Characterization of Binge-Eating Behavior in Individuals With Binge-Eating Disorder in an Adult Population in the United States

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ABSTRACT

Objective: Characterize the frequency, duration, and severity of binge-eating behaviors in adults meeting *DSM-5* criteria for binge-eating disorder (BED) in a large US community sample.

Methods: A representative sample of US adults from the National Health and Wellness Survey was recruited from an online panel and asked to respond to an Internet survey (conducted in October 2013) that included questions designed to assess binge-eating behaviors in relation to *DSM-5* BED diagnostic criteria.

Results: Of 22,397 respondents, 344 self-reported meeting *DSM-5* BED criteria (BED respondents). Most BED respondents reported that binge-eating episodes had occurred for the past 7–12 months (61.0%), and 93.6% reported ≥ 2–3 binge-eating episodes/wk. All BED respondents reported that "extreme" (52.6%) or "great" (47.4%) distress levels were associated with binge-eating episodes. Among BED respondents who agreed to provide detailed binge-eating behavior data after being invited to respond to additional survey questions, 40.6% reported binge eating on average > 1 time/d, and 59.2% reported binge eating 2–3 times/d. For 44.5% of BED respondents, binge-eating duration was 31–60 minutes. BED respondents reported that they "very often" (36.6%) or "often" (34.0%) had urges to binge eat between 7–10 PM. "Feeling disgusted with oneself, depressed, or guilty afterward" was the most bothersome symptom of binge eating for BED respondents (extremely bothersome: 41.9%).

Conclusions: Binge-eating frequency among BED respondents averaged once daily. Most BED respondents exhibited binge-eating behavior for 7–12 months, often with severe symptoms. These findings highlight the disease burden of BED and have potential implications for diagnosing and treating BED.

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Although binge-eating disorder (BED) symptomatology was documented in 1959[1] and clinically validated in the early 1990s,[2–4] BED was not formally recognized as a distinct eating disorder until the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*) was released in 2013.[5] According to *DSM-5* criteria,[5] BED is characterized by recurrent binge-eating episodes that are associated with a feeling of lack of control over eating and marked distress. At least 3 of the following indicators of impaired control must occur in BED: eating until uncomfortably full, eating a large amount of food when not physically hungry, eating more rapidly than usual, eating alone because of embarrassment, and feelings of disgust, guilt, or depression after binge eating. For a *DSM-5* diagnosis, binge-eating episodes must occur at least once a week for a minimum of 3 months,[5] which contrasts with the *DSM-IV-TR* criterion of ≥ 2 times per week for ≥ 6 months.[6] The *DSM-IV-TR* frequency criterion was chosen to set a high diagnostic threshold in the absence of empirical support for less stringent criteria.[7] However, data now support less stringent *DSM-5* criteria.[8] Binge-eating episodes in BED must not be associated with recurrent inappropriate compensatory behaviors and must not occur exclusively during the course of bulimia nervosa or anorexia nervosa.[5] The *DSM-5* also describes symptom severity criteria on the basis of the number of weekly binge-eating episodes (mild: 1–3, moderate: 4–7, severe: 8–13, extreme: >14), but severity can be adjusted on the basis of other symptoms and the level of functional disability.[5]

Two large-scale epidemiologic studies[9,10] assessed BED prevalence on the basis of *DSM-IV-TR* criteria and estimated the 12-month and lifetime prevalence of BED to range from 0.8% to 1.2% and 1.9% to 2.8%, respectively. Given the less stringent *DSM-5* diagnostic binge-eating frequency criteria, individuals not meeting *DSM-IV-TR* criteria may meet *DSM-5* criteria.[11] Supporting this concept, the Validate Attitudes and Lifestyle Issues in Depression, ADHD and Troubles with Eating (VALIDATE) Internet survey[12] reported 12-month and lifetime prevalence estimates of BED to be 1.64% and 2.03%, respectively, on the basis of *DSM-5* criteria and 1.15% and 1.52%, respectively, on the basis of *DSM-IV-TR* criteria in a large, representative sample of US adults.

A fairly large body of research, which extends over more than 2 decades, has described the binge-eating characteristics of individuals meeting *DSM* diagnostic criteria for BED. Obese individuals meeting *DSM-IV-TR* BED criteria consume more calories than obese individuals without BED when asked to binge eat.[13–16] Obese individuals with BED also eat for a longer duration of time when asked to binge eat,[14] report more episodes of overeating and days of overeating,[17] and consume more evening meals than obese individuals without BED.[17] Individuals meeting *DSM-IV-TR* BED criteria are also 3.6 times more likely to experience postmeal loss of control, after controlling for affective state and caloric intake, than individuals without BED.[18] Of the 5 indicators of impaired control included in the diagnostic criteria for BED, eating large amounts of food when not hungry and eating alone because of embarrassment are the best predictors of a BED diagnosis.[19] Furthermore, individuals meeting all of the *DSM-IV-TR*

Clinical Points

- Binge-eating disorder (BED) is now formally recognized as a distinct eating disorder in the *DSM-5*, but limited information is available regarding the binge-eating characteristics of individuals who meet *DSM-5* BED diagnostic criteria.
- The findings of this study indicate that binge-eating episodes in most respondents who met *DSM-5* diagnostic criteria for BED occurred at least 2–3 times each week, had occurred over the past 7–12 months, and were associated with high levels of distress.
- The characteristics of binge-eating episodes, along with the bothersomeness of BED symptoms, underscore the disease burden of BED and have potential implications for diagnosing and treating BED in the clinical setting.

criteria for BED except the marked distress criterion exhibited decreased levels of eating disorder pathology and depressive symptoms compared with individuals meeting all *DSM-IV-TR* BED criteria.[20]

Although the binge-eating characteristics of individuals meeting *DSM-IV-TR* diagnostic criteria for BED are described in the published literature, less is known about the binge-eating characteristics of individuals meeting *DSM-5* BED diagnostic criteria. The VALIDATE study[12] collected detailed information on binge-eating behaviors in individuals who self-reported meeting *DSM-5* diagnostic criteria for BED to provide insight into this issue. Here, the binge-eating characteristics in adults who self-reported meeting *DSM-5* BED criteria from the large US community sample of the VALIDATE study are described.

