Genome-wide meta-study of depression phenotypes in UK Biobank

Supplementary Information and Figures

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Phenotype Definitions

**Broad depression definition**

* **Cases**
  + From touchscreen questionnaire at recruitment:
    - "Have you ever seen a GP/psychiatrist for nerves, anxiety, tension or depression?" (Fields 2090 and 2100) - **Yes**
  + From Hospital Episodes Data from UK bodies (English HES Data, Scottish Morbidity Register, Patient Episode Data) (Fields 41202 and 41204)
    - Any primary or secondary diagnosis of ICD-10 Codes for mood disorders
      * F32 - Single Episode Depression
      * F33 - Recurrent Depression
      * F34 - Persistent mood disorders (Cyclothymia, Dysthymia)
      * F38 - Other mood disorders
      * F39 - Unspecified mood disorders
* **Controls**
* From touchscreen questionnaire at recruitment:
  + "Have you ever seen a GP/psychiatrist for nerves, anxiety, tension or depression?" (Fields 2090 and 2100) - **No**

**Probable major depressive disorder (MDD) definition**

* + **Cases**
    - From touchscreen questionnaire at recruitment:
      * "Have you ever seen a GP/psychiatrist for nerves, anxiety, tension or depression?" (Fields 2090 and 2100) - **Yes**
        + **EITHER** "Looking back over your life, have you ever had a time when you were feeling depressed or down for at least a whole week?" (Field 4598) - **Yes**

"How many weeks was the longest period when you were feeling depressed or down?" (Field 4609) - **More than 2**

* + - * + **OR** "Have you ever had a time when you were uninterested in things or unable to enjoy the things you used to for at least a whole week?" (Field 4631) - **Yes**

"How many weeks was the longest period when you were uninterested in things or unable to enjoy the things you used to?" (Field 5375)- **More than 2**

* + - From Hospital Episodes Data from UK bodies (English HES Data, Scottish Morbidity Register, Patient Episode Data) (Fields 41202 and 41204)
      * Any primary or secondary diagnosis of ICD-10 Codes for mood disorders
        + F32 - Single Episode Depression
        + F33 - Recurrent Depression
        + F34 - Persistent mood disorders (Cyclothymia, Dysthymia)
        + F38 - Other mood disorders
        + F39 - Unspecified mood disorders
  + **Controls**
    - From touchscreen questionnaire at recruitment:
      * "Have you ever seen a GP/psychiatrist for nerves, anxiety, tension or depