background & introduction

- Anorexia nervosa (AN) is a multifactorial neuropsychiatric condition characterized by an overvaluation of an idealized body shape and pathological fear of becoming fat (APA, 2013).

- AN is related to a predisposition to temperamental styles including striving for perfectionism, need for order, and sensitivity to praise and reward (Mors & Twaddle, 2007; Wade et al. 2006). Familial aggregation indicate that risk factors likely stem from some level of shared genetic liability (Wade et al. 2008).

- Understanding of the complex relationship between the genetic and environmental determinants of AN remains inadequate. Mortality rates amongst AN patients are high relative to other psychiatric disorders (Smink et al. 2012; Khalas et al. 2017).

- Recent genome-wide associations studies (GWAS) identified genetic variants in samples of adults associated with the phenotype. Polygenic risk scores (PRS), a calculated sum of genome-wide genotypes weighted by corresponding genotype effect sizes from existing summary statistic. Summary statistics were retrieved from the Eating Disorders Working Group of the Psych Genomics Consortium Anorexia Nervosa GWAS (see Watson et al. 2019).

measures

Polygenic Risk Score

PRS served as a single value estimate of participants’ propensity to developing AN. PRS is a calculated sum of genome-wide genotypes weighted by corresponding genotype effect sizes from existing summary statistic. Summary statistics were retrieved from the Eating Disorders Working Group of the Psych Genomics Consortium Anorexia Nervosa GWAS (see Watson et al. 2019).

behavorial and emotional problems

The CBCL was used to measure problems with behaviors and emotions. Reports from mothers, teachers, and children were averaged as composite variables using longitudinal data measuring:

- Internalizing Problems
- Externalizing Problems
- Somatic Complaints
- Anxiety / Depression
- Thought Problems
- Attention Problems
- Delinquent Behavior
- Aggressive Behavior
- Social Problems

mother scored included ages 5 to 18 years

Youth scores included ages 15, 13, and 20 to 25 years

analysiS PLAN

- PRSsca was used to compute PRS based on the single-nucleotide polymorphism (SNP) estimates from the Eating Disorders Working Group of the Psych Genomics Consortium Anorexia Nervosa GWAS. Individual risk scores were computed using a linear function of the number of risk alleles, weighted by the magnitude of the effect report in the GWAS (see Watson et al. 2019).

- Composite variables were calculated for each measure of the CBCL using IBM SPSS for Mac OS Version 27. Mother, teacher, and youth reports were aggregated separately reports from each collection interval. Participant scores were excluded from the final composite variable if more than half of responses were missing. Final analytic sample ranged between 298 to 309 depending on the outcome variable.

- IBM SPSS for Mac OS Version 27 was also used to compute Pearson’s R in order to evaluate the relationship between PRS and the composite variables for the CBCL.

ConclusiOns

In summary our exploratory analyses revealed a pattern of associations between genetic risk of AN and mother, teacher, and youth reports.

Although several scales were associated with genetic risk of AN, results must be interpreted with caution. E.g. Bonferroni correction results in correlations being significant when p < .007 level (2-tailed). No tests exceeded this threshold.

Future research will investigate the validity and generalizability of these findings using a large sample in order to evaluate these relationships with appropriate statistical power. The present study will serve as the foundation for a Registered Report.

References