METHODS

Sample and Procedures

Detailed information on the VALIDATE sample and procedures have been described.[12] In brief, from respondents to the 2012 and 2013 National Health and Wellness Survey (NHWS; n = 71,157 from January–December 2012 and n = 75,000 from January–September 2013), a total of 69,972 respondents were contacted to participate in the VALIDATE survey. A stratified random-sample framework ensured representation across sex, age, and ethnicity strata. The demographic profile of NHWS respondents has been shown to approximate the Current Population Survey of the US Census Bureau.[21,22] The VALIDATE survey was conducted over the Internet and completed between October 9 and 29, 2013. The survey included questions assessing *DSM-5* and *DSM-IV-TR* diagnostic criteria for BED, demographics, general health, self-esteem, diagnosed psychiatric disorders, and binge-eating behavior characteristics.

Measures

As previously reported,[12] survey respondents provided self-report information related to demographic and socioeconomic status, psychiatric comorbidities, and psychological features. Respondents were also asked if they had received diagnoses of psychiatric and medical conditions. Responses to questions related to *DSM-5* or *DSM-IV-TR* BED symptom criteria were used to determine whether respondents could be considered to meet diagnostic criteria for BED. Consistent with *DSM* criteria,[5,6] respondents self-reporting bulimia nervosa or anorexia nervosa diagnoses were not assigned a BED diagnosis. Data relating to BED prevalence and associated comorbidities in this sample have been described.[12]

All survey respondents were asked questions related to the frequency of binge-eating symptoms in relation to *DSM-5* diagnostic criteria. A subset of respondents (BED module respondents) also answered questions that provided detailed information on the frequency, severity, and duration of binge-eating symptoms; the age at first binge-eating experience; the lifetime duration of binge eating; the bothersomeness of binge-eating features (1 = not at all bothersome to 5 = extremely bothersome); the timing of daily binge eating and urges to binge eat (1 = never to 4 = very often) across multiple daily periods (morning [8 AM–12 PM], early afternoon [12 PM–4 PM], late afternoon [4 PM–7 PM], evening [7 PM–10 PM], night [after 10 PM]); and whether binge eating was planned in advance.

Data Presentation

On the basis of initial survey responses, respondents were categorized as (1) BED respondents (those who self-reported meeting all *DSM-5* diagnostic criteria for BED in the past 12 months), (2) binge-eating respondents (those who self-reported eating large amounts of food [criterion A1] and feelings of loss of control [criterion A2] in the past 12 months but who did not meet the other diagnostic criteria [criteria B–E]), (3) BED subthreshold respondents (those who self-reported meeting all *DSM-5* BED diagnostic criteria in the past 12 months, except for the frequency and duration criterion [criterion D]), and (4) non-BED respondents (those who may or may not have self-reported eating large amounts of food [criterion A1]; if they did, a feeling of loss of control during the time when they ate the large amount of food [criterion A2] was not reported).

All data are reported with descriptive statistics. Categorical variables were analyzed with χ^2 tests or 2-sided tests of equality for proportions. Continuous variables were analyzed with *t* tests with Bonferroni corrections.

RESULTS

Respondent Disposition and Demographics

A total of 22,397 respondents completed the survey within 3 weeks of being invited to participate. Among all respondents, 344 were categorized as BED respondents; 1,245 as binge-eating respondents; 371 as BED subthreshold respondents; and 20,437 as non-BED respondents. A total of 1,075 respondents (309 BED respondents, 381 binge-eating respondents, 318 BED subthreshold respondents, and 67 non-BED respondents) agreed to provide detailed

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Table 1. Demographics (all survey respondents) and Characteristics of Self-Reported Binge Eating (BED module respondents)[a]

