**Supplementary Material**

**Supplementary Methods. Calculation of the polygenic risk score for major depression (GRSDEP)**

Polygenic risk score for major depressionwas used as a control variable*.* Genomic DNA was extracted from peripheral blood leukocytes using a commercially available kit and Qiagen BioRobot M48 Workstation according to the manufacturer’s instructions (Qiagen, Hilden, Germany). Genotyping was done for 2556 samples using custom build Illumina Human 670 k BeadChip atWelcome Trust Sanger Institute. Genotypes were called using Illuminus clustering algorithm. Samples that failed Sanger genotyping pipeline QC criteria (i.e., duplicated samples, heterozygosity, low call rate, or Sequenom fingerprint discrepancy) were excluded from analysis. Similarly, samples with sex discrepancy, low genotyping call rate (< 0.95) and possible relatedness (pi-hat > 0.2) were excluded from the analysis. Short Nucleotide Polymorphisms (SNPs) were excluded based on Hardy-Weinberg equilibrium test (p ≤ 1e-06), failed missingness test (call rate < 0.95) and failed frequency test (minor allele frequency < 0.01). After quality control, 546677 genotyped SNPs were available for further analysis. Genotype imputation was performed using Minimac3 (40) and 1000G phase3 reference set on Michigan Imputation Server. A total of 102 depression related SNPs identified using genomic data from > 800 000 individuals (p-value < 5 × 10−8) by (41) were used for calculation of weighted genetic risk score (GRS) for depression using Plink software (42).

**Supplementary Methods. Measurement of socioeconomic factors**

Socioeconomic factors included participants’ (2011) and their parents’ (1980) annual income and educational level. Educational level was classified into three categories (1 = comprehensive school, i.e., the nine first school years; 2 = high school or occupational school; 3 = academic level). In case mother’s and father’s educational level differed from each other, we used the higher educational level. Annual income in childhood was assessed with a 8-point scale (1 = less than 15 000 Finnish mark; 8 = more than 100 000 Finnish mark) and in adulthood with a 11-point scale (1 = less than 5 000 €; 11 = more than 60 000 €).

**Supplementary Methods. Assessment of childhood family environment**

**The cumulative score of emotional family atmosphere**included the following factors: emotional distance between the child and parent, parental intolerance toward the child, strict discipline toward the child, parental life dissatisfaction, mother’s or father’s mental disorder (no/yes), and mother’s or father’s frequent alcohol intoxication (ranging from “1=never” to “8=daily”). This score has been used also previously (16).

*Emotional distance between the parent and child* was evaluated with a four-item questionnaire (e.g., “The child is emotionally important for me”, ”I can realize myself with the child”). The items were responded with a 5-point scale (e.g., 1 = little, 5 = much). *Parental intolerance toward the child* was evaluated with a three-item scale (“I get nervous when spending time with the child”, “The child is a burden in challenging situations”, “The child consumes my time too much”). The items were responded with a 5-point scale (1 = frequently, 5 = never). *Strict discipline toward the child* wasmeasured with a three-item scale(“Disciplinary actions are often needed at home due to child’s aggressiveness”; “Disciplinary actions do not affect the child enough”; “Disciplinary actions are necessary in the rearing of the child”). The items measuring parenting have been used also previously (43, 44).

*Parental life satisfaction* was assessed with a three-item questionnaire measuring parent’s satisfaction in three life sectors: as a parent, spouse, and employee. The items were responded with a 5-point scale (1 = satisfied, 5 = dissatisfied). This questionnaire has been adapted from the Operation Family Study questionnaire (45) and has been used also previously (46, 47).

**The cumulative score of stressful life events** included the following factors: change of residence, number of change of school, parental divorce (whether parents living together or separated), mother’s or father’s death, mother’s or father’s hospitalization within the past 12 months (number of days in hospital, ranging from “1 = no days” to “5 = more than 30 days”), and child’s hospitalization due to sickness or accident (no/yes). This cumulative score has been used also previously (16).

**Supplementary Table 1.** Number of observations per participant per longitudinal outcome.

|  |  |
| --- | --- |
|  | Number of participants  |
|  | Data available on one follow-up | Data available on two follow-up | Data available on three follow-up | Data available on four follow-ups | Data available on five follow-ups |
| Social support from friends | 111 | 312 | 383 | 555 | 920 |
| Social support from family | 110 | 314 | 382 | 554 | 921 |
| Social support from a close other | 110 | 313 | 384 | 554 | 920 |
| Sociability | 237 | 300 | 396 | 523 | 825 |
| Note: Social support was assessed in 1989, 1992, 1997, 2001, and 2007. Sociability was assessed in 1992, 1997, 2001, 2007, and 2012. In the analyses, we included all the participants who had data available in at least one measurement year.  |

**Supplementary Table 2.** Differences between included and dropped-out participants in the main study variables.Note: n.s. = non-significant

