

Anorexia Nervosa (AN)

Portfolio Replica

(To be used as a working draft until materials are ready to be moved to Web or Wikipedia)

Demographic Information

This section describes the demographic settings of the populations sampled, base rates of Anorexia Nervosa diagnoses, country/region sampled, and the diagnostic methods that were used. Using this information, clinicians will be able to anchor the most appropriate rate of Anorexia Nervosa that they are likely to see in their clinical practice.

Setting	Reference	Base Rate (Female)	Base Rate (Male)	Sample	Diagnostic Method
United States & Canada					
Non-clinical; National Comorbidity Survey (NCS-R)	Hudson et al., 2007	.9% (lifetime)	.3% (lifetime)	US adults	WHO-CIDI ₁
Non-clinical; National Comorbidity Survey (NCS-R)	Swanson, Crow, Le Grange, Swendson, & Merikangas, 2011	.3% (lifetime)	.3% (lifetime)	US adolescents	WHO-CIDI ₁
Non-clinical; National Latino and Asian American Study (NLAAS)	Alegria et al., 2007	.12% (lifetime)	.03% (lifetime)	US Latino adults	WHO-CIDI ₁
Non-clinical; African Americans and Caribbean Blacks in the US (NSAL)	Taylor, Caldwell, Baser, Faison, & Jackson, 2007	.14% (lifetime), .00% (12 months)	.2% (lifetime), .15% (12 months)	US African American and Caribbean Black adults & adolescents	WHO-CIDI ₁
Non-clinical; Military	Antczak & Brininger, 2008	.25%	.01%	US Army, Air Force, Navy, & Marines	ICD-9 ₂
Non-clinical; Military	Beekley et al., 2009	.02% (7 years)	0.0% (7 years)	US Military Academy cadets	EAT-26 ₃
Non-clinical; Military	McNulty, 1997	1.1% (current & past)	--	US Navy female nurses	DSM-III-R ₄
Non-clinical; Military	McNulty & Fisher, 2001	1.1%	--	Active duty females in US Army, Navy, Air Force, & Marines	EDI-2 ₅
Non-clinical; Military	Striegel et al., 2008	.04%	.005%	US veterans	ICD-9-CM ₂
Non-clinical; Military	McNulty & Fisher, 1997	--	2.5%	Active duty males in US Navy	N/A
Clinical;	Schuckit et al.,	1.41%	.00%	US alcohol-dependent	SSAGA ₆

Collaborative Study on the Genetics of Alcoholism (COGA)	1996	(lifetime)	(lifetime)	adults from San Diego, St. Lois, Iowa City, Farmington, New York, & Indianapolis	
Non-clinical; student-athletes	Johnson et al., 1999	.00%	.00%	US Division I varsity student-athletes	EDI-2 ₅
Non-clinical; healthcare members	Striegel-Moore et al., 2008	.0269% (current)	--	Members of a large US healthcare organization in Portland, Oregon	Healthcare provider records
Non-clinical; high school students	Lewinsohn et al., 1993	.00% (point), .45% (lifetime)	.00% (point), .00% (lifetime)	US high school students in west central Oregon	DSM-III-R ₄
Non-clinical; Commonwealth of Virginia Mid-Atlantic Twin Registry (MATR)	Walters & Kendler, 2002	1.62% (narrow), 3.70% (broad)	--	US Caucasian female same-sex twins	SCID ₁₆
Non-clinical; Adolescents	Stice et al., 2013	.8% (lifetime)	--	US female adolescents	EDDI ₇
Non-clinical; college students	Mulholland & Mintz, 2001	.00%	.00%	US African American college females	Q-EDD ₈
Clinical; substance users	Ross et al., 1988	.4% (lifetime), .3% (current)	.4% (lifetime), .3% (current)	Canadian treatment-seeking substance users	DIS ₉
Europe					
Non-clinical; adolescents	Lahortiga et al., 2005	.3%	--	Adolescent females residing in Navarra, Spain	EAT-40 ₃
Non-clinical; adolescents	Kjelsås et al., 2004	.7% (lifetime)	.2% (lifetime)	Adolescents in secondary schools in Sør-Trøndelag, County in Norway	SEDs ₁₀
Non-clinical; adolescents	Isomaa et al., 2009	.7% (point; age 15), 1.8% (lifetime, age 15), .00% (point, age 18), 2.6% (lifetime, age 18), .9% (3 years)	.00% (point & lifetime)	Adolescents in a comprehensive school in Ostrobothnia district in Finland	RAB-T ₁₁ & RAB-R ₁₂
Australia					
Non-clinical; adolescents	Patton et al., 2003	.00% (full), 1.8% (partial)	--	Adolescent females residing in Victoria, Australia	BET ₁₃
Non-clinical; Health Omnibus Survey (HOS)	Hay et al., 2015	.46% (3 months; combined)	.46% (3 months; combined)	South Australian older adolescents and adults	EDE ₁₄
Central & South America					
Non-clinical; college students	Mancilla-Diaz et al., (2007)	.00%	--	Mexican first & second year college females	EAT-40 ₃

