Supplementary materials

For article

Babytwins Study Sweden (BATSS): A multi-method infant twin study of genetic and environmental factors influencing infant brain and behavioral development

Authors: Terje Falck-Ytter, Linnea Hamrefors, Monica Siqueiros Sanchez, Ana Maria Portugal, Mark Taylor, Danyang Li, Charlotte Viktorsson, Irzam Hardiansyah, Lynnea Myers, Lars Westberg, Sven Bölte, Kristiina Tammimies, Angelica Ronald

published in Twin Research and Human Genetics

Supplementary Results

In order to test the polygenic scores predictive power in relation to one reliable and accessible phenotype in our sample, we ran a GEE model to predict physical height of the infant at the time of testing. Although the polygenic score for height is based on adult height, an infant's height is associated with later height and can therefore be used to indirectly validate these scores (Cole, T. J., & Wright, C. M. (2011); Eide, M. G., Øyen, N., Skjœrven, R., Nilsen, S. T., Bjerkedal, T., & Tell, G. S. (2005). Infant's height was regressed on sex and age before being included in a model using the PRS for height (regressed on 10 components of ancestry) as predictor, with family ID as a cluster variable. Both variables were scaled before analysis so that the Beta estimate can be interpreted as a correlation coefficient (i.e. association could range from -1 to 1). PRS for height was a significant predictor of height at the time of testing (total n = 594, complete n = 578 /292 clusters; Beta = 0.27, z statistic = 5.184, $p < .001$).

References

Cole, T. J., & Wright, C. M. (2011). A chart to predict adult height from a child's current height. *Annals of human biology*, *38*(6), 662-668.

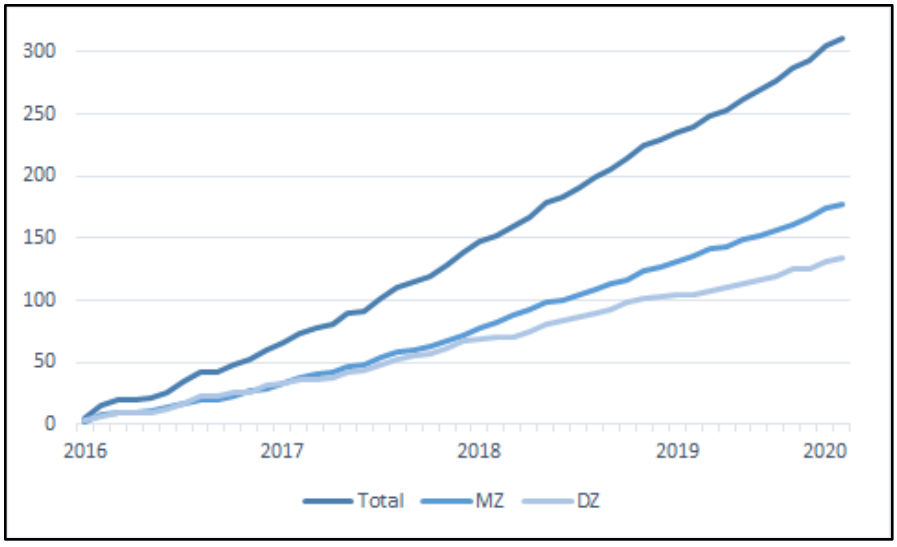
Eide, M. G., Øyen, N., Skjœrven, R., Nilsen, S. T., Bjerkedal, T., & Tell, G. S. (2005). Size at birth and gestational age as predictors of adult height and weight. *Epidemiology*, 175-181.

Supplementary Tables and Figures

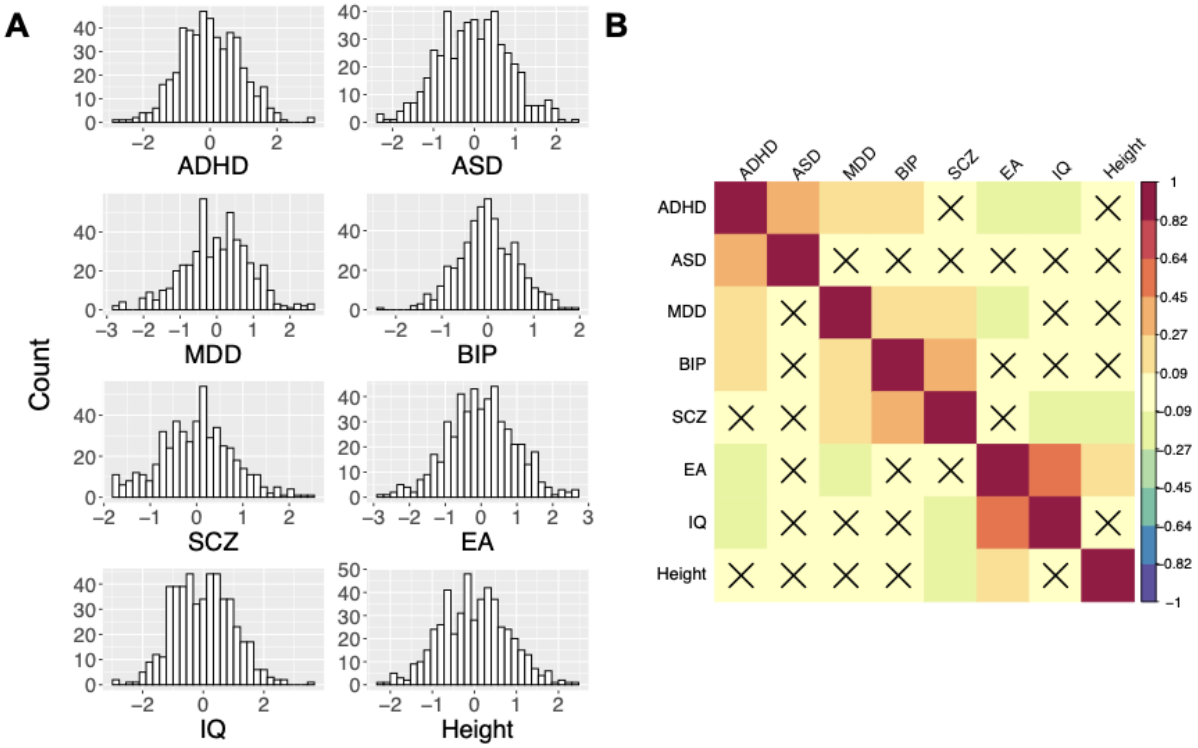
Supplementary Table S1. Response rates to the questionnaires packages

	5m questionnaires	**14m questionnaires**	**24m questionnaires**	**36m questionnaires**
All completed	93%	75%	64%	65%
Partially completed	6%	12%	12%	9%
None completed	1%	13%	24%	27%

The 24 and 36 months time points will be completed in 2022 and 2023 respectively, response rates in the table are at the time of writing (March 2021).



Supplementary Figure S1. The cumulative number of twin pairs tested per month over the whole study period.



Supplementary Figure S2. A. The distribution of the different polygenic scores **B**. The correlations between the polygenic scores, in the BATSS sample (including uniquely genotyped individuals only, see section Quality Control and Imputation). ADHD = Attention-Deficit Hyperactivity Disorder, ASD = Autism Spectrum Disorder, MDD = Major Depressive Disorder, BIP = Bipolar Disorder, SCZ = Schizophrenia, EA = Educational Attainment, IQ = Intelligence. Scores were regressed on 10 Principal components and scaled before analysis. Color represents strength of the pearson correlation coefficient, cross represents non-significant coefficients (P-threshold is .05).