*Supplementary Table S1*. *Candidate Gene Association Studies with Polymorphisms Implicated in Negative Valence System Dysfunction.*

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| --- | --- | --- | --- | --- | --- |
| **Study** | **Sample** | **Groups** | **Measures** | **Gene Variants** | **Findings** |
| Akkerman et al. ([2008](#_ENREF_2)) | 772 adolescent girls and boys (M = 16 y) from the Estonian Children, Behavior, and Health Study | *s-*allele carriers  *l/l*-genotype | Eating Disorder Inventory – 2   * Drive for Thinness subscale * Bulimia subscale | 5-HTTLPR   * *s*-allele * *l*-allele | NS group differences in binge eating severity or drive for thinness  NS sex differences |
| Akkerman et al. ([2010](#_ENREF_1)) | 475 adolescents and young adults (M = 21 y) from the Estonian Youth Cohort | BE (n=30)  High-risk for BE  (n=61)  HC (n=384) | DSM-IV Questionnaire – Eating Disorders  Eating Disorder Inventory – 2   * Drive for Thinness subscale * Bulimia subscale   Barratt Impulsiveness Scale  State and Trait Anxiety Inventory | 5-HTTLPR   * *s*-allele * *l*-allele | NS group differences in genotype frequencies  **Binge Eating Severity**  BE + *s*-allele > BE + *l/l* genotype = HC  Analyses adjusted for impulsivity and anxiety  **State Anxiety**  BE + *s/s* genotype > HC |
| Burnet et al. ([1999](#_ENREF_3)) | 153 adolescent and young adult females (mean unknown) from the community | BN (n=40)  BED (n=21)  HC (n=92) | Eating Disorder Examination Interview | 5-HT2C Receptor   * Cys-allele * Ser-allele | NS group differences in genotype frequencies |
| Calati et al. ([2011](#_ENREF_4)) | 15 candidate gene association studies | Combined ED (AN, BN, BED)  BN  HC | Meta-analysis | 5-HTTLPR   * *s*-allele * *l*-allele | ED > HC in rate of *s*-allele (vs. *l*/*l*) genotypes (small effect size)  ED = HC in *s*-allele frequency  BN = HC in genotype frequencies |
| Cellini et al. ([2010](#_ENREF_5)) | 572 adults (M = 22.9 y). Patients recruited from outpatient clinics for ED and obesity | AN (n=118)  BN (n=108)  BED (n=62)  OB (n=177)  HC (n=107) | Structured Clinical Interview for DSM-IV   * Axis I disorders   Eating Disorder Examination-Questionnaire | GR   * rs6198 * N363S * ER22/23EK * Bcl1 | rs6198 GG genotype significantly more common among patients with binge eating (AN-BP, BN or BED) than OB or HC  NS associations between other polymorphisms and EDs |
| Di Bella et al. ([2000](#_ENREF_6)) | 226 adults (age unknown). Patients recruited from ED clinic | BN (n=50)  AN-BP (n=37)  AN-R (n=19)  HC (n=120) | Patients with ED fulfilled DSM-IV criteria | 5-HTTLPR   * *s*-allele * *l*-allele | Significant group differences in genotype and allele frequencies  BN had significantly greater odds of being *S*-allele carrier |
| Enoch et al. ([1998](#_ENREF_7)) | 159 adults (age unknown) in one subsample of the study | BN (n=22)  AN (n=68)  HC (n=69) | Patients with ED diagnosed with structured clinical interview for DSM-III-R criteria | 5-HT2A Receptor  - 1438G/A | NS difference in allele frequency between BN and HC |
| Friedel et al. ([2005](#_ENREF_8)) | 382 adults and adolescents (M = 22.3 y) | BN (n=80)  AN (n=118)  ADHD (n=88)  HC (n=96) | Patients with ED or ADHD fulfilled DSM-IV criteria | BDNF   * Val66Met * 270C/T | NS group differences in genotypes or allele distributions |
