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Night Eating in Obese Treatment-Seeking Hispanic Patients With and Without Binge Eating Disorder

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Abstract

Objective—To examine the frequency of night eating (NE) and its relation to binge eating disorder (BED), eating-disorder psychopathology, depression, and metabolic variables in obese treatment-seeking obese Hispanic men and women.

Method—A consecutive series of 79 obese monolingual Spanish-speaking-only Hispanic patients with BED (N=40) and without BED (N=39) were reliably assessed by bilingual research-clinicians using Spanish-language versions of semi-structured interviews and measures.

Results—Overall, 38% (N=30) of the 79 patients reported regular NE (4 days/month). NE and BED were significantly associated; 70% (21/30) of NE versus 18% (9/49) of non-NE had BED. Patients with NE reported greater frequency of binge-eating and higher levels of eating-disorder psychopathology and depression than non-NE patients; group differences in eating disorder psychopathology and depression levels persisted after controlling for BED status. The NE and non-NE groups did not differ significantly in BMI or metabolic variables.

Discussion—In obese treatment-seeking Hispanic patients, NE and BED were significantly associated and NE was associated with heightened eating-disorder psychopathology and depression even after controlling for BED status.

Keywords

Obesity; Binge Eating; Nocturnal Eating; Night Eating Syndrome; Hispanic/Latino

Night eating (NE) and night eating syndrome (NES) are prevalent problems among obese persons, with estimates ranging from 8% to 27% (1). Although NE is a key behavioral component of the proposed night eating syndrome (NES) (2), research has focused on NE not only as a core symptom of this syndrome, but also as a distinct disordered eating pattern which may contribute to obesity (3,4) and other health problems. NE is common among patients with binge eating disorder (BED) (3) although a controlled comparison revealed that BED and NES groups differed from each other and overweight controls on a number of eating, behavioral, and psychological features (4).

Findings from the few available studies of NE among patients with BED are mixed with respect to the nature of its associations with body mass index (BMI), eating-disorder psychopathology, and depression (3,5,6). Grilo and Masheb (2004), in a study of 207 obese

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men and women with BED, found that NE patients (defined as those with NE at least once during the previous 28 days) comprised 28% of patients with BED. Patients with NE had higher BMI than non-NE patients, but did not differ with respect to eating-disorder psychopathology, behavioral variables or depression levels (3). Striegel-Moore and colleagues (5), in a series of female patients at an HMO with recurrent binge-eating (defined as 1 episode per week in the past 3 months), found that NE (defined as at least once during the previous 28 days) comprised 14.3% of patients and was associated with higher rates of eating-disorder psychopathology, depressive symptoms, and functional impairment and lower self-esteem (5). Importantly, Striegel-Moore and colleagues (5) found that the differences between NE and non-NE patients persisted even after controlling for binge-eating status, suggesting that the elevated eating-disorder features and psychosocial difficulties in the NE patients is not simply a function of binge-eating. Calugi and colleagues (6), in a study of class II–III obese patients, reported no differences between those with NE versus without NE on BMI, scores on the Binge Eating Scale, or frequency of the metabolic syndrome. However, NE was significantly associated with higher depression levels, even after adjusting for gender and BMI (6). Collectively, the literature suggests that NE is a common and potentially important eating behavior among obese persons, although findings regarding its clinical significance and associations with BED are mixed, perhaps reflecting partly the diverse assessment methods and composition of recruited study groups. This highlights the need for further investigation of NE and its correlates, particularly in diverse obese patient groups that include subgroups rigorously assessed for the presence of BED using established diagnostic interviews.

Another important gap in our knowledge about disordered eating patterns such as NE and BED is that most available research has ascertained predominantly Caucasian participants and those findings may not generalize to other racial/ethnic groups. In particular, Hispanics, which represent the largest and fastest growing minority group in the United States, have higher rates of obesity (7) and comparable rates of binge-eating (8,9) as Caucasians, yet have been vastly underrepresented in research studies on disordered eating. This may partly reflect significant barriers for some Hispanic persons to participate in research, including the inability to speak English, limited access to health care, and stigma associated with mental health (10). The present study represents, to our knowledge, the first investigation of the significance of NE – including its association with BED – in obese treatment-seeking Hispanic patients.

Methods

Participants and Procedure

Participants were a consecutive series of 79 obese monolingual (Spanish-speaking-only) Hispanic patients (64 female, 15 male) participating in a treatment study designed to test behavioral weight loss (BWL) and anti-obesity medication interventions for obese patients with versus without BED. Participants were recruited from clinical providers and referrals at a community mental health center serving economically disadvantaged persons with mental health and substance use concerns. The treatment study was designed as an effectiveness trial and therefore few exclusionary criteria were applied. Study procedures were approved by the Institutional Review Board at the Yale University School of Medicine and all participants provided written informed consent in Spanish.

Participants were ages 21–65 years (*mean age* = 46.32±9.68 years) with BMI of 30 or greater (*mean* = 37.57±6.62 kg/m²). Study participants represented diverse countries of origin, including Puerto Rico and multiple countries in Central and South America. The patient group reported modest educational achievement, with only 50% indicating that they received education beyond junior high school.