Variable	Non-BED Respondents (n = 20,437)	Binge-Eating Respondents (n = 1,245)	BED Subthreshold Respondents (n = 371)	BED Respondents (n = 344)
Age, mean ± SD, y[b]	51.59 ± 15.80*	47.05 ± 15.65	43.88 ± 14.66	46.01 ± 14.32†
Sex, n (%)[§]				
Male	9,469 (46.3)*	552 (44.3)*	92 (24.8)†	102 (29.7)†
Female	10,968 (53.7)*	693 (55.7)*	279 (75.2)†	242 (70.3)†
BMI, mean ± SD (kg/m^2)[b]	27.96 ± 6.68*	30.84 ± 8.13	31.92 ± 8.98	33.71 ± 9.36†
BMI category, n (%)				
< 18	256 (1.3)*	10 (0.8)*	3 (0.8)*	3 (0.9)*
18–24	6,844 (33.5)*	278 (22.3)†	75 (20.2)†	47 (13.7)‡
25–29	6,582 (32.2)*	345 (27.7)†	92 (24.8)†	86 (25.0)†
30–34	3,423 (16.7)*	271 (21.8)†	80 (21.6)†	72 (21.2)†
≥ 35	2,607 (12.8)*	300 (24.1)†	110 (29.6)‡	126 (36.6)[§]
Declined to answer	724 (3.5)*	41 (3.3)*	11 (3.0)*	9 (2.6)*
Income range, US $				
< 25,000	3,405 (16.7)*	222 (17.8)*	65 (17.5)*	72 (20.9)*
25,000 to < 50,000	5,423 (26.5)*	319 (25.6)*	116 (31.3)*	96 (27.9)*
50,000 to < 75,000	4,418 (21.6)*	266 (21.4)*	73 (19.7)*	79 (23.0)*
≥ 75,000	5,814 (28.4)*	375 (30.1)*	100 (27.0)*	87 (25.3)*
Declined to answer	1,377 (6.7)*	63 (5.1)*,†	17 (4.6)*,†	10 (2.9)†
Psychiatric comorbidities, n (%)[b]				
Anxiety (lifetime diagnosis)	3,098 (15.2)*	370 (29.7)†	150 (40.4)*,†	149 (43.3)†
ADHD (past 6 mo)	1,400 (6.9)*	282 (22.7)†	118 (31.8)‡	142 (41.3)‡
Age at first symptoms, mean ± SD, y (n)	19.88 ± 9.94 (67)*	28.21 ± 15.05 (376)	29.89 ± 15.55 (315)	28.12 ± 15.02 (308)†
Duration of symptoms, mean ± SD, y (n)	23.18 ± 12.89 (67)*	14.85 ± 13.15 (376)	16.63 ± 13.82 (315)	16.88 ± 14.77 (308)†
Binge eat on average > 1 time/d, n (%)	8 (11.9)*	111 (29.8)†	75 (23.8)*,†	125 (40.6)‡
Binges/d in those reporting > 1 binge/d, mean ± SD (n)	2.43 ± 0.98 (8)	2.52 ± 1.18 (111)	2.32 ± 0.88 (75)	2.58 ± 1.02 (125)
Highest number of binges/wk experienced, mean ± SD (n)	8.07 ± 8.56 (67)*	4.68 ± 5.26 (373)†	4.54 ± 3.95 (315)†	6.62 ± 5.51 (308)*
Do not plan binges in advance, n (%)	58 (86.6)*,†	275 (74.1)*	269 (85.4)†	241 (78.5)*,†

[a]Values in the same row *not* sharing the same symbol (*,†,‡,§) are significantly different ($P < .001$ for mean age and BMI, $P < .001$ for age at first symptoms, $P = .001$ for duration of symptoms, $P < .05$ for all others); cells with no symbol were not included in the statistical analyses.
[b]Data for non-BED respondents and BED respondents previously reported.[12]
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, BED = binge-eating disorder, BMI = body mass index.

information regarding binge-eating behaviors from the BED-specific module.

The BED (70.3% [242/344]) and BED subthreshold (75.2% [279/371]) respondent groups had significantly higher (all $P < .05$) percentages of women than the non-BED (53.7% [10,968/20,437]) and binge-eating (55.7% [693/1,245]) respondent groups (all $P < .05$, Table 1). BED respondents were significantly younger than non-BED respondents (mean ± SD = 46.01 ± 14.32 vs 51.59 ± 15.80 years, $P < .001$) and had a significantly higher body mass index than non-BED respondents (mean ± SD = 33.71 ± 9.36 vs 27.96 ± 6.68 kg/m^2, $P < .001$). Income distribution did not significantly differ across respondent groups (Table 1).

BED Symptom Frequency and Duration

All BED respondents, binge-eating respondents, and BED subthreshold respondents reported consuming amounts of food that were definitely larger than most people would eat and feeling loss of control over eating. None of the non-BED respondents reported loss of control over eating; only 15.7% reported consuming amounts of food that were definitely larger than most people would eat (Table 2). Significantly higher percentages of BED and BED subthreshold respondents reported eating more rapidly than usual, eating until uncomfortably full, eating when not hungry, eating alone because of embarrassment, and feelings of disgust than binge-eating respondents (all $P < .05$, Table 2). A significantly higher percentage of BED respondents reported extreme distress in association with binge eating than did BED subthreshold or binge-eating respondents (both $P < .05$, Table 2).

Significantly higher percentages of BED respondents reported that the duration of binge eating was between 3 and 4, 5 and 6, and 7 and 12 months than did BED subthreshold or binge-eating respondents (all $P < .05$, Table 2), with the majority of BED respondents reporting a duration of 7 to 12 months. A significantly higher percentage of BED subthreshold respondents reported that the duration of binge-eating episodes was between 1 and 2 months, and significantly lower percentages of BED subthreshold respondents reported that the duration of binge-eating episodes was between 7 and 12 and ≥ 3 consecutive months compared with binge-eating respondents (all $P < .05$).

Significantly higher percentages of BED respondents reported frequencies of binge eating between 2 and 3, 4 and 5, and 6 and 7 days per week than did binge-eating respondents and frequencies of binge eating between 4 and 5 and 6 and 7 days per week than did BED subthreshold respondents (all $P < .05$, Table 2). A significantly lower percentage of BED subthreshold respondents reported a frequency of binge eating of < 1 day per week, and a significantly higher percentage reported a frequency between 2 and 3 days per week compared with binge-eating respondents (both $P < .05$, Table 2).

