

Supplemental Table. Operationalization of criteria for *DSM-5* eating disorders and related entities in the AUDADIS-5 in the NESARC-III.

DSM-5 Criteria	Item number	The AUDADIS-5 questions and operationalization in our study
<i>Current BMI</i>		Weight (in pounds) / Height (inches) ² x 703
Current weight & height	NFEET, NINCHES, & NPOUNDS	Please tell me your height (feet & inches) and weight in pounds as these are important factors for this survey.
<i>Anorexia Nervosa</i>		
Lowest weight	N17Q1 N17CK171 ¹ (question for the interviewer)	What has been your LOWEST weight in pounds since you Weight reached your current height, not counting times when you were ill? Is lowest weight in N17Q1 less than 85% of that expected (refer to norms for men and women)? If “NO”, skip to the next section with “Eating and Overeating.” <u>Operationalization in our study</u> <ul style="list-style-type: none"> • Lowest BMI calculated based on the current height • Cut-off for significantly low weight: <u>BMI < 18.5</u>² (lowest BMI for lifetime and additionally current BMI for 12-months diagnosis)
A. Restriction of energy intake relative to requirements leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. Significantly low weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected.	N17Q4A ³	When your weight was (weight in 1), did you restrict the amount of food you ate in order not to gain any weight even though other people thought you should? <ul style="list-style-type: none"> • Respond “YES”
B. Intense fear of gaining weight or becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight.	N17Q5	During that time when your weight was (N17Q1), were you afraid of gaining weight or getting fat? <ul style="list-style-type: none"> • Respond “YES”
C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.	N17Q6A N17Q6B	When your weight was (weight in N17Q1), ... Did you think that you looked fat? Did you think your weight or body shape was one of the most important things about you?

	N17Q6C N17Q6D N17Q6E	<p>Did you think that your weight might have been unhealthy?</p> <p>Did you believe other people who thought your weight was unhealthy?</p> <p>Were you constantly weighing yourself or taking measurements of various parts of your body?</p> <ul style="list-style-type: none"> Report positive response to one of the response. Positive response is defined as “YES” for N17Q6A, N17Q6B, & N17Q6E, and “NO” for N17Q6C & N17Q6D.⁴
Age of onset	N17Q9	About how old were you when you FIRST weighed less than (85% of expected weight) and had SOME of the other experiences you mentioned at the same time?
Age at the most recent episode	N17Q12R	About how old were you the MOST RECENT time when you weighed less than (85% of expected weight) and you also had SOME of these other experiences?
Duration of the most recent episode	N17Q14R	<p>How long did (this/your) MOST RECENT time last when you weighed less than (85% of expected weight) (in weeks)?</p> <p><u>Our operationalization of “12-months” diagnosis⁵</u></p> <ul style="list-style-type: none"> Difference between age of onset and current age is 1 year or less. Difference between current age and age at the most recent episode plus duration of the most recent episode is 1 year or less. If we cannot calculate one of these variables, it was treated as no 12-months diagnosis
Associated impairments	N17Q8A N17Q8B N17Q8C	<p>Now, I’d like to ask you about some other things that might have happened to you during that time when you weighed (weight in N17Q1) and you had some of the other experiences we just talked about. During that time did your low weight...</p> <p>Make you very upset?</p> <p>Interfere with your normal daily activities?</p> <p>Cause any serious problems getting along with other people – like arguing with your friends, family, people at work or anyone else?</p> <p>Cause any serious problems doing the things you were supposed to do – like working,</p>

