

Prevalence and Correlates of Eating Disorders in Latinos in the United States

Margarita Alegria, PhD^{1*}
 Meghan Woo, ScM²
 Zhun Cao, PhD¹
 Maria Torres, MA, LMHC³
 Xiao-li Meng, PhD⁴
 Ruth Striegel-Moore, PhD⁵

ABSTRACT

Objective: To present national estimates and correlates of lifetime and 12-month DSM-IV eating disorders for Latinos.

Method: Data come from the National Latino and Asian American Study (NLAAS), a national epidemiological household survey of Latinos in the United States.

Results: Latinos have elevated rates of any binge eating and binge eating disorder but low prevalence of anorexia nervosa and bulimia nervosa. The US born and those living a greater percentage of their lifetime in the US evidenced higher risk for certain eating disorders while severe obesity and low levels of education were significant correlates. Rates of

treatment utilization were exceedingly low.

Conclusion: Standard eating disorder criteria may not be appropriate for understanding psychological morbidity of eating disorders for Latinos, particularly less acculturated Latinos, due to cultural differences in the presentation of eating disorder symptoms. Criteria for disturbed eating patterns that are more reflective of the illness experience of Latinos should be developed. © 2007 by Wiley Periodicals, Inc.

Keywords: Latino; eating disorder; culture; mental health; severity; ethnic minority; psychiatric illness

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Introduction

Research on eating disorders has primarily focused on young, white female populations from relatively affluent backgrounds.^{1,2} Information about the prevalence of eating disorders in ethnic minority groups, particularly Latinos, is virtually unknown.² Yet, several studies have reported higher rates of eating disorder symptoms among Latino groups than among non-Hispanic whites or among other ethnic minority females. For example, studies have reported a higher and more severe prevalence of binge-eating among Latino females compared to White,^{3–5} African American,^{4,6} and Asian American

women.⁶ Population-based surveys of adolescents found that rates of dieting and using laxatives or diuretics⁷ and unhealthy weight control behaviors⁸ were highest among Latinas.

Acculturation, i.e., “the acquisition of the cultural elements of the dominant society,”⁹ including norms, values, and lifestyle behaviors, has been suggested to contribute to risk for eating disorders in the US Latino population.^{1,10} Yet studies testing this hypothesis have yielded inconsistent results.² Our study examined multiple indicators of acculturation and their relationship with eating disorder status in a representative national sample of Latinos.

It has been hypothesized that minority groups are more likely to meet criteria for eating disorders not otherwise specified (EDNOS) rather than anorexia nervosa or bulimia nervosa,¹¹ raising the question of whether the nosological criteria developed for Western populations effectively capture eating disorders among Latinos and other racial/ethnic minority groups. Research also suggests that opportunities to detect and treat eating disorders among ethnic minority women were largely missed possibly^{12,13} because the ethnic minority women tended to present their general care providers with weight concerns as their primary eating disorder symptom.¹² This article presents the prevalence and demographic correlates of eating disorders for a national sample of adult Latinos. Specifically, we

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*Correspondence to: Dr. Margarita Alegria, Center for Multicultural Mental Health Research, Cambridge Health Alliance/Harvard Medical School, Boston, MA. E-mail: malegria@charesearch.org

¹ Center for Multicultural Mental Health Research, Cambridge Health Alliance/Harvard Medical School, Boston, Massachusetts

² Department of Society, Human Development, and Health, Harvard University School of Public Health, Boston, Massachusetts

³ Center for Multicultural Mental Health Research, Cambridge Health Alliance, Somerville, Massachusetts

⁴ Department of Statistics, Harvard University, Cambridge, Massachusetts

⁵ Department of Psychology, Wesleyan University, Middletown, Connecticut

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examined gender, educational attainment, age cohort, and ethnic subgroup as potential correlates of eating disorders. We report clinical course information including age of onset and duration of the eating disorder as well as indicators of clinical impairment among those meeting research criteria for an eating disorder.