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | Mean difference(included *vs*. dropped-out) | Number of observations (included *vs*. dropped-out**)** | Test statistic | *p* |
| Age (2001) | 31.6 vs. 31.1 | 2377 *vs*. 1219 | *t* = 2.57 | < 0.05 |
| Sex (Female) | 54.6 % *vs*. 43.9 % | 2377 *vs*. 1219 | χ² = 36.75 | < 0.001 |
| Parents’ educational level (1980) | 25.4 % *vs*. 24.0 % (academic-level) | 2342 *vs*. 1198 | χ² = 5.50 | 0.064 |
| Parents’ annual income (1980) | 4.87 *vs*. 4.65 | 2295 *vs*. 1158 | *t* = 3.02 | < 0.01 |
| Educational level (2011) | 75.1 % *vs*. 70.4 % (academic-level) | 1694 *vs*. 291 | χ² = 2.96 | 0.227 |
| Annual income (2011) | 7.42 *vs*. 7.09 | 1662 *vs*. 279 | *t* = 1.65 | 0.099 |
| Social support (mean over the follow-up) |  |  |  |  |
|  From friends | 4.03 *vs*. 3.89 | 2328 *vs*. 936 | *t* = 4.72 | < 0.001 |
|  From family | 4.10 *vs*. 3.98 | 2328 *vs*. 938 | *t* = 4.32 | < 0.001 |
|  From a close other | 4.22 *vs*. 4.06 | 2328 *vs*. 937 | *t* = 5.47 | < 0.001 |
| Sociability (mean over the follow-up) | 3.48 *vs*. 3.48 | 2290 *vs*. 816 | *t* = 0.18 | 0.861 |
| Age in first-child parenthood | 28.13 *vs*. 27.49 | 1790 *vs*. 361 | *t* = 2.29 | < 0.05 |
| Number of children | 2.23 *vs*. 23.17 | 1791 *vs*. 362 | *t* = 0.99 | 0.321 |
| Partnership at least once over the follow-up | 86.0 % *vs*. 72.5 % | 559 *vs*. 2363 | χ² = 2.29 | < 0.001 |
| PRS for schizophrenia | -0.01 *vs*. 0.21 | 2377 *vs*. 66 | *t* = 1.73 | 0.085 |
| PRS for major depression | 0.00 *vs*. 0.00 | 2377 *vs*. 66 | *t* = 0.51 | 0.607 |
|  |  |

**Supplementary Table 3.**

Results of growth curve models. Estimates (B) with standard errors (SE) of PRS for major depression, when predicting standardized scores of perceived social support and sociability from adolescence to middle age. Statistically significant associations are bolded.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Perceived support from friends |  | Perceived support from a close friend |  | Perceived support from family |  | Perceived sociability  |
|   | B | *SE* | *p* |  | B | *SE* | *p* |  | B | *SE* | *p* |  | B | *SE* | *p* |
| Model 1: PRSDEP | 0.002 | 0.015 | 0.872 |  | 0.002 | 0.013 | 0.865 |  | 0.002 | 0.015 | 0.872 |  | -0.004 | 0.017 | 0.814 |
| Model 2: PRSDEP | 0.007 | 0.015 | 0.653 |  | 0.006 | 0.013 | 0.625 |  | 0.007 | 0.015 | 0.653 |  | -0.004 | 0.018 | 0.824 |
| Model 3: PRSDEP | 0.004 | 0.017 | 0.816 |  | 0.014 | 0.014 | 0.345 |  | 0.004 | 0.017 | 0.816 |  | 0.021 | 0.020 | 0.294 |
| Model 1 (n = 2281) was adjusted for age and sex. Model 2 (n = 2148) was adjusted for age, sex, parents’ socioeconomic factors, and stressful life events and emotional atmosphere. Model 3 (n = 1515) was adjusted for age, sex, parents’ socioeconomic factors, and stressful life events and emotional atmosphere, and participants’ annual income and educational level in adulthood.  |

**Supplementary Table 4.**

Results of regression analyses. Estimates (B) with standard errors (SE) of PRS for major depression, when predicting age at becoming a parent, number of children, and marital status in adulthood.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Age in first-time parenthood |  | Number of children |  | Likelihood of being in partnership  |  |
|   | B | *SE* | *p* |  | B | *SE* | *p* |  | B | *SE* | *p* |  |
| Model 1: PRSDEP | -0.188 | 0.113 | 0.096 |  | 0.010 | 0.016 | 0.536 |  | 0.132 | 0.111 | 0.232 |  |
| Model 2: PRSDEP | -0.146 | 0.113 | 0.198 |  | 0.006 | 0.016 | 0.723 |  | 0.159 | 0.119 | 0.181 |  |
| Model 3: PRSDEP | -0.117 | 0.133 | 0.377 |  | 0.004 | 0.019 | 0.830 |  | 0.115 | 0.177 | 0.516 |  |
| Model 1 (n = 1795) was adjusted for age and sex. Model 2 (n = 1684) was adjusted for age, sex, parents’ socioeconomic factors, stressful life events and emotional atmosphere.Model 3 (n = 1228) was adjusted for age, sex, parents’ socioeconomic factors, stressful life events and emotional atmosphere, and participants’ annual income and educational level in adulthood.  |

**Supplementary Figure 1.** Factor loadings of the sociability scale (in 2012).