	N17Q8D	doing your schoolwork, or taking care of your home or family?
<i>Recurrent Binge-Eating</i>		
A. Eating in a discrete amount of time (e.g., within a 2 hour period) an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.	N18Q1	Have you EVER eaten an UNUSUALLY LARGE AMOUNT of food within any 2-hour period, not including the holidays? That is, eating more food than most people would eat during a 2-hour period under similar circumstances? • Respond “YES”
B. Sense of lack of control over eating during an episode.	N18Q3a	During ANY time like this when you ate an UNUSUALLY LARGE AMOUNT of food, did you feel that you couldn’t stop eating or control how much or what you were eating? • Respond “YES”
C. Binge eating occurs, on average, at least once a week for 3 months	N18Q2	Was there EVER a time when you ate an UNUSUALLY LARGE AMOUNT of food on average at least once a week for at least 3 months? • Respond “YES”
<i>Bulimia Nervosa</i>		
A. Report recurrent binge eating		See above section
B. Recurrent inappropriate compensatory behavior in order to prevent weight gain such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise	N18Q4A	During ANY of those times when you were eating an UNUSUALLY LARGE AMOUNT of food, did you try to keep from gaining weight by vomiting, using enemas, laxatives, diuretics or other medicines, or by fasting, that is having no solid food, or exercising a lot? • Respond “YES”
C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least once a week for 3 months	N18Q5	Did you EVER eat an UNUSUALLY LARGE AMOUNT of food within a 2-hour period AND do SOME of the other things we talked about to keep from gaining weight on average at least once a week for at least 3 months? • Respond “YES”
D. Self-evaluation is unduly influenced by body shape and weight	N18Q3B	During ANY time like this when you ate an UNUSUALLY LARGE AMOUNT of food, did you feel that your weight or body shape was one of the most important things about you
	N18Q6	When you were eating an UNUSUALLY LARGE AMOUNT of food AND doing

		<p>some of the things we talked about to keep from gaining weight around the same time, was your weight or body shape the most important thing about you?</p> <ul style="list-style-type: none"> Respond “YES” to <u>one</u> of the questions
E. The disturbance does not occur exclusively during episodes of anorexia nervosa.		***This question was not considered in this study as in many epidemiological studies with lifetime and 12-months-estimate, accurately determining whether one disorder overlap with another is not possible.
Age of onset	N18Q8A	About how old were you the FIRST time you BEGAN to eat LARGE AMOUNTS of food (AND do some things to keep from gaining weight) on average at least once a week for at least 3 months?
Age at the most recent episode	N18Q10R	How old were you the MOST RECENT time you BEGAN to eat LARGE AMOUNTS of food (AND do some things to keep from gaining weight)?
Duration of the most recent episode	N18Q12AR	<p>How long did (this/your) MOST RECENT time last when you ate LARGE AMOUNTS of food (AND did OR some things to keep from gaining weight)?</p> <p><u>Our operationalization of “12-months” diagnosis³</u></p> <ul style="list-style-type: none"> Difference between age of onset and current age is 1 year or less. Difference between current age and age at the most recent episode plus duration of the most recent episode is 1 year or less. If we cannot calculate one of these variables, it was treated as no 12-months diagnosis
Associated impairments	<p>N18Q7A</p> <p>N18Q7B</p> <p>N18Q7C</p>	<p>Now I’d like to ask you about some other things that might have happened to you when you were eating an UNUSUALLY LARGE AMOUNT of food (AND doing some of the things we talked about to keep from gaining weight around the same time). During ANY of these times, did eating LARGE AMOUNTS of food (AND doing some of the things we talked about to keep from gaining weight) . . .</p> <p>Make you very upset?</p> <p>Interfere with your normal daily activities?</p> <p>Cause any serious problems getting along with other people – like arguing with your friends, family, people at work or anyone else?</p> <p>Cause any serious problems doing the things you were supposed to do – like working,</p>

	N18Q7D	doing your schoolwork, or taking care of your home or family?
<i>Binge-Eating Disorder</i>		
A. Report recurrent binge-eating		See above section
B. Episodes associated with three or more of the following: 1. Eating much more rapidly than usual 2. Eating until feeling uncomfortably full 3. Eating large amounts of food when no feeling physically hungry 4. Eating alone because of being embarrassed by how much one is eating 5. Feeling disgusted with oneself, depressed, or very guilty after overeating	N18Q3C N18Q3D N18Q3E N18Q3F N18Q3G	During ANY time like this when you ate an UNUSUALLY LARGE AMOUNT of food, did you . . . Find that you ate much more quickly than usual? Find that you ate until you felt uncomfortably full? Eat an UNUSUALLY LARGE AMOUNT of food even though you weren't hungry? Eat alone because you might be embarrassed by how much you were eating? Feel disgusted with yourself, depressed or very guilty about eating so much? <ul style="list-style-type: none"> Respond "YES" to <u>three</u> out of the five questions
C. Marked distress regarding binge-eating is present	N18Q27A ⁶	During ANY of those times when you ate an UNUSUALLY LARGE AMOUNT of food did this make you upset? <ul style="list-style-type: none"> Respond "YES"
D. Binge-eating is not associated with regular use of inappropriate compensatory behaviors (e.g., laxative use, purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia or bulimia nervosa	N18Q26	Were there EVER ANY OTHER times lasting at least 3 months when you ate LARGE AMOUNTS of food at least once a week WITHOUT doing any of the things you mentioned to keep from gaining weight? <ul style="list-style-type: none"> Respond "YES" or missing response⁷
Age of onset	N18Q28B	About how old were you the FIRST time you BEGAN to eat LARGE AMOUNTS of food on average at least once a week for at least 3 months?
Age at the most recent episode	N18Q31R	How old were you the MOST RECENT time you BEGAN to eat LARGE AMOUNTS of food?
Duration of the most recent episode	N18Q33AR	How long did (this/your) MOST RECENT time last when you ate LARGE AMOUNTS of food (in months)? <u>Our operationalization of "12-months" diagnosis³</u> <ul style="list-style-type: none"> Difference between age of onset and current age is 1 year or less.