Method

Sample and Data Collection

The National Latino and Asian American Study (NLAAS) is a national representative household survey of Latinos aged 18 and older residing in the coterminous US. Eligibility criteria included age (18 years or older), ethnicity (of Latino origin), and language (persons who spoke Spanish or English). The sample design and survey methods of the NLAAS have been described in detail elsewhere.^{14,15} Briefly, a four-stage area probability sample was implemented to sample: (1) U.S. Metropolitan Statistical Areas (MSAs) and counties, (2) area segments, (3) housing units, and (4) respondents. The NLAAS-weighted sample is similar to the 2000 Census in gender, age, education, marital status, and geographic distribution but different in nativity (whether respondent was born in US mainland or foreign-born) and household income, with more US immigrants and lower income respondents in the NLAAS sample, perhaps resulting from more access to the undocumented Latino population.^{16,17} Data collection began in May 2002 and ended in December 2003, with a final sample of 2,554 English and Spanish-speaking Latinos (overall response rate 75.5%) from the four major subethnic groups: 868 Mexicans, 495 Puerto Ricans, 577 Cubans, and 614 Other Latinos. Stratification into the four ethnic subgroups was determined by respondents' self-reported ethnicity using the same question as the US Census. Language of interview was determined based on self-report of language use. Participants who stated that they could not speak English or could only speak "some English" were interviewed in Spanish. Likewise, those who could not speak Spanish or could only speak "some Spanish" were interviewed in English. Half of the participants were monolingual Spanish speakers or had limited English proficiency and requested the interview in Spanish. All study materials were translated into Spanish using a standard translation and back-translation protocol. The Institutional Review Board Committees of all participating institutions approved all study procedures.¹⁸

Measures

The full survey instrument and the study's underlying conceptual framework have been described in detail.¹⁵ Prevalence of psychiatric disorder was evaluated using

the diagnostic interview of the World Mental Health Survey Initiative version of the WMH-CIDI,¹⁹ a fully-structured diagnostic instrument based on criteria of the Diagnostic and Statistical Manual of Mental Disorders, Version 4 (DSM-IV). Using the NLAAS data, we are able to report 12-month and lifetime prevalence rates for any eating disorder. Specifically, using the algorithms proposed by Hudson et al.²⁰ (www.hcp.med.harvard.edu/ncs/eating.php), we created four eating disorder diagnostic categories: (1) Anorexia Nervosa (AN), (2) Bulimia Nervosa (BN), (3) Binge-Eating Disorder (BED), and (4) Any Binge Eating. A fifth category, Partial Syndrome Anorexia (Partial-AN), was also created based on respondents meeting all criteria for DSM-IV AN with the exception of Criterion D, which applies to postmenarcheal females only, and requires the females to have amenorrhea.²¹ Our definition of BED Criterion D varies in that the NLAAS instrument does not specify the number of months, asking instead if the binge-eating has occurred at least twice a week for several months or longer. Any Binge-Eating is defined as binge-eating episodes (objective overeating with a sense of loss of control) that occur at least twice a week for at least several months. Hence, all diagnostic categories except for "Any Binge-Eating" are mutually exclusive.

Measures of acculturation included nativity (whether respondent was born in US mainland or foreign-born), number of parents born in the US (whether one or both of the respondent's parents were US-born, or if both were foreign-born), and percentage of lifetime spent in US (less than 30%, 30–70%, greater than 70%). Body mass index (BMI) was calculated from a person's weight and height. Participants were grouped into four weight categories: underweight (BMI < 18.5), normal weight and overweight (BMI = 18.5–29.9), obese (BMI = 30–39.9), and severely obese (BMI of 40 or above). We collapsed the normal weight and overweight to compare our results to Hudson et al.²⁰ and contrast the extreme ends of the weight distribution. Respondents who screened into the eating disorders section of the CIDI and reported at least one symptom indicating concern regarding their weight, binge-eating behaviors or weight control behaviors in the past 12 months, were administered the Sheehan disability scale (SDS)²² to assess impairment of functioning in home management, ability to work, ability to form and maintain close relationships with others (personal life), and social life. Respondent scores range from zero to ten. Scores of 1–3 indicate mild impairment, 4–6 moderate impairment, and 7–9 severe impairment.