Assessment Protocol

Fully-bilingual research-clinicians, trained and monitored by the study investigators, administered a battery of Spanish-language versions of established semi-structured interviews and self-report measures. Given the limited educational attainment of this study group, self-report questionnaires were read to participants in an effort to increase validity. Unlike the semi-structured interviews which entailed clinician judgments about ratings, interviewers did not make clinical judgments but relied instead of patients' responses to self-report measures.

Participants were categorized as either BED or non-binge-eating obese (NBO) based on findings from the Spanish-language versions of the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders Axis I Psychiatric Disorders (11) and the Eating Disorder Examination Interview (EDE) (12), and any additional relevant data from the clinical intake evaluation and available medical records, following the "best-estimate" LEAD (longitudinal expert all data) standard.

Weight and Height—Participants' weight and height were measured during their initial intake appointment using a calibrated medical balance beam scale and used to calculate BMI.

BED, Night Eating, and Eating-Disorder Psychopathology—Binge-eating and associated eating-disorder features were assessed using the Spanish-language version of the EDE (S-EDE; 13). The S-EDE assesses the frequency of binge-eating (objective bulimic episodes (OBEs), eating-disorder psychopathology (reflected in a total global score and four scales – restraint, eating-concern, weight-concern, and shape-concern), and various other eating behaviors, including NE. On the EDE, NE is defined as "nocturnal eating (eating after the subject has been to sleep)" and participants are asked to estimate (using a calendar recall method) the number of days in past four weeks that they experienced these episodes (0–28) and this score is also converted to a 0–6 rating scale. The EDE has been widely used with obese patient groups and the S-EDE has demonstrated good inter-rater and test-retest reliability in Hispanic groups (13).

Depression Levels—The Spanish-language version of the Beck Depression Inventory (S-BDI), a 21-item self-report questionnaire (14), was administered to assess depression level. Cronbach's alpha for this measure in the present study was 0.91.

Metabolic Values—Participants provided a fasting blood sample; total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, and fasting glucose were assessed.

Results

Of the 79 patients, 30 (37.9%; 25 women and 5 men) reported regular NE (defined as NE episodes on at least 4 or more of the past 28 days). With respect to frequency of NE in past 28 days, 11 patients (13.9%) reported NE on 1–5 days, 9 patients (11.4%) reported NE on 6–12 days, 6 patients (7.6%) reported NE on 13–15 days, and 4 patients (5.1%) reported NE on 16–22 days. A subset of 7 patients (8.9%) reported NE episodes on all 28 days of the past month. NE and BED were significantly associated: 70% (21/30) of NE versus 18% (9/49) of non-NE met criteria for BED [$\chi^2(1) = 7.26, p = 0.007$]. Conversely, 53% (21/40) of the BED group had NE versus 23% (9/39) of the NBO group had NE. In addition, the frequency of NE and binge-eating were significantly associated ($r = 0.459, p < .001$).

Table 1 summarizes findings for NE versus non-NE groups and analyses of variance (ANOVA) testing for group differences. Patients with NE versus non-NE did not differ significantly with respect to age, gender, age at first overweight, current BMI, or highest lifetime weight. Consistent with the categorical findings noted above, patients with NE reported significantly greater frequency of binge-eating in the past month than non-NE patients. Patients with NE also reported significantly higher levels of eating disorder psychopathology (eating-, weight-, and shape-concern scales and S-EDE global severity score) and higher depression levels (S-BDI) than non-NE patients. The two groups did not differ significantly with respect to any of the metabolic variables (i.e., lipid profile and glucose level). In addition, *within* the BED subgroup, NE was not associated significantly with any metabolic variables (all $ps > 0.05$). *Within* the NBO subgroup, NE was also not associated with metabolic variables except for triglycerides ($r = 0.36$, $p = 0.025$).

Given the significant association between NE and BED, a series of ANCOVAs (with BED status as a covariate) were performed comparing NE and non-NE patients to examine whether the two groups differed after adjusting for BED status. As summarized in Table 1, ANCOVAs revealed that, even after controlling for BED status, NE patients had significantly higher S-EDE global severity and eating-concern scores and higher depression scores than non-NE patients.

Discussion

This study examined the significance of NE in obese treatment-seeking persons of Hispanic origin with versus without BED. Overall, NE (defined as episodes on at least 4 of the past 28 days) was reported by 38% of the obese patients, and NE and BED were significantly associated (70% of NE had BED). Patients with NE had significantly higher eating-disorder psychopathology and depression levels than those without NE and, like Striegel-Moore et al. (5), the group differences remained significant even after controlling for BED status, suggesting they are not simply a function of BED. In contrast, NE was not significantly associated with obesity variables (age at first overweight, current BMI, or highest lifetime weight) or with selected metabolic variables (lipid profile and glucose levels).