East Asia					
Clinical; eating disorder patients	Nadaoka et al., 1996	.53%	--	Adolescent and adult Japanese patients at a university hospital	DSM-III-R ₄
Non-clinical; Korean Epidemiologic Catchment Area (KECA) Study	Je Cho et al., (2007)	.1% (lifetime), .1% (12 months)	.2% (lifetime), .00% (12 months)	Korean adults	K-CIDI ₁₅ 2.1
Non-clinical; National Latino and Asian American Study (NLAAS)	Nicdao et al., 2007	.12% (lifetime), .00% (12 months)	.05% (lifetime), .05% (12 months)	Asian American adults in US households	WHO-CIDI ₁

Search terms: [Anorexia Nervosa OR anorexia OR eating disorder OR disordered eating] AND [prevalence OR base rate OR epidemiology] in Google Scholar

- ¹World Health Organization Composite International Diagnostic Interview
- ²International Statistical Classification of Diseases and Related Health Problems
- ³Eating Attitudes Test
- ⁴Diagnostic and Statistical Manual of Mental Disorders
- ⁵Eating Disorder Inventory
- ⁶Semi-Structured Assessment for the Genetics of Alcoholism
- ⁷Eating Disorders Diagnostic Interview
- ⁸Questionnaire for Eating Disorder Diagnoses
- ⁹National Institute of Mental Health Diagnostic Interview Schedule
- ¹⁰Modified Survey for Eating Disorders
- ¹¹Interview Rating of Anorexia and Bulimia - Teenager Version
- ¹²Interview Rating of Anorexia and Bulimia - Revised Version
- ¹³Branched Eating Disorders Test
- ¹⁴Eating Disorder Examination
- ¹⁵Korean Version of Composite International Diagnostic Interview
- ¹⁶Structured Clinical Interview for DSM Disorders

Diagnosis

Recommended Screening Measures

- Structured Clinical Interview for DSM Diagnoses Anorexia Nervosa module (SCID): See Appendix A
- Eating Disorder Examination (EDE): See Appendix B
- Eating Disorder Examination Questionnaire (EDE-Q): See Appendix C
- Eating Attitudes Test (EAT-26): See Appendix D
- Eating Disorder Inventory (EDI-2): See Appendix E
- Eating Disorder Inventory (EDI-3): See Appendix F

Diagnostic Criteria

Diagnostic efficiency information for all included measures is based on criteria from the DSM-IV or earlier. As of the compilation of this portfolio, diagnostic efficiency information for these measures based on DSM-5 criteria is unavailable. Once sufficient time for implementation of the DSM-5 has passed, measures should be re-evaluated for efficiency with new data. The Feeding and Eating Disorders section of the DSM has undergone

notable revision with the shift from DSM-IV to DSM-5, with a primary goal of reducing the large number of Eating Disorder Not Otherwise Specified (EDNOS) diagnoses due to many individuals not fully meeting criteria for Anorexia Nervosa or Bulimia Nervosa as delineated by the DSM-IV. Base rates of Feeding and Eating Disorders are likely to shift once DSM-5 criteria have been fully incorporated into clinical practice and research.

Anorexia Nervosa diagnostic criteria have changed as follows:

- The requirement for amenorrhea was eliminated in the DSM-5.
- Criterion A (low body weight) wording was edited for clarification.
- Criterion B (fear of weight gain) expanded to include both expressed fear of weight gain and persistent behavior interfering with weight gain.

Areas Under the Curve (AUC) and Likelihood Ratios (LR) for Potential Screening Measures for Anorexia Nervosa