Two age cohorts were defined based on age at time of interview: respondents who were less than or equal to 30 years of age, and respondents who were greater than 30 years of age. Education categories were defined as: 11 years or less, 12 years (graduated high school), 13–16 years (college graduate or some college), and 17 years or more (graduate degree and greater).

TABLE 1. Bayesian lifetime and 12-month prevalence estimates of DSM-IV eating disorders and related entities

Bayesian	Male (n = 1,127)		Female (n = 1,427)		Total (n = 2,554)	
	%	SE	%	SE	%	SE
I. Lifetime prevalence						
Anorexia nervosa	0.03	0.07	0.12	0.12	0.08	0.07
Partial anorexia syndrome	0.03	0.06	0.14	0.12	0.08	0.06
Bulimia nervosa	1.34	0.45	1.91	0.46	1.61	0.33
Binge-eating disorder	1.55	0.46	2.31	0.49	1.92	0.33
Any binge-eating	5.43	0.87	5.80	0.77	5.61	0.59
II. Twelve-month prevalence						
Anorexia nervosa	0.03	0.07	0.02	0.04	0.03	0.04
Partial anorexia syndrome	0.03	0.06	0.02	0.04	0.02	0.04
Bulimia nervosa	0.72	0.32	0.92	0.31	0.82	0.22
Binge-eating disorder	0.63	0.29	1.19	0.35	0.90	0.23
Any binge-eating	2.23	0.57	3.25	0.59	2.73	0.41

Receipt of treatment for eating disorders was determined based on respondent responses to these questions: "Did you ever in your life talk to a medical doctor or other professional about problems with your eating or weight?" and "Did you receive professional treatment for problems with your eating or weight at any time in the past 12 months?" Professionals could include medical doctors, psychologists, counselors, spiritual advisors, herbalists, acupuncturists, and other healing professionals.

Statistical Analysis

Cross-tabulations were used to estimate the prevalence of eating disorders, the levels of impairment and rates of service use. We also used Bayesian inference to estimate the prevalence rates in Tables 1 and 2 as a way to address the problem of small sample sizes compounded by large survey weights in some subgroups. For details, including the modeling strategies and the fitting algorithms, see Meng et al.²³ Using Rao-Scott chi-squared test,²⁴ we tested for the difference in prevalence of eating disorders across gender, Latino subethnic groups, and acculturation variables. Wald tests were conducted for pair-wise comparison of prevalence rates across immigration status, number of parents born in US, percentage of lifetime spent in US and Latino subethnic groups (test results not shown in tables). Weighted means were calculated for establishing age of onset of eating disorders and persistence of episodes, with standard errors calculated using linearization method.²⁵ Median and interquartile range (IQR) were also computed for age of onset and persistence of condition. Logistic regressions were used to estimate age-cohort effects, and to study the association between BMI, education and eating disorders. Standard errors and significance tests were estimated using the Taylor series linearization method.²⁵ We also tested for the difference in the prevalence of impairment across eating disorders using the 0.05 level,

TABLE 2. Bayesian gender-adjusted lifetime and 12-month prevalence of acculturation factors and eating disorders by diagnostic categories