Table 2. Frequency of the *DSM-5* Binge-Eating Disorder (BED) Criteria (all survey respondents)[a]

BED Criteria[b]	Non-BED Respondents (n = 20,437)	Binge-Eating Respondents (n = 1,245)	BED Subthreshold Respondents (n = 371)	BED Respondents (n = 344)
Consume large amounts of food (A1), n (%)	3,206 (15.7)*	1,245 (100.0)	371 (100.0)	344 (100.0)
Feeling of loss of control (A2), n (%)	0	1,245 (100.0)	371 (100.0)	344 (100.0)
Binge-eating characteristics, n (%)				
Eating more rapidly than usual (B1)	0	451 (36.2)*	250 (67.4)†	239 (69.5)†
Eating until uncomfortably full (B2)	0	782 (62.8)*	336 (90.6)†	321 (93.3)†
Eating when not hungry (B3)	0	623 (50.0)*	332 (89.5)†	314 (91.3)†
Eating when alone (B4)	0	357 (28.7)*	216 (58.2)†	230 (66.9)†
Feeling disgusted (B5)	0	690 (55.4)*	359 (96.8)†	329 (95.6)†
Marked distress (C), n (%)				
Not at all	0	164 (13.2)*	0	0
Slightly	0	390 (31.3)*	0	0
Moderately	0	535 (43.0)*	0	0
Greatly	0	88 (7.1)*	228 (61.5)†	163 (47.4)‡
Extremely	0	68 (5.5)*	143 (38.5)†	181 (52.6)‡
Frequency of binge-eating days (D), n (%)				
< 1 d/wk	0	507 (40.7)*	100 (27.0)†	0
1 d/wk	0	286 (23.0)*	89 (24.0)*	22 (6.4)†
2–3 d/wk	0	316 (25.4)*	154 (41.5)†	155 (45.1)†
4–5 d/wk	0	80 (6.4)*	20 (5.4)*	93 (27.0)†
6–7 d/wk	0	56 (4.5)*	8 (2.2)*	74 (21.5)†
Duration of binge-eating episodes (D), n (%)				
< 1 mo	0	599 (48.1)*	173 (46.6)*	0
1–2 mo	0	229 (18.4)*	122 (32.9)†	0
3–4 mo	0	150 (12.0)*	32 (8.6)*	76 (22.1)†
5–6 mo	0	64 (5.1)*	11 (3.0)*	58 (16.9)†
7–12 mo	0	203 (16.3)*	33 (8.9)†	210 (61.0)‡
≥ 3 consecutive mo	0	285 (22.9)*	12 (3.2)†	344 (100.0)

[a] Values in the same row *not* sharing the same symbol (*,†,‡) are significantly different ($P < .05$); cells with no symbol were not included in the statistical analyses.
[b] Parenthetical letter designations (A1–2, B1–5, C, D) indicate the corresponding *DSM-5* BED criterion.

BED Symptom Severity

Across all symptoms, significantly higher percentages of BED respondents reported severe symptoms and significantly lower percentages reported mild symptoms than did BED subthreshold or binge-eating respondents (all $P < .05$, Figure 1). Significantly higher percentages of BED subthreshold respondents reported that symptoms of eating large amounts of food in 2 hours and loss of control during the binge-eating episode were moderate or severe than did binge-eating respondents (both $P < .05$, Figure 1). In addition, significantly higher percentages of BED subthreshold respondents than binge-eating respondents reported that symptoms of eating until uncomfortably full, eating when not physically hungry, and feeling disgusted with oneself, depressed, or guilty afterward were severe (all $P < .05$, Figure 1).