Screening Measure (Primary Reference)	AUC	LR+ (Score)	LR- (Score)	Reference	Clinical Generalizability
Biological & Physical Measures					
Serum leptin level	0.984 (N=139)	14.72 (<2.31)	0.10 (2.31+)	Föcker et al., 2011	Adolescent and adult patients in the acute phase of AN according to the DSM-IV and no AN pretreatment versus healthy lean female volunteer university students.
Serum leptin standard deviation score (SDS)	0.939 (N=139)	5.89 (<-0.45)	0.09 (-0.45+)	Föcker et al., 2011	Adolescent and adult patients in the acute phase of AN according to the DSM-IV and no AN pretreatment versus healthy lean female volunteer university students.
Body Mass Index (BMI)	0.936 (N=139)	5.89 (<17.10)	0.11 (17.10+)	Föcker et al., 2011	Adolescent and adult patients in the acute phase of AN according to the DSM-IV and no AN pretreatment versus healthy lean female volunteer university students.
REDS-C₁					
REDS-C (O'Toole, 1999)	0.658 (N=333), 0.624 (N=236, > 13 years old), 0.772 (N=97, ≤ 13 years old)	--	--	DeSocio et al., 2012	Children and adolescents (8-18 years old) at a clinic being treated for eating and weight concerns. Eating disorders were not separated.
EDI₂					
EDI-2 (Garner, 1991)	0.556 (N=77)	--	--	DeSocio et al., 2012	Children and adolescents (10-18 years old) at a clinic being treated for eating and weight concerns. Eating disorders were not separated.
EDI-2 - Drive for Thinness Subscale (Garner, 1991)	0.97 (N=92)	29.39 (14+)	0.274 (DT≤14)	Segura-Garcia et al., 2015	Italian individuals with a DSM-IV-TR eating disorder versus individuals at risk for eating disorders. Eating disorders were not separated.

EDI-3 - Drive for Thinness Subscale (Garner, 2004)	.903 (N=1298)	--	--	Lehmann et al., 2013	
EDI-3 - Eating Disorder Risk Composite (EDRC) (Garner, 2004)	0.942 (N=92)	52.08 (EDRC 75+, adults; 90+ adolescents)	0.379 (EDRC ≤75, adults; ≤90 adolescents)	Segura-Garcia et al., 2015	Italian individuals with a DSM-IV-TR eating disorder versus individuals at risk for eating disorders. Eating disorders were not separated.
EDI-3 - Interoceptive Deficits Subscale (Garner, 2004)	.911 (N=2561)	4.0 (9+)	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Interoceptive Deficits Subscale (Garner, 2004)	.901 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Asceticism Subscale (Garner, 2004)	.886 (N=2561)	6.5 (9+)	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Asceticism Subscale (Garner, 2004)	.902 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Low Self-Esteem Subscale (Garner, 2004)	.884 (N=2561)	5.8 (10+)	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Low Self-Esteem Subscale (Garner, 2004)	.906 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Personal Alienation Subscale (Garner, 2004)	.88 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Personal Alienation Subscale (Garner, 2004)	.899 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Emotional Dysregulation Subscale (Garner, 2004)	.81 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control

					individuals from the Danish Civil Registration system.
EDI-3 - Emotional Dysregulation Subscale (Garner, 2004)	.779 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Interpersonal Alienation Subscale (Garner, 2004)	.79 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Interpersonal Alienation Subscale (Garner, 2004)	.743 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Perfectionism Subscale (Garner, 2004)	.79 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Perfectionism Subscale (Garner, 2004)	.768 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Maturity Fears Subscale (Garner, 2004)	.77 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Maturity Fears Subscale (Garner, 2004)	.678 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Bulimia Subscale (Garner, 2004)	.76 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Bulimia Subscale (Garner, 2004)	.776 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Interpersonal Insecurity Subscale (Garner,	.76 (N=2561)	--	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control

2004)					individuals from the Danish Civil Registration system.
EDI-3 - Interpersonal Insecurity Subscale (Garner, 2004)	.697 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EDI-3 - Body Dissatisfaction Subscale (Garner, 2004)	.722 (N=2561)	1.7 (15+)	--	Clausen et al., 2011	Danish females with a DSM-IV eating disorder diagnosis recruited from an eating disorder center versus non-clinical control individuals from the Danish Civil Registration system.
EDI-3 - Body Dissatisfaction Subscale (Garner, 2004)	.849 (N=1298)	--	--	Lehmann et al., 2013	Dutch patients recruited from eating disorder specialized clinics versus undergraduate female psychology students from a Dutch university. Eating disorders were not separated.
EAT₃					
EAT-26 (Garner, et al., , 1982)	.90 (N=129)	12.83 (20+)	.24 (<20)	Mintz & O'Halloran, 2000	Low-moderate: College women with no eating disorder versus college women with a DSM-IV eating disorder. Eating disorders were not separated.
EDE-Q₄					
EDE-Q (Fairburn & Beglin, 1994)	.96 (N=1170)	--	--	Aardoom, Dingemans, Slof Op't Landt, & Van Furth, 2012	Moderate: Dutch treatment-seeking females meeting DSM-IV criteria for an eating disorder versus female adult general population sample recruited through advertisements and personal contacts. Eating disorders were not separated.
EDE-Q (Fairburn & Beglin, 1994)	--	6.57 (2.3+)	0.09 (<2.3)	(Mond, Hay, Rodgers, Owen, & Beumont, 2004)	Moderate: "Clinically significant eating disorder" from a community sample versus female adults individuals without "clinically significant eating disorder" from same sample. Eating disorders were not separated.
EDE-Q (Fairburn et al., 2008)	0.89 (N=2465)	--	--	Rø et al., 2015	Norwegian adult females with an eating disorder recruited from eating disorder specialist centers versus controls determined using the DSM-IV.
EDQ-O₅					
EDQ-Q (Fairburn & Beglin, 1994)	0.72 (N=134)	1.00 (all criteria met)	0.92 (≥ 1 criteria not met)	(ter Huurne et al., 2015)	Dutch adults recruited from an eating disorder specialist center determined using the DSM-IV-TR.