| Hammer et al. ([2009](#_ENREF_9)) | 547 adults (M = 22.7) participated in pilot study and 528 adults (M = 34.4) formed independent cohort for study 2 | Pilot:  BN (n=91)  AN (n=265)  HC (n=191)  Study 2:  BN (n=119)  AN (n=78)  HC (n=331) | Patients with ED fulfilled DSM-IV criteria | 5-HT3B Receptor  - Y129S | In both pilot and replication study, heterozygous genotype more frequent among AN-R  NS associations between BN (vs. HC) and genotype frequencies |
| Kim et al. ([2009](#_ENREF_10)) | 243 females (M = 22.9 y). Patients recruited from treatment centers and HC from the community | Lifetime BN  (n=50)  Lifetime AN (n=62)  HC (n=131) | Eating Disorder Examination-Questionnaire or Eating Disorder Examination Interview  Temperament and Character Inventory  Yale-Brown Obsessive Compulsive Scale  Maudsley Obsessive-Compulsive Inventory  Beck Depression Inventory  State and Trait Anxiety Inventory | TPH-1  - A218C | Association between AA genotype and BN was NS after correction for multiple testing  NS effect of genotype on EDE subscales or obsessionality measures |
| Koizumi et al. ([2004](#_ENREF_11)) | 420 females (M = 26.1 y). Patients recruited from inpatient or outpatient treatment centers | BN-BP (n=101)  BN-non-P (n=17)  AN-R (n=36)  AN-BP (n=36)  EDNOS (n=8)  HC (n=222) | ED patients fulfilled DSM-IV criteria | BDNF   * Val66Met | Significant difference in genotype but not allele frequencies between BN-BP and HC |
| Lauzurica et al. ([2003](#_ENREF_12)) | 209 female adolescents and adults (M = 26.4 y) | BN (n=102; 36 had prior history of AN)  HC (n=107) | BN patients fulfilled DSM-IV criteria  Bulimia Investigation Test Edinburgh (BITE; BN only) | 5-HTT VNTR intron 2   * 10 repeat * 12 repeat * 9 repeat   5-HTTLPR   * *s*-allele * *l*-allele | NS associations between VNTR or 5-HTTLPR allele or genotype frequencies and BN  Frequency of *S/S*-10/12 genotype higher in BN than in HC |
| Lee & Lin ([2010](#_ENREF_13)) | 8 case-control association studies. 4 studies compared BN and HC | BN  AN  HC | Meta-analysis | 5-HTTLPR   * *s*-allele * *l*-allele | BN was not associated with *s*-allele or s-carrier genotype (SS+LS) |
| Mercader et al. ([2007](#_ENREF_14)) | 160 females (M = 23.8 y) from a family-based association study | ED (n=110; 61 with BN)  HC (n=50; sisters of ED participants) | Structured Clinical Interview for Mental Disorders, research version 2.0 | BDNF  - 270C/T | NS association between -270C/T variant and BN |
| Monteleone et al. ([2006](#_ENREF_15)) | 219 females (18-44 y, mean unknown). Patients recruited from outpatient clinics | BN (n=125)  HC (n=94) | Structured Clinical Interview for DSM-IV (BN only)   * Axis I disorders * Axis II disorders   Temperament and Character Inventory Revised (BN only)  Structured clinical interview on BN symptoms (BN only)  Mini International Neuropsychiatric Interview (HC only) | 5-HTTLPR   * *s*-allele * *l*-allele | NS group differences in genotype distributions  *l*-allele more frequent in BN  Among BN, SS and SL patients had lower mean BMI and higher harm avoidance scores compared to LL genotype individuals; SS individuals had lower mean body fat mass than LL carriers. |
| Monteleone et al. ([2006](#_ENREF_17)) | 331 females (age unknown). Patients recruited from outpatient ED clinic. | BN (n=126)  BED (n=84)  HC (n=121) | Structured Clinical Interview for DSM-IV   * Axis I disorders   Bulimia Investigation Test Edinburgh (BITE; BN only) | BDNF   * Val66Met | NS group differences in variant frequencies  Among BN and BED, AA genotype individuals had significantly greater BITE severity scores and weekly binge frequency than those with AG or GG genotypes |