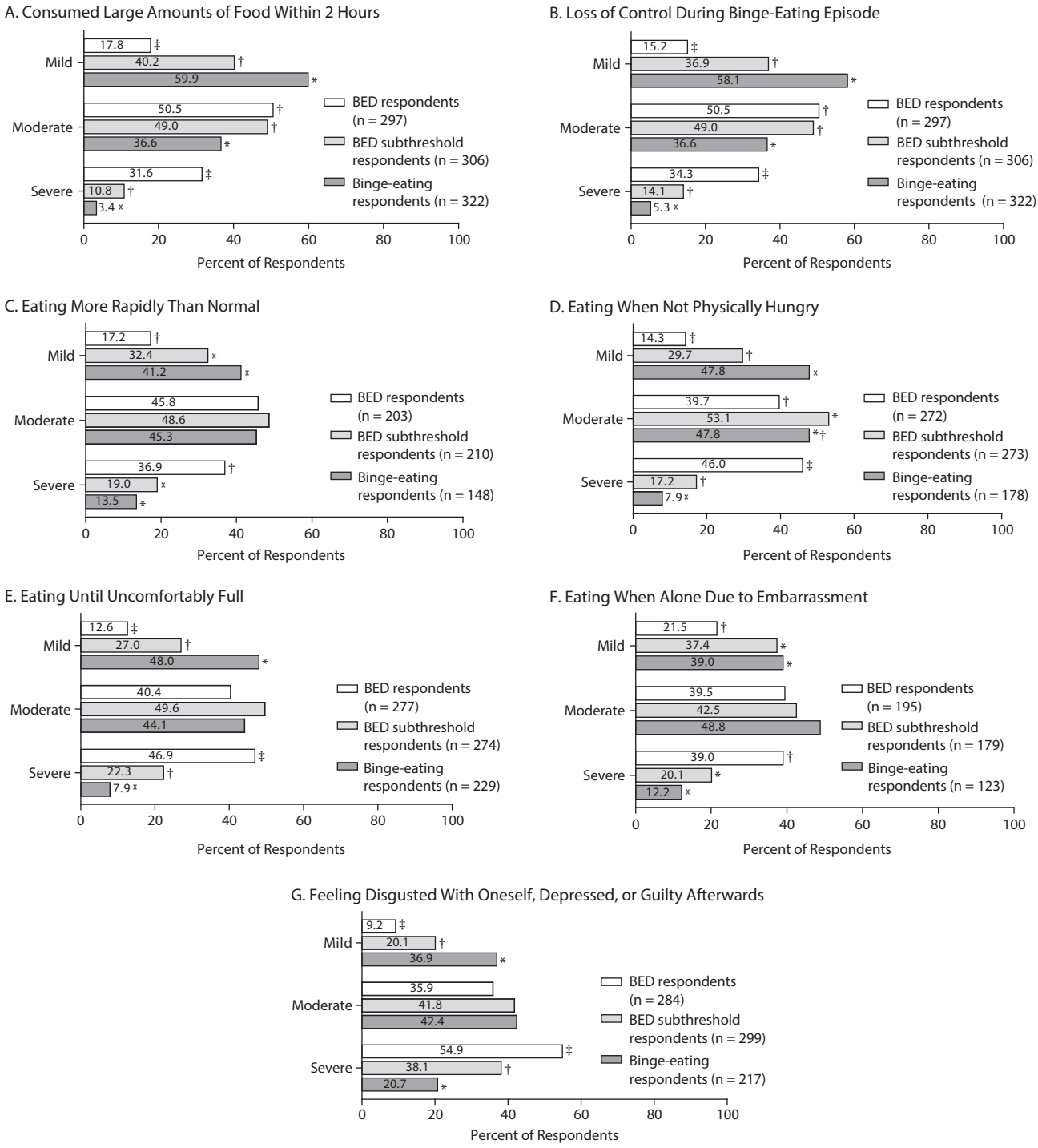
Binge-Eating Characterization in BED Module Respondents

Compared with non-BED respondents, BED respondents were significantly older when symptoms were first experienced ($P < .001$), and the length of time symptoms were experienced was significantly shorter ($P = .001$, Table 1). A greater percentage of BED respondents reported binge eating on average > 1 time per day than did all other respondent groups (all $P < .05$, Table 1). Greater percentages of BED subthreshold respondents reported binge eating on average > 1 time per day than did non-BED respondents. Respondent groups did not differ statistically in regard to the mean ± SD number of binges per day among those self-reporting > 1 binge day per week. The highest mean ± SD number of binges ever experienced in 1 week was significantly larger in BED respondents ($P < .05$) than in BED subthreshold or binge-eating respondents but not in non-BED respondents (Table 1). Most respondents reported that binges were not planned in advance (Table 1).

Among respondents who experienced > 1 binge per day, the highest percentage of respondents in each group reported binge eating 2 to 3 times per day (Figure 2A); there were no significant differences among respondent groups. Except for non-BED respondents, the highest percentage of respondents in each group reported that they binge ate on average 31 to 60 or 61 to 90 minutes each day (Figure 2B). Significantly greater percentages of BED, binge-eating, and BED subthreshold respondents reported that they binge ate on average for 31 to 60 minutes than did non-BED respondents (all $P < .05$, Figure 2B). BED respondents were least likely to report that the most binges per week ranged from 0 to 2 and most likely to report that most binges per week ranged from 5 to ≥ 10 (Figure 2C). Significantly lower percentages of BED, BED subthreshold, and binge-eating respondents reported that the most binges per week was 0 compared with non-BED respondents (all $P < .05$, Figure 2C).

A majority of BED respondents reported the urge to binge eat (very often: 36.6% [126/344], often: 34.0% [117/344]) and actual binge eating (very often: 32.3% [111/344], often: 32.3% [111/344]) between 7 PM and 10 PM (Figures 3A and 3B). Across the entire day, BED respondents rated the urge to

Figure 1. Severity of Binge-Eating Symptoms (BED module respondents)[a]