Our study findings suggest that NE is quite common among obese Hispanics seeking treatment for obesity. Our observed rate of 38% of total patients reporting NE (53% of patients with BED and 23% of NBO patients) is higher than frequency estimates of two previous studies of treatment-seeking binge-eaters, despite that fact that we used a stricter definition for NE (i.e., episodes on 4 of past 28 days). Specifically, previous studies by Grilo and Masheb (3) and Striegel-Moore and colleagues (5) both defined NE as episodes on 1 of previous 28 days and reported frequency rates of 28.0% and 14.4% among patients with BED and recurrent binge-eating, respectively. Our observed rate of 38% is also significantly higher than the 10% reported by Calugi and colleagues (6) in their study of patients with moderate to severe obesity, although that study pertained to full NES criteria.

The NE and non-NE groups did not differ with respect to BMI, replicating two previous reports (5,6) but contrasting with Grilo and Masheb (3) who reported higher BMI among BED patients with NE patterns. The NE and non-NE groups did not differ significantly on metabolic variables, which is consistent with the finding by Calugi et al. (5) that NES was not associated with elevated metabolic abnormalities. Collectively, these findings suggest that NE among obese patients may not increase or heighten risk for increased BMI or metabolic problems.

Although NE may not be associated with higher BMI or greater metabolic disturbances, there is mounting evidence that patients with NE experience greater psychological

maladjustment. Consistent with previous investigations, we found that patients with NE report greater eating-disorder psychopathology and depression levels even after controlling for BED status. These findings suggest the importance for clinicians to assess for NE as part of their assessment of eating patterns when working with obese patients and patients with BED since it may signal greater disturbances. Little is known, however, about the prognostic significance of NE; a recent study reported that the presence of NES did not negatively impact weight loss among patients receiving a behavioral lifestyle treatment (15).

We note several potential limitations and strengths as context for our findings. The cross-sectional design precludes any speculation regarding directional relationships. Our study group was comprised of treatment-seeking monolingual Spanish-speaking-only patients who presented to a community mental health center and may differ from non-treatment-seekers, bilingual Hispanic persons who differ in their degree of acculturation, or to other groups that differ in ethnic, racial, or gender composition. Our study group was also quite economically and educationally disadvantaged and these factors are known correlates of both obesity and disordered eating in Hispanic groups. For example, Alegria and colleagues (8) found that after controlling for age, sex, and sub-ethnicity, Latinos with lower levels of education were significantly more likely to have binge eating problems than those with higher levels of education. Finally, the current study examined the frequency and significance of NE behaviors, but did not assess for NES. In terms of relative strengths, we note the consecutive sampling of a relevant obese clinical treatment-seeking group and reliance on rigorous and well-established interview-based assessment methods. The inclusion of obese patients both with and without BED is particularly significant, as it allowed for testing the significance of NE distinct from the effects of binge eating. Our study also represents an important contribution towards beginning to fill the gap in the literature of different forms of disordered eating in Hispanic persons. Further research is warranted into the correlates of disordered eating behaviors and obesity among Hispanic groups in order to inform the development of tailored interventions.

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Table 1

Descriptive findings for participants with and without Nocturnal Eating (NE)

Measure	NE (N=30)		No NE (N=49)		ANOVA		ANCOVA*	
	M	SD	M	SD	F	p	F	p
Age	48.73	6.87	45.10	11.12	2.59	0.112		
Age first overweight	28.29	13.55	27.26	14.51	0.09	0.770		
Current BMI	37.84	5.23	36.84	5.42	0.66	0.419		
Highest Weight	219.83	46.38	213.12	51.60	0.33	0.566		
<i>Eating-disorder psychopathology</i>								
OBE days/month	8.97	8.60	3.96	6.46	8.57	0.005		
OBE episodes/month	10.03	10.48	4.21	7.11	8.56	0.005		
Dietary restraint	1.59	1.37	1.16	1.02	2.55	0.114	2.99	0.088
Eating concern	1.85	1.50	0.88	1.12	10.79	0.002	4.85	0.031
Shape concern	3.96	1.28	3.22	1.53	4.94	0.029	2.40	0.125
Weight concern	3.44	0.90	2.86	1.08	6.13	0.015	3.50	0.065
S-EDE global score	2.71	0.98	2.03	0.89	10.03	0.002	5.74	0.019
<i>Depression Levels</i>								
S-BDI	26.07	12.05	18.77	11.07	7.43	0.008	4.85	0.031
<i>Metabolic Variables</i>								
Total Cholesterol	181.52	36.66	174.56	36.83	0.65	0.424		
LDL Cholesterol	105.24	35.62	98.33	33.62	0.73	0.396		
HDL Cholesterol	43.28	11.14	45.90	10.37	1.09	0.300		
Triglycerides	164.52	88.29	150.15	68.46	0.64	0.427		
Fasting Glucose	118.14	41.41	111.11	46.47	0.44	0.508		

NB: S-EDE = Spanish - Eating Disorder Examination; OBE = Objective bulimic episodes; S-BDI = Spanish - Beck Depression Inventory

* ANCOVAs performed to test for group differences controlling for binge eating disorder status.