| Monteleone et al. ([2007](#_ENREF_16)) | 180 females (M = 27.1 y). Patients recruited from outpatient ED clinic | BN (n=91)  HC (n=89) | Structured Clinical Interview for DSM-IV (BN only)   * Axis I disorders * Axis II disorders   Bulimia Investigation Test Edinburgh (BITE; BN only)  Temperament and Character Inventory Revised (BN only)  Mini International Neuropsychiatric Interview (HC only) | TPH-1  - A218C | NS group differences in genotype and allele distributions  Among BN, individuals with at least one A allele had significantly more frequent binge episodes, greater BITE scores, and higher harm avoidance scores than CC genotype patients |
| Nacmias et al. ([1999](#_ENREF_18)) | 275 adults (M = 23.1 y) | BN (n=59)  AN-BP (n=52)  AN-R (n=57)  HC (n=107) | ED participants fulfilled DSM-IV criteria | 5-HT2A Receptor  - 1438G/A  - 102T/C  - Thr-25-Asn  - His-452-Tyr  - 516C/T  5-HT2C Receptor  - Cys23Ser | AA genotype significantly more frequent among AN-R relative to HC, BN or AN-BP  NS differences in 1438G/A genotype distributions among BN, AN-BP and HC  102T/C distribution and frequency equivalent to 1438G/A  NS group differences in distributions of other variants |
| Nishiguchi et al. ([2001](#_ENREF_19)) | 556 adults (M = 25.6 y). Patients recruited from three hospitals | BN (n=110)  AN (n=62)  EDNOS (n=10)  HC (n=374) | ED participants fulfilled DSM-IV criteria  Eating Attitudes Test (EAT-26)  Clinical interview evaluated DMS-IV Axis I and Axis II disorders | 5-HT2A Receptor  - 1438G/A | G allele frequency higher among ED than HC participants  Among BN, but not AN, G allele frequency higher than in HC  G allele frequency higher among ED patients with binge eating (AN-BP or BN) than HC |
| Polsinelli et al. ([2001](#_ENREF_19)) | 6 case-control association studies | BN (and no history of other ED)  HC | Meta-analysis | 5-HTTLPR   * *S/S* or *S/L* genotype * *LL* genotype | NS association between genotype and BN |
| Racine et al. ([2012](#_ENREF_20)) | 344 young adult females (M = 19.0 y) from a large university in the US | Non-clinical sample; not separated into groups | Minnesota Eating Behavior Survey  - Binge Eating subscale Dutch Eating Behavior Questionnaire  - Emotional Eating subscale  - Restrained Eating Scale  Eating Disorder Examination-Questionnaire  - Restraint subscale  Barratt Impulsiveness Scale, Version 11 | 5-HT2A Receptor   * T-allele * C-allele   5-HTTLPR   * *s*-allele * *l*-allele | NS association between alleles and binge or emotional eating  NS interactions between genotypes, impulsivity or dietary restraint |
| Ribases et al. ([2009](#_ENREF_21)) | 1142 individuals (age unknown) from the Factors in Healthy Eating project. | BN  AN-BP  AN-R | Case-control study with 6 independently recruited samples from 5 European countries | BDNF   * Val66Met * 270C/T | BN positively associated with Met66 allele  AN positively associated with Met66 allele; significance varied across AN subtype and subsample  NS group difference across whole sample in 270C/T variant; BN group from one subsample had greater frequency of 270C allele and BN group from another of the six subsamples had greater frequency of 270T allele |