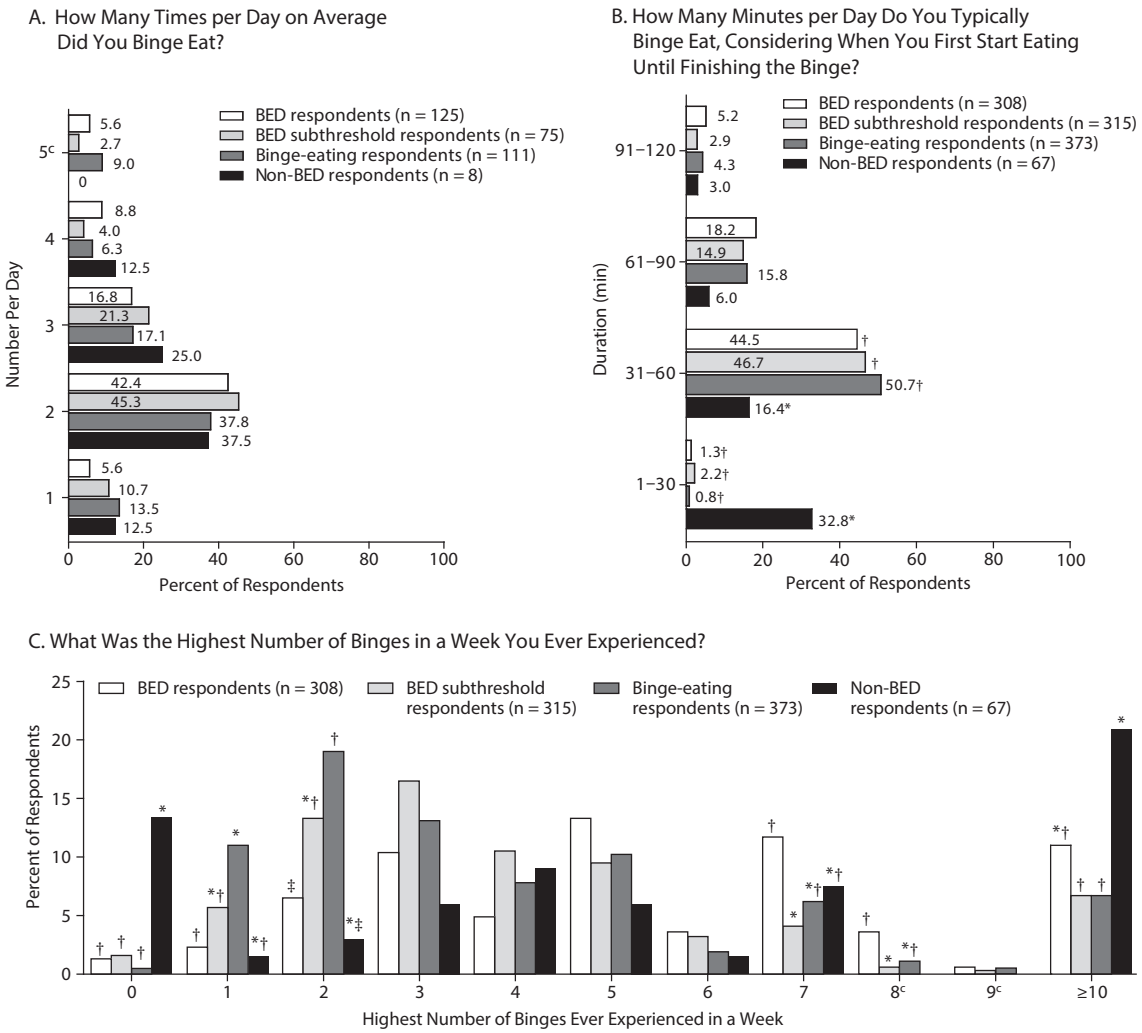


[a]Within a category, different symbols (*,†,‡) indicate significant differences ($P < .05$) between respondent groups with different symbol designations.

binge eat and actual binge eating as higher than non-BED respondents (Figure 3C and 3D, all $P \leq .003$).

BED respondents reported that the most bothersome symptoms of BED ("very" or "extremely" bothersome, Figure 4A) included feeling disgusted after binge eating, eating until uncomfortably full, and loss of control over eating. With the exception of eating more rapidly than normal, women were more likely than men to rate symptoms as extremely bothersome; the overall ranking of bothersomeness across symptoms did not differ between sexes (Figure 4B). BED respondents rated all symptoms as significantly more bothersome than did BED subthreshold or binge-eating respondents (Figure 4C, all $P < .05$), with ratings of "very bothersome" or "extremely bothersome"

Figure 2. Characterization of Binge Episodes (BED module respondents)[a,b]



[a]Within a category, different symbols (*,†,‡) indicate significant differences ($P < .05$) between groups with different symbol designations.
[b]Figures do not include response of "not sure"; there were no significant differences between groups in the frequency of reporting "not sure."
[c]Non-BED respondents not included in the statistical analysis because percentage of 0 was reported.