	Bulimia Nervosa		Binge-Eating Disorder		Any Binge-Eating	
	%	SE	%	SE	%	SE
<i>Gender-adjusted lifetime prevalence</i>						
Nativity						
US born	2.36	0.60	2.34	0.54	6.94	0.97
Immigrant	1.08	0.32	1.51	0.40	4.61	0.69
<i>p</i> Value ^a	0.06		0.22		0.05	
Number of parents born in US						
0	1.47	0.37	1.50	0.36	4.96	0.62
1	1.79	1.04	1.29	0.77	5.23	1.79
2	2.07	0.83	3.14	0.89	7.64	1.47
<i>p</i> Value ^a	0.79		0.20		0.24	
Percentage of lifetime spent in US						
<30%	0.39	0.33	1.03	0.56	3.57	1.05
30–70%	1.53	0.53	1.35	0.55	4.71	0.95
>70%	2.10	0.50	2.41	0.49	6.62	0.85
<i>p</i> Value ^a	0.01		0.14		0.07	
<i>Gender-adjusted 12-month prevalence</i>						
Nativity						
US born	1.25	0.45	1.22	0.42	3.21	0.67
Immigrant	0.48	0.21	0.65	0.26	2.31	0.48
<i>p</i> Value ^a	0.12		0.24		0.27	
Number of parents born in US						
0	0.68	0.23	0.54	0.20	2.31	0.44
1	0.65	0.55	0.78	0.70	2.26	1.16
2	1.36	0.72	1.90	0.72	4.09	1.11
<i>p</i> Value ^a	0.66		0.19		0.32	
Percentage of lifetime spent in US						
<30%	0.25	0.27	0.65	0.48	1.63	0.74
30–70%	0.56	0.33	0.32	0.26	2.49	0.71
>70%	1.16	0.38	1.32	0.37	3.15	0.61
<i>p</i> Value ^a	0.15		0.09		0.28	

^a *p* Values obtained from design-based adjusted F test.

two-sided test. Stata 9²⁶ software was used to adjust for the weighting and complex survey design of the data.

Results

Lifetime and 12-Month Prevalence

Table 1 presents the Bayesian prevalence estimates across eating disorders. Only two women met lifetime and no one met current criteria for AN or sub-threshold AN. Therefore, findings concerning correlates or clinical course are not reported for AN or partial AN. Lifetime BED was slightly more common than lifetime BN and, not surprisingly (given the broad definition), lifetime "Any Binge Eating" was reported by the largest number of participants, more than 5 in 100 men or women. The 12-month prevalence rates were about one-half of lifetime rates.

Demographic Correlates and Acculturation

Compared to men, women tended to have higher lifetime and 12-month prevalence rates for BN,

BED, and Any Binge Eating, but differences were not statistically significant. Lifetime or 12-month prevalence of eating disorders did not differ significantly across the Latino subgroups (data not shown). For the remaining demographic correlates and acculturation factors, only lifetime prevalence data were used. In models adjusting for differences in age, sex and sub-ethnicity, education was significantly related to prevalence only of BED (but not BN or Any Binge Eating), with a five-fold or greater risk for all the three lower education groups compared to those with 17 or more years of education (data not shown). Participants older than 30 were significantly less likely to have BN (OR = 0.36, 95% CI = 0.16–0.81) and any binge eating (OR = 0.51, 95% CI = 0.35–0.74) than those 30 years or younger (adjusting for gender and sub-ethnicity). Lifetime prevalence estimates for BED did not differ significantly by age cohort (OR = 0.84, CI = 0.55–1.30).

According to the gender-adjusted rates (Table 2), the difference of the prevalence rates across nativity status was not statistically significant, except for any lifetime binge-eating ($p < 0.05$). The prevalence rates did not differ significantly across number of parents born in the US. When comparing the prevalence rates across percentage of lifetime spent in US, only lifetime BN was found to be significant ($p < 0.01$): more recent immigrants had the lowest rates, while those having resided in the US 70% or more had the highest rates.

Clinical Correlates of Eating Disorders: BMI Category, Functional Impairment, and Treatment Receipt

After adjusting for age and gender, having a BMI higher than 40 is associated with significantly higher risk of lifetime BN (OR = 3.93, 95%CI = 1.22–12.65), BED (OR = 5.84, 95%CI = 2.33–14.64), and any binge-eating (OR = 5.13, 95%CI = 1.22–12.65), compared to those with BMI between 18.5 and 30 (data not shown). Respondents with a BMI >30 and <40 (OR = 1.86, 95%CI = 2.66–9.90) were also at significantly higher risk for any binge-eating.