| Ricca et al. ([2002](#_ENREF_23)) | 535 adults (M = 29.8 y) | BED (n=54)  OB (n=132)  BN (n=86)  AN-BP (n=74)  AN (n=74)  HC (n=115) | ED patients fulfilled DSM-IV criteria | 5-HT2A Receptor  - 1438G/A | A allele and AA genotype frequencies:  BN > HC  AN-BP = HC  BED = OB  Association between A allele, AA genotype and BED (vs. HC) NS after Bonferroni correction |
| Steiger et al. ([2004](#_ENREF_22)) | 59 females (M = 25.5 y) | BN or AN-BP or Sub-BN (n=59) | Eating Disorder Examination Interview  Eating Attitudes Test (EAT)  Barratt Impulsiveness Scale, Version 11  Center for Epidemiological Studies-Depression scale  Dimensional Assessment for Personality Pathology  Structured Clinical Interview for DSM-IV  - Axis II disorders | 5-HTTLPR   * *s*-allele * *l*-allele | NS association between *s*-allele and eating attitudes or monthly binge frequency  *S*-allele carriers had greater behavioral impulsivity, affective instability, and comorbid borderline personality disorder |
| Steiger et al. ([2005](#_ENREF_26)) | 227 females (M = 24.8 y). Patients recruited from ED programs and HC from the community | BN (n=129)  HC (n=98) | Eating Disorder Examination Interview  Structured Clinical Interview for DSM-IV  - Axis I disorders  Clinician-Administered Post-Traumatic Stress Disorder Scale and/or Diagnostic Interview Schedule, Version IV  Childhood Trauma Interview | GR Bcl1  - *c*-allele | Low-function *c*-allele more common in BN than HC group. |
| Steiger et al. ([2011](#_ENREF_24)) | 304 females (M = 25.5 y). Patients recruited from ED programs and HC from the community | BN (n=174)  HC (n=130) | Eating Disorder Examination Interview  Childhood Trauma Interview  Barratt Impulsiveness Scale, Version 11  - Motor Impulsivity subscale  Dimensional Assessment of Personality Pathology-Basic Questionnaire   * Stimulus Seeking scale * Affective Instability scale | GR Bcl1  - *c*-allele | Low-function *c*-allele more common in BN than HC group.  Gene x Abuse interaction: likelihood of BN greatest among *c*-allele carriers who were abused; NS interaction when controlling for depression. |
| Steiger et al. ([2012](#_ENREF_25)) | 96 females (M = 25.3 y). Patients recruited from ED programs and HC from the community | BN (n=64; 32 had history of severe child abuse)  HC (n=32) | Eating Disorder Examination Interview  Structured Clinical Interview for DSM-IV  - Axis I disorders  Clinician-Administered Post-Traumatic Stress Disorder Scale and/or Diagnostic Interview Schedule, Version IV  Childhood Trauma Interview | Methylation levels of GR gene promoter | NS differences in methylation between BN and HC  BN with history of suicidality or comorbid borderline personality disorder had greater methylation (vs. HC) of certain exon 1C sites |
| Ziegler et al. ([1999](#_ENREF_27)) | 347 adults (age unknown) | BN (n=99)  AN (n=78)  HC (n=170) | ED patients fulfilled DSM-IV criteria | 5-HT2A Receptor  - 1438G/A | NS group differences in allele or genotype frequencies |

*Abbreviations*: ADHD = attention deficit hyperactivity disorder; AN = anorexia nervosa; AN-BP = anorexia nervosa-binge/purge subtype; AN-R = anorexia nervosa, restricting subtype; BE = binge eating; BED = binge eating disorder; BN = bulimia nervosa; Sub-BN = subthreshold bulimia nervosa; BN-BP= bulimia nervosa-binge/purge subtype; BN-non-P = bulimia nervosa non-purging subtype; ED = eating disorders; EDNOS = eating disorder not otherwise specified; HC = healthy controls; OB = obese

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