with depression, low self-esteem, anxiety, personality and perfectionist obsessive-compulsive traits, disturbances in social functioning, and suicide attempts.⁴³ Moreover, ED have been found to be a significant predictor of anxiety disorders and self-injury in the college population.³⁰

This study has several limitations. First, the EAT-26 has not been validated for use in Puerto Rican Latino males. Although both instruments (EAT-26 and BULIT-R) were adapted in Puerto Rico college students of both sexes and the BULIT-R was validated on both sexes, the EAT-26 validation process for males was not accomplished due to the lack of male clinical sample.⁴⁴ Second, the data were obtained by self report measures and no diagnostic interview was conducted to corroborate disordered eating and ED behaviors. Although a definition sheet of binge eating was provided and explained before administration, a clinical interview is desirable for an accurate assessment of binge eating and other eating disorders behaviors. Third, differences between Puerto Ricans and other Latino groups could limit the generalizability of the results. The political and social relationships of Puerto Rico as territory of U.S. create a particular scenario in which influence from U.S. in terms of culture, economics, and political structures are very strong, and some argue are determinant factors. Clearly there are contextual differences but there are also shared similarities in language and culture.

Conclusions

This study illustrated the importance of developing a male-friendly early detection and referral program for ED. Although the unique circumstances associated with college life provide an excellent opportunity for mental health detection during a period of transition to adulthood,³³ many barriers to help seeking in student populations have been identified.^{33, 45} Lack of perceived need for help, being unaware of services or insurance coverage, skepticism about treatment effectiveness, concern about privacy, and lack of knowledge about available services in college^{45, 46} are some of the barriers to treatment-seeking mentioned by college students. The mere availability of free access to services including primary care, psychotherapy, and counseling is not sufficient to engage and retain college students in treatment. Additional efforts are required to inform students about available services and to encourage them to use the services. Awareness by college administrative and health services of the problem is the first step in designing and developing new approaches to detect disordered eating behaviors that put students at risk of developing an ED. Specifically, the use of active outreach and educational campaigns³⁴ including internet-based delivery methods that have been successfully applied for behavior change and treatment³² could be an important and effective approach. The use of online screening and monitoring could track symptom emergence and change and link to campus health systems.³² These represent possible avenues to address lack of awareness of available services for students in need. The appropriate diagnosis and treatment of ED is critical to reduce burden of illness and mortality^{47, 48} and to promote mental health and wellness and enhance students' academic success. Clearly, such programs should be adapted and culturally tailored to meet the needs of both female and male students from various racial and ethnic backgrounds.^{46, 49}

Acknowledgments

This work was done during the Post doctoral fellowship of the first author (1 F32 MH66523-01A1) from the National Institute of Mental Health (NIMH) at University of Puerto Rico, Río Piedras Campus. Other support was provided from NIMH (3R01MH082732-01W1).