Note: "LR+" refers to the change in likelihood ratio associated with a positive test score, and "LR-" is the likelihood ratio for a low score. Likelihood ratios of 1 indicate that the test result did not change impressions at all. LR's larger than 10 or smaller than .10 are frequently clinically decisive; 5 or .20 are helpful, and between 2.0 and .5 are small

enough that they rarely result in clinically meaningful changes of formulation (Sackett et al., 2000).

Search terms: [Anorexia Nervosa OR Anorexia OR eating disorder OR disordered eating] AND [measure OR assessment OR questionnaire OR self-report] AND [sensitivity OR specificity OR ROC OR AUC OR likelihood ratio] in Google Scholar

- ¹Rating of Eating Disorder Severity for Children
 - ²Eating Disorder Inventory
 - ³Eating Attitudes Test
 - ⁴Eating Disorders Examination Questionnaire
 - ⁵Eating Disorders Questionnaire Online Version
-

Treatment

Treatment of AN typically consists of restoring the individual to a healthy weight and addressing thoughts and behaviors which are related to the eating disorder. It may involve re-nutrition, psychotherapy, nutritional counseling, and medication. Literature reviews of existing research indicate that evidence supporting AN treatment is lacking. A systematic review of AN treatment efficacy studies by Bulik et al. (2007) found that evidence supporting medications, medications and behavioral interventions, and behavioral interventions alone in adults is weak. There is moderately strong evidence suggesting that behavioral interventions may be helpful for adolescents. In particular, adolescents may benefit from family therapy (Couturier et al., 2013). Clinical trials investigating AN treatment suffer from high rates of attrition, as key features of AN (e.g., denial, fear of weight gain) may contribute to low motivation for remaining in treatment. More severe cases of AN may be treated in inpatient settings, which are equipped to manage the re-nutrition process and provide medical monitoring. Partial hospitalization and intensive outpatient programs may provide intermediate levels of treatment intensity to assist individuals in the transition from intensive care to outpatient care after weight restoration.

Process and Outcome Measures

Clinically Significant Change Benchmarks with Common Instruments

Measure	A Cut Score	B Cut Score	C Cut Score	95% critical change (unstandardized scores)	90% critical change (unstandardized)	SE-difference critical change (unstandardized)
EDE-Q₁						
EDE-Q (Mond et al., 2004 norms) Global	1.4	3.2	2.3	.7	.6	.3
EDE-Q Restraint	(-.3)	3.6	1.8	1.5	1.2	.8
EDE-Q Eating Concern	.1	2.0	1.2	1.1	.9	.6

EDE-Q Weight Concern	1.5	3.9	2.6	1.0	.9	.5
EDE-Q Shape Concern	2.1	4.8	3.2	.9	.7	.4
EDE (Mond et al., 2004 norms) Global	1.7	2.3	1.9	1.9	1.6	1.0
EDE Restraint	.3	3.3	1.9	1.8	1.5	.9
EDE Eating Concern	(-.5)	.9	.5	.8	.7	.4
EDE Weight Concern	2.0	2.8	2.4	1.3	1.1	.7
EDE Shape Concern	2.0	3.2	2.6	1.2	1.0	.6
EAT₂						
EAT-26 (Mintz & O'Halloran, 2000 norms) Total	6.5	19.6	15.0	7.9	6.7	4.0

Note: “A” = Away from the clinical range, “B” = Back into the nonclinical range, “C” = Closer to the nonclinical than clinical mean.

Search terms: [Anorexia Nervosa OR anorexia OR eating disorder OR disordered eating] AND [validity OR clinical significance] in Google Scholar

₁Eating Disorders Examination Questionnaire

₂Eating Attitudes Test

Process Measures

Body weight is commonly monitored by clinicians throughout the AN treatment process as helping individuals regain and maintain a healthy weight is a primary treatment goal for AN. Many treatment centers have policies prohibiting patients from seeing their weight.

Motivational Stages of Change may be used to monitor individuals’ readiness to take action against eating disorder behaviors. It has demonstrated predictive validity in a sample of female adolescents attending eating disorder treatment groups (Gusella, Butler, Nichols, & Bird, 2003). See Appendix E.