At least half of respondents with 12-month BN, BED, or any binge-eating reported some role impairment and 15% (BN) to 25% (BED) reported severe impairment in at least one role domain (Table 3). Those with BED reported the highest prevalence of any (or any severe) impairment but none of the eating disorder group differences was statistically significant.

TABLE 3. Impairment in role-functioning (Sheehan disability scales) associated with 12-month DSM-IV eating disorders and related entities

	Bulimia Nervosa		Binge-Eating Disorder		Any Binge-Eating	
	%	SE	%	SE	%	SE
I. Prevalence of any impairment ^a						
Home management	49.3	17.2	75.9	8.5	57.1	5.8
Ability to work	29.0	13.0	56.0	8.2	42.4	6.5
Personal life	42.2	16.6	58.7	11.1	44.0	6.7
Social life	40.8	14.9	57.3	10.9	45.2	6.5
Any	49.3	17.2	75.9	8.5	64.3	4.9
II. Prevalence of severe impairment						
Home management	9.0	7.0	8.7	5.4	6.9	2.5
Ability to work	6.9	6.7	22.7	6.3	13.5	4.0
Personal life	0.0	0.0	1.2	0.9	2.9	1.8
Social life	6.3	4.4	9.6	7.5	7.2	3.4
Any	15.3	7.6	24.8	6.7	17.9	4.9

Notes: There were no 12-month cases of anorexia nervosa or partial anorexia syndrome.

^aIncluded mild, moderate, or severe impairment.

Of lifetime cases with at least one symptom in self awareness of overweight, binge-eating, or weight control, only about a third to less than one fifth of Latinos report ever receiving treatment for eating disorders, with no significant differences across ethnic subgroups [$p = \text{NS}$; other Latinos (34.7%); Puerto Ricans (25.6%); Mexicans (18.4%); and Cubans (16.9%)]. Furthermore, only 9.1% of Other Latinos, 8.7% of Puerto Ricans, 2.6% of Mexicans, and 2.4% of Cubans with at least one symptom in self awareness of overweight, binge-eating behavior, and weight control had received treatment for an eating disorder in the past year, with no significant differences across ethnic subgroups ($p = \text{NS}$).

Conclusion

This study is the first of its kind to present nationally-representative lifetime and 12-month prevalence estimates and to examine the etiologic and clinical correlates of eating disorders within the Latino population in the US. Our findings support that eating disorders involving binge-eating comprise a significant health concern among Latinos. In contrast, AN or subthreshold AN was very uncommon in this population. Direct comparisons with other epidemiological samples are not possible because they would require adjusting for known demographic correlates such as age. Yet, we note that the lifetime prevalence rates of BN, BED, and any binge-eating observed in our sample were within the range of prevalence estimates reported in the literature for non-Hispanic white samples.²⁷ The relative under representation of individuals

with AN may be due to cultural differences in the presentation of eating disorder symptoms with Latinos being more inclined to exhibit binge-eating than restricting.¹¹ The standard eating disorder criteria may not be appropriate for understanding psychological morbidity of restricting eating disorders for Latinos, particularly less acculturated Latinos. Future work should evaluate how to establish criteria for disturbed eating patterns that capture the illness experience of Latinos. Cognitive debriefing with recent immigrant Latinos after administering the anorexia and bulimia screening probes could be used to expand the repertoire of behaviors or reactions indicative of eating disorder problems.

Our results suggest areas of category fallacy,²⁸ where nosological criteria developed for Western populations do not effectively map as illness expressions for Latinos. For example, in lifetime AN, although there were 102 cases with lower than normal weight to height ratio, only six cases reported being afraid of gaining weight (Criteria B) and only eight endorsed at least one positive response to questions assessing body dissatisfaction or recognition by an outsider of low weight as a negative outcome (included under Criteria C). For BN, requiring that binge-eating and inappropriate compensatory behaviors both occur at least twice a week for several months (Criterion C) dramatically reduces the pool of possible cases. The cognitive complexity of these questions or the absence of these compensatory behaviors might minimize the detection of eating disorder problems in Latinos. Nonetheless, binge-eating does appear to flag potential areas for eating disorder interventions for our Latino respondents.