		<ul style="list-style-type: none"> • Difference between current age and age at the most recent episode plus duration of the most recent episode is 1 year or less. • If we cannot calculate one of these variables, it was treated as no 12-months diagnosis
Associated impairments	<p>N18Q27A</p> <p>N18Q27B</p> <p>N18Q27C</p> <p>N18Q27D</p>	<p>Now I'd like to ask you about some other things that might have happened to you when you were eating an UNUSUALLY LARGE AMOUNT of food. During ANY of these times, did eating LARGE AMOUNTS of food . . .</p> <p>Make you very upset?</p> <p>Interfere with your normal daily activities?</p> <p>Cause any serious problems getting along with other people – like arguing with your friends, family, people at work or anyone else?</p> <p>Cause any serious problems doing the things you were supposed to do – like working, doing your schoolwork, or taking care of your home or family?</p>

Notes:

This Supplemental Table lists the DSM-5 criteria for each of the three EDs considered here (AN, BN, and BED) and how the criteria were operationalized and scored using relevant questions in the AUDADIS-5 used in the NESARC-III. This information and summary is based on public domain information from the NESARC-III and was included and described in our previous papers (1, 2).

¹ The answer to this question was not included in the NESARC-III database. This is likely because the “lower than 85% weight” criterion is no longer used for AN in the *DSM-5*.

² We selected BMI < 18.5 as a cut-off as it is a widely used convention for “normal” BMI.

³ There was also an additional question, “Did you restrict the amount of food that you ate in order to lose weight BEFORE you weighed (weight in N17Q1)?” (N17Q4B). We did *not* use this variable to categorize AN due to potential ambiguities (for example, a person might have lost weight due to a medical reason and then started to restrict once they achieved low weight). Clinically and diagnostically, we interpret the AN criterion A to capture or focus on restriction of food intake during the time of low weight.

⁴ N17Q6C & N17Q6D required reverse coding to reflect AN pathology.

⁵ NESARC-III included a question about whether the onset of EDs was in the past 12 months or whether the most recent episode began to occur in the past 12 months. We note that this variable alone cannot not indicate whether an individual had ED in the past 12 months as the most recent episode could begin to occur prior to the past 12 months and he/she still was experiencing the symptoms at the time of interview. We therefore took the categorization approach described above.

⁶ For one individual, we used N18Q7A instead of N18Q27A. This case responded “YES” to N18Q7A but “NO” to N18Q27A, but did not meet criteria for BN.

⁷ Our close inspection of the data indicated that close to 90% of individuals who were categorized as having lifetime BED either by the NESARC-III or by our coding are missing this variable. Of those with this response coded, 25 answered “NO” or “UNKNOWN”. These individuals were also missing information such as age of onset, the most recent episode, and associated impairment (because a “NO” or “UNKNOWN” response led to skipping the rest of BED-related questions). Although these individuals reported positive responses to all other BED criteria, we chose to take a conservative approach, and therefore did *not* categorize these individuals as meeting BED criteria, resulting in $N = 318$ (see Udo & Grilo, 2018, for sensitivity analyses).

*** Link to the actual survey question: <https://www.niaaa.nih.gov/research/nesarc-iii/questionnaire> (Sections 17 & 18 are related with EDs).

Supplemental References

1. Udo T, Grilo CM. Prevalence and correlates of DSM-5-Defined eating disorders in a nationally representative sample of U.S. Adults. *Biol Psychiatry*. 2018.
2. Udo T, Grilo CM. Psychiatric and medical correlates of DSM-5 eating disorders in a nationally representative sample of adults in the United States, *Int J Eat Disord*. 2018; 52(1): 42-50.