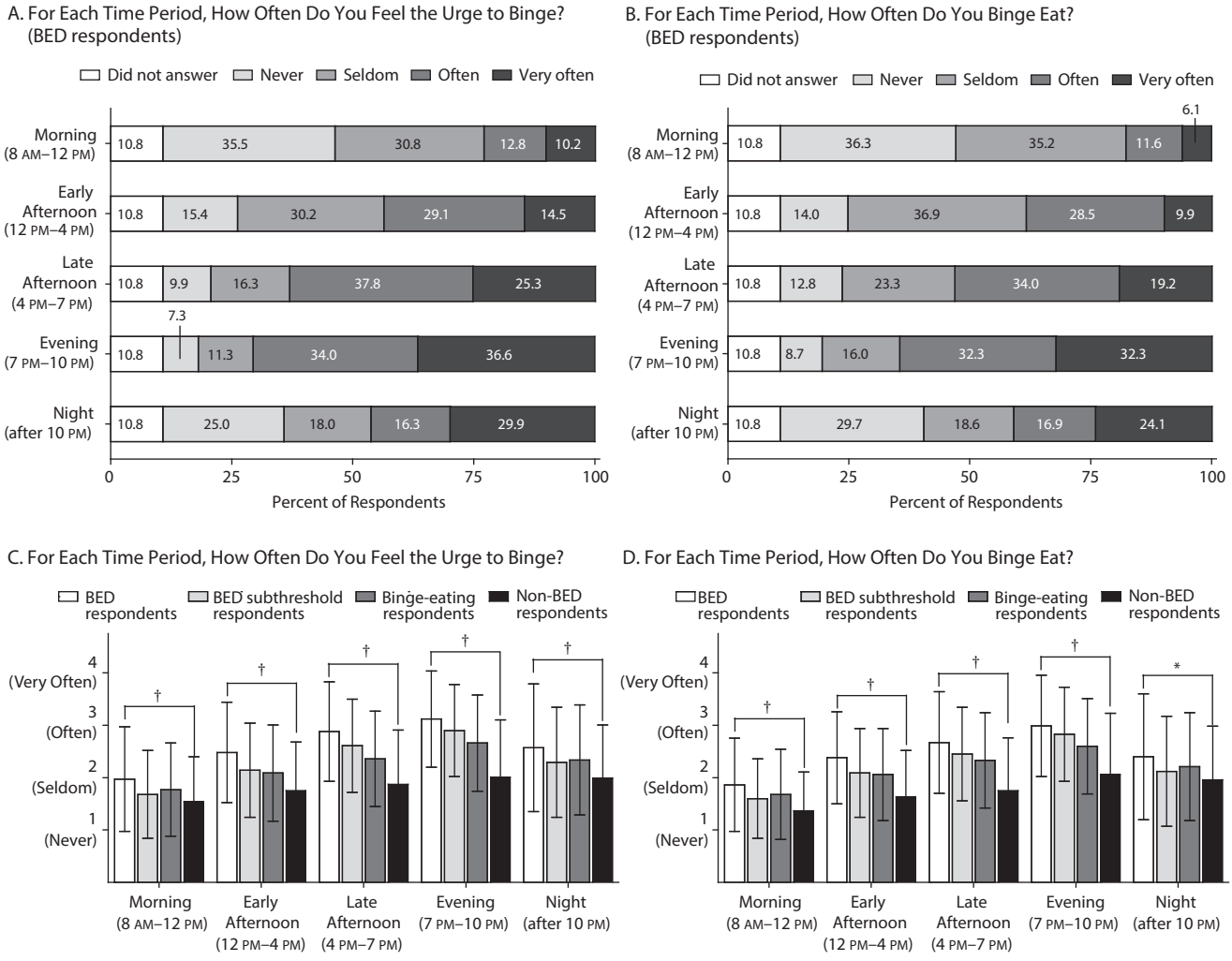
in BED respondents ranging from 36.6% to 66.3% across symptoms. BED subthreshold respondents rated all symptoms as significantly more bothersome than binge-eating respondents (Figure 4C, all $P < .05$).

DISCUSSION

To our knowledge, this is the first epidemiology survey to characterize binge-eating behavior in a representative population of US adults who self-report meeting *DSM-5* diagnostic criteria for BED. Among most BED respondents, binge eating had occurred for the past 7 to 12 months at a rate of ≥2 to 3 binges per week; the duration of binge eating was most often between 31 and 60 minutes. The most common time for the urge to binge and actual binge eating to occur was between 7 PM and 10 PM in BED respondents, with binge eating rarely being planned in advance. BED symptoms reported as most bothersome by BED respondents included feeling disgusted after binge eating, eating until uncomfortably full, and loss of control over eating, with women generally rating BED symptoms as more bothersome than men. These data underscore the burden of binge-eating disorder in this population.

This is also the first study, to our knowledge, comparing the binge-eating behavior and disease burden in individuals meeting *DSM-5* diagnostic criteria for BED, individuals who are subthreshold for BED, and non-BED individuals. These data indicate that individuals who self-report meeting *DSM-5* BED diagnostic criteria differ on numerous binge-eating dimensions from those who do not self-report meeting full *DSM-5* criteria. These differences offer further support for the *DSM-5* BED diagnostic criteria. Notably, BED respondents were more likely to report that binge eating had been occurring for ≥3 months, binge eating occurred between 4 and 7 days per week, and BED symptoms were severe and more bothersome than

Figure 3. Daily Timing of Urges to Binge Eat and Actual Binge Eating (BED module respondents)[a]



[a]Significant differences (*$P = .003$, †$P < .001$) between groups identified with brackets; only non-BED and BED respondents were included in the statistical analysis.

BED subthreshold and binge-eating respondents. The highest number of binges per week ever experienced by BED respondents was also greater than that reported for BED subthreshold and binge-eating respondents.

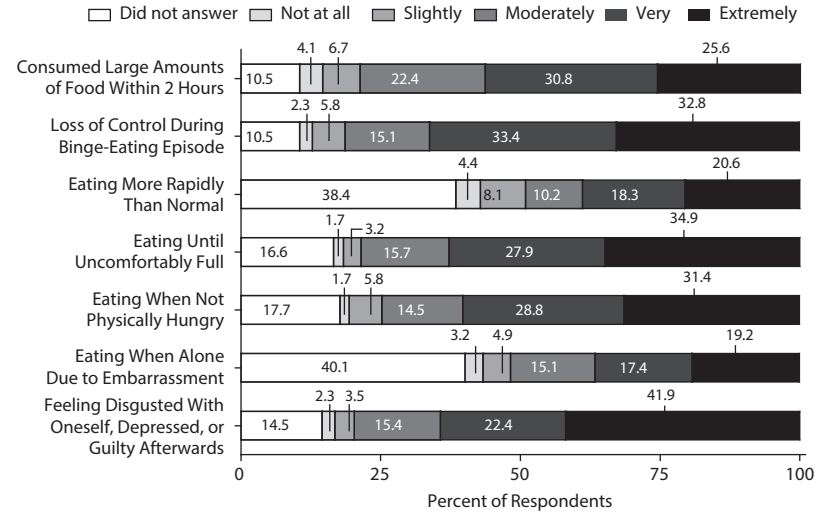
BED subthreshold and binge-eating respondents differed not only from non-BED respondents, but also from each other. BED subthreshold respondents (those who self-reported meeting all *DSM-5* BED criteria except for the frequency and duration criterion) and binge-eating respondents (those who self-reported binge-eating episodes with a feeling of loss of control but did not meet the full *DSM-5* criteria) exhibited differing profiles of symptom severity, bothersomeness, and distress associated with binge eating. These differing profiles not only support the importance of the marked distress criterion for BED, but also indicate that there are quantitative differences in binge-eating behaviors among individuals who self-report meeting different BED symptom profiles.

The lack of planning associated with binge eating in BED respondents highlights the impulsive and compulsive nature of binge-eating behavior. This finding is consistent with the published literature,[23–31] which reports that individuals with BED exhibit more impulsive and compulsive behavior than obese individuals not diagnosed with BED. Studies[23–31] report that individuals with BED exhibit increased impulsivity on the Barratt Impulsiveness Scale and UPPS Impulsive Behavior Scale and impaired set-shifting reflective of perseverative and compulsive behaviors compared with non-BED obese individuals and normal-weight individuals.

Although non-BED respondents were least likely to consume large amounts of food and more likely to report shorter binge-eating episode durations, they self-reported the earliest age at first symptoms, the longest symptom duration, and the most binges ever experienced during a week. The reasons for these discrepancies are unclear. However, they may be related to respondent perceptions of what constitutes a binge. Some individuals may eat a small or moderate amount of food and perceive it as large. Evidence of such a perceptual difference in regard to binge eating has

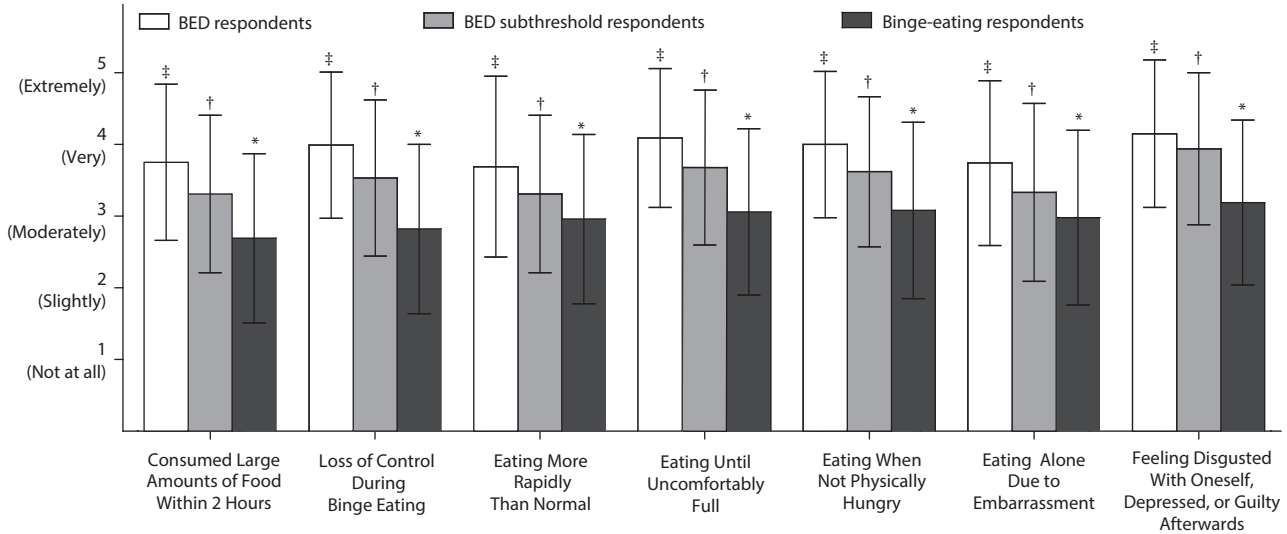
Figure 4. Bothersomeness of Binge-Eating Characteristics (BED module respondents)[a]

A. Bothersomeness of Symptoms (BED respondents)



B. Bothersomeness of Symptoms by Sex (BED respondents)

C. Bothersomeness of Symptoms



[a]Within a category, different symbols (*,†,‡) indicate significant differences ($P < .05$) between groups with different symbol designations.

been reported[32] and emphasizes the need to clearly define what constitutes a binge. If true, comparisons between the non-BED and other respondent groups regarding binge-eating characteristics should be considered cautiously.

The key strengths of this study are that it used *DSM-5* diagnostic criteria for BED and consisted of a large, representative US adult population with respect to age, sex, and race/ethnicity. However, the data are based on self-report and are from an Internet-based survey, so their generalizability may be limited.

In conclusion, these data indicate that binge-eating frequency varied in BED respondents but on average occurred more than 2 or 3 days per week and had been occurring for 7 to 12 months. In BED respondents, binge-eating symptoms were often severe. Further, there were distinctions between BED respondents and respondents who did not meet all BED diagnostic criteria. BED respondents reported that symptoms were more severe and more bothersome. These data highlight the disease burden in individuals with BED and have potential implications for diagnosing and treating BED in the clinical setting.

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