In contrast to findings of the prevalence of AN and BN in the national US population,²⁰ gender differences for Latinos were not statistically significant, possibly because of the small number of AN or BN cases. Consistent with previous studies, we observed some support for the risk effect of acculturation for Latinos. Specifically, we found that foreign nativity is associated with decreased risk for binge-eating and that those who spent more than 70% of their lifetime in the US reported the highest rate of lifetime BN. Preoccupation with slimness might be increasingly adopted as Latinos integrate US conceptions of beauty, losing their defense against eating disorders^{10,29} and less time spent in the US (perhaps especially during the developmental period of highest risk for developing an eating disorder, adolescence) likely means less exposure or cultural adaptation to US norms and expectations.¹⁰

Our cohort differences, showing that those aged 30 and older are significantly less likely to have BN and any binge-eating, might indicate a growing trend toward increasing patterns of unhealthy weight control behaviors and overeating behaviors in the younger Latino cohorts. Obesity, a serious and growing problem for Latino populations,³⁰ might trigger disordered eating behaviors in efforts to control weight. Given that those with severe obesity were 4–6 times as likely to report an eating disorder compared to those with a BMI between 18.5 and 30, screening and intervention efforts should be targeted for severely obese Latinos.

Our study also shows the importance of educational attainment on the presence of binge-eating disorders in Latinos, with higher rates for those with a college degree or lower as compared to those with graduate education. Latinos with graduate education might have more health literacy to understand the risks of maladaptive eating habits and may use adaptive coping skills (e.g., exercise) to deal with weight gain.

Our findings parallel the impact of eating disorders in role impairment found in other studies,²⁰ with half or more (49.3–75.9%) reporting at least some role impairment in at least one role domain. This again demonstrates the importance of early attention and prevention for eating disorders. However, our data also indicate that currently few Latinos with eating disorder symptoms have ever received any treatment and only a fraction got any healthcare in the past year. This is consistent with previous research indicating that Latinos underutilize mental health services,³¹ particularly those who have resided in the US for a short period of time.^{31,32}

Several limitations are evident, including the unstable prevalence estimates and the small sample sizes, which raise concern about adequate power to detect meaningful differences in this sample. Diagnoses were also based on unvalidated, fully structured lay interviews where lifetime prevalence was assessed retrospectively.²⁰ Recall bias may have affected retrospective assessments of lifetime prevalence and cohort effects because recall of earlier experiences may diminish with age. Longitudinal studies would be useful to track prevalence estimates or possible cohort effects over time and to test risk factor hypotheses. Despite these limitations, our study provides the first nationally representative prevalence estimates of eating disorders among the US Latino population. Our findings further dispel the myth that eating disorders and unhealthy weight control behaviors only affect white, upper class women.¹¹ Rather, our results

indicate that Latinos suffer from elevated rates of any binge-eating and binge-eating disorders, with the risk of these disorders possibly increasing over time as Latinos undergo cultural adaptations to US norms and expectations. While this is one possibility, it should be replicated with longitudinal data, given the relationship is based on cross sectional data.³³ Perhaps most importantly, these findings further support research indicating that the presentation of eating disorder symptoms may differ among racial/ethnic minority groups, particularly among Latinos.³⁰ Further research is needed to establish whether certain diagnostic criteria might need to be excluded for immigrants and less acculturated Latinos such as being afraid of gaining weight, body dissatisfaction, or recognition by an outsider of low weight as a negative outcome. Concepts of time and simultaneity of eating disorder symptoms may need to be dropped or simplified for some ethnic groups to better map to their illness experience. Identifying alternative probes for unhealthy weight control behaviors and overeating behaviors that could supplement the AN and BN probes are recommended. However, the levels of impairment reported by those with eating disorders coupled with the low levels of service use suggest serious consequences for Latinos suffering from these disorders, which can no longer be overlooked or remain undetected.

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