References

1. Hildebrandt T, Alfano L. A review of eating disorders in males: Working towards an improved diagnostic system. *International Journal of Child Health and Adolescent Health* 2009;2:185–196.
2. Anderson CB, Bulik CM. Gender differences in compensatory behaviors, weight and shape salience, and drive for thinness. *Eating Behaviors* 2004 Jan;5:1–11. [PubMed: 15000949]
3. American Psychiatric Association (APA). *Diagnostic and statistical manual of mental disorders*. 4th ed.. Washington, D.C: APA Press; 2004.
4. Petrie TA, Greenleaf C, Reel I, Carter J. Prevalence of eating disorders and disordered eating behaviors among male collegiate athletes. *Psychology of Men & Masculinity* 2008;9:267–277.
5. Robb AS, Dadson M. Eating disorders in males. *Child and Adolescence Psychiatric Clinics of North America* 2002;11:399–418.
6. Carlat DJ, Camargo CA Jr, Herzog DB. Eating disorders in males: A report on 135 patients. *American Journal of Psychiatry* 1997 Aug;154:1127–1132. [PubMed: 9247400]
7. Olivardia R, Pope HG Jr, Mangweth B, Hudson JI. Eating disorders in college men. *American Journal of Psychiatry* 1995 Sep;152:1279–1285. [PubMed: 7653681]
8. Woodside DB, Garfinkel PE, Lin E, Goering P, Kaplan AS, Goldbloom DS, et al. Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. *American Journal of Psychiatry* 2001 Apr;158:570–574. [PubMed: 11282690]
9. Striegel-Moore RH, Rosselli F, Perrin N, DeBar L, Wilson GT, May A, et al. Gender difference in the prevalence of eating disorder symptoms. *International Journal of Eating Disorders* 2009 Jul; 42:471–474. [PubMed: 19107833]
10. Woodside DB, Bulik CM, Thornton L, Klump KL, Tozzi F, Fichter MM, et al. Personality in men with eating disorders. *Journal of Psychosomatic Research* 2004 Sep;57:273–278. [PubMed: 15507254]
11. Morton, R. *Phthisologia—or a Treatise of Consumptions*. London: Smith & Walford; 1964.
12. Whytt, R. *Observations on the Nature, Causes, and Cures of those Disorders which have been commonly called Nervous, Hypochondriac, or Hysteric to which are prefixed Remarks on the Sympathy of the Nerves*. Edinburgh: printed for T. Becket, and P. du Hondt, London; and J. Balfour; 1765.
13. Guidi J, Pender M, Hollon SD, Zisook S, Schwartz FH, Pedrelli P, et al. The prevalence of compulsive eating and exercise among college students: An exploratory study. *Psychiatry Research* 2009 Jan 30;165:154–162. [PubMed: 19046604]
14. Woodside B, Garfinkel P, Lin E, Goering P, Kaplan AS, Goodblom DS, Kennedy SH. Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. *American Journal of Psychiatry* 2001;158:570–574. [PubMed: 11282690]
15. Hudson JI, Hiripi E, Pope HG Jr, Kessler RC. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biology Psychiatry* 2007;61:348–358.
16. Bulik CM, Sullivan PF, Tozzi F, Furberg H, Lichtenstein P, Pedersen NL. Prevalence, heritability, and prospective risk factors for anorexia nervosa. *Archives General of Psychiatry* 2006 Mar; 63:305–312.
17. Raevuori A, Hoek HW, Susser E, Kaprio J, Rissanen A, Keski-Rahkonen A. Epidemiology of anorexia nervosa in men: a nationwide study of Finnish twins. *PLoS ONE* 2009;4:e4402. [PubMed: 19204790]
18. Alegria M, Woo M, Cao Z, Torres M, Meng XL, Striegel-Moore R. Prevalence and correlates of eating disorders in Latinos in the United States. *International Journal of Eating Disorders* 2007 Nov;40 Suppl:S15–S21. [PubMed: 17584870]
19. Smith JE, Krejci J. Minorities join the majority: Eating disturbances among Hispanic and Native American youth. *International Journal of Eating Disorders* 1991;10:179–186.
20. Ayala GX, Mikens L, Galindo P, Elder JP. Acculturation and Body Image Perception among Latino Youth. *Ethnicity and Health* 2007;12:21–41. [PubMed: 17132583]

21. Ricciardelli LA, McCabe MP, Williams RJ, Thompson JK. The role of ethnicity and culture in body image and disordered eating among males. *Clinical Psychology Review* 2007;27:582–606. [PubMed: 17341436]
22. Unikel-Santoncini C, Bojorquez-Chapela I, Villatoro-Velazquez J, Fleiz-Bautista C, Medina-Mora Icaza ME. [Risky eating behaviors in student population in Mexico City: trends 1997–2003]. *Revista Investigación Clínica* 2006;58:14–27.
23. Barriguete-Melendez JA, Unikel Santoncini C, Aguilar-Salinas C, Córdova-Villalobos JA, Barquera S, Shamah T, Rivera-Dommarco J, Hernández-Avila M. Prevalence of abnormal eating behaviors in adolescents: results of a population –based nationwide survey. *Salud Publica Mex.* in press.
24. Benjet, C.; Borges, G.; Medina-Mora, ME.; Blanco, J.; Rojas, E.; Fleiz, C., et al. XVIII Reunión de Investigación del Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz. México, D.F.: 2008. Epidemiología de los Trastornos Psiquiátricos en Adolescentes de la Ciudad de México.
25. Vicente B, Kohn R, Riosco P, Saldivia S, Levav I, Torres S. Lifetime and 12-month prevalence of DSM-III-R disorders in the Chile psychiatric prevalence study. *American Journal of Psychiatry* 2006 Aug;163:1362–1370. [PubMed: 16877648]
26. Tapia P, Ornstein C. Trastornos de la alimentación en estudiantes universitarios. *Revista Psiquiatría Clínica* 1999;36:7–10.
27. Vivas, E.; Luigli, Z. III Encuentro Psicología de la Salud. Caracas, Venezuela: 1997. Trastornos de la alimentación: resultados preliminares.
28. Vivas, E.; Luigli, Z. Trastornos del comportamiento alimentario en Venezuela: panorama actual. In: Mancilla Díaz GGP-M, JM., editor. Trastornos alimentarios en Hispanoamérica. México: El Manual Moderno; 2006.
29. O'Dea JA, Abraham S. Eating and exercise disorders in young college men. *Journal of American College Health* 2002 May;50:273–278. [PubMed: 12701652]
30. Zivin K, Eisenberg D, Gollust SE, Golberstein E. Persistence of mental health problems and needs in a college student population. *Journal of Affective Disorders* 2009 Oct;117:180–185. [PubMed: 19178949]
31. Gentile K, Raghavan C, Rajah V, Gates K. It doesn't happen here: eating disorders in an ethnically diverse sample of economically disadvantaged, urban college students. *Eating Disorders* 2007 Oct–Dec;15:405–425. [PubMed: 17987450]
32. Yager Z, O'Dea JA. Prevention programs for body image and eating disorders on University campuses: a review of large, controlled interventions. *Health Promotion International* 2008 Jun; 23:173–189. [PubMed: 18263883]
33. Hunt JE. D. Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health* 2010;46:3–10. [PubMed: 20123251]
34. Rosenthal BS, Wilson C. Mental health services: Use and disparity among diverse college students. *Journal of American College Health* 2008;57:61–67. [PubMed: 18682347]
35. Reyes-Rodríguez M, Franko DL, Matos-Lamourt A, Bulik CM, Von Holle A, Cámara-Fuentes LR, Rodríguez-Angleró D, Cervantes-López S, Suárez-Torres A. Eating disorders symptomatology: Prevalence among Latino college freshmen students. *Journal of Clinical Psychology* 2010;66:666–679. [PubMed: 20455253]
36. Thelen MH, Farmer J, Wonderlich S, Smith M. A revision of the Bulimia Test: The Bulit-R. *Journal of Consulting Clinical Psychology* 1991;3:119–124.
37. Garner DM, Garfinkel PE. The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. *Psychology Medicine* 1979;9:273–279.
38. Beck, AT. Depression: clinical, experimental, and theoretical aspects. New York: Harper & Row; 1967.
39. Reyes, ML.; Rosselló, J.; Calaf, M. Cognitive Behavioral Therapy for Bulimia Nervosa in Latinos: Preliminary findings of case studies; Poster presented at the Eating Disorders Research Society, Annual Meeting; Toronto, Ontario, Canada: 2005 Sep.
40. SAS II. SAS/STATA® Software: version 9. Cary, NC: 2004.
41. Harvey JA, Robinson JD. Eating disorders in men: Current considerations. *Journal of Clinical Psychology in Medical Settings* 2003;10:297–306.

42. Chao YM, Pisetsky EM, Dierker LC, Dohm FA, Rosselli F, May AM, et al. Ethnic differences in weight control practices among U.S. adolescents from 1995 to 2005. *International Journal of Eating Disorders* 2008 Mar;41:124–133. [PubMed: 18008319]
43. Franko DL, Keel PK. Suicidality in eating disorders: occurrence, correlates, and clinical implications. *Clinical Psychology Review* 2006 Oct;26:769–782. [PubMed: 16875766]
44. Reyes, ML.; Rosselló, J.; Cervantes, S.; Calaf, M.; Pabón, M.; Birriel, M.; Maysonet, M. Cultural adaptation of instrument for bulimia nervosa in Latinos; International Conference on Eating Disorders for Academy of Eating Disorders; Montreal, Canada: 2005.
45. Eisenberg D, Golberstein E, Gollust SE. Help-seeking and access to mental health care in a university student population. *Medical Care* 2007;45:594–601. [PubMed: 17571007]
46. Hunt S, Rothman AJ. College students' mental models for recognizing anorexia and bulimia nervosa. *Appetite* 2007;48:289–300. [PubMed: 17241690]
47. Kyriacou O, Treasure J, Schmidt U. Understanding how parents cope with living with someone with anorexia nervosa: Modeling the factors that are associated with carer distress. *International Journal of Eating Disorders* 2008;41:233–242. [PubMed: 18008326]
48. Kempa ML, Thomas AJ. Culturally sensitive assessment and treatment of eating disorders. *Eating Disorders* 2000;8:17–30.
49. Tomiyana AJ, Mann T. Cultural factors in collegiate eating disorder pathology: When family culture clashes with individual culture. *American Journal of College Health* 2008;57:309–313.

Table 1

Comparison of disordered eating behaviors by group

Disordered Eating Behaviors	DE Group (n=46)	No-DE Group (n=663)	Total (n=709)	Test Statistic ^a	p-value ^b
Binge eating episodes frequency					
Binge eating episodes frequency					
> 1 × per week	14 (34.1)	61 (9.9)	75 (11.4)	22.34 (1)	<.0001
≤ 1 × per week	27 (65.9)	555 (90.1)	582 (88.6)		
Diuretic use frequency					
> 1 × per week	6 (14.0)	8 (1.3)	14 (2.1)	31.85 (1)	<.0001
≤ 1 × per week	37 (86.0)	623 (98.7)	660 (97.9)		
Fasting episodes frequency					
≥ 2 × per week	7 (16.3)	17 (2.7)	24 (3.5)	45.03 (2)	<.0001
< 1 × per week	32 (74.4)	612 (96.5)	644 (95.1)		
1 × per week	4 (9.3)	5 (0.8)	9 (1.3)		
Self-induced vomiting frequency					
< 1 × per month	32 (72.7)	633 (98.1)	665 (96.5)	79.12 (1)	<.0001
1 × per month	12 (27.3)	12 (1.9)	24 (3.5)		
Laxative use frequency					
> 1 × per week	15 (34.9)	23 (3.7)	38 (5.7)	73.57 (1)	<.0001
< 1 × per week	28 (65.1)	606 (96.3)	634 (94.3)		

^aTest statistic is chi-square (df) for categorical variables.^bAll p-values are FDR adjusted.

DE- disordered eating group

No-DE – non disordered eating group

Table 2

Depression symptomatology by group

	DE Group (n=46)	No-DE Group (n=663)	Total (n=709)	Test Statistic ^a	p-value ^b
Depression Score	n (%)	n(%)	n (%)		
BDI (Cut-off point)	12 (30.0)	41 (6.6)	53 (8.0)	27.83 (1)	<.0001
Severity of depression					
None (BDI ≤ 17)	28 (70.0)	579 (93.4)	607 (92.0)	44.18 (3)	<.0001
Mild (BDI=18–19)	0 (0.0)	8 (1.3)	8 (1.2)		
Moderate (BDI =20–25)	5 (12.5)	22 (3.5)	27 (4.1)		
Severe (≥ 26)	7 (17.5)	11 (1.8)	18 (2.7)		

^aTest statistic is chi-square (df) for levels of depression and Cochran Mantel-Haenszel statistic (df) for the depression score.^bAll p-values are FDR adjusted.

Table 3

Stressful life events by groups

Stressful Event	DE Group		No-DE Group		Total	Test Statistic ^a	p-value ^b
	n (%)	n (%)	n (%)	n			
Death of family member or significant other	17 (37.0)	133 (20.1)	150	7.36 (1)	0.0093		
Parents' divorce	1 (2.2)	32 (4.8)	33	0.68 (1)	0.4636		
Moving for university entry	4 (8.7)	51 (7.7)	55	0.06 (1)	0.8417		
Relationship breakup	12 (26.1)	113 (17.1)	125	2.41 (1)	0.1439		
Illness	9 (19.6)	43 (6.5)	52	10.83 (1)	0.0016		
Other	8 (17.4)	55 (8.3)	63	4.36 (1)	0.0460		

^aTest statistic is chi-square (df) for categorical variables.^bAll p-values are FDR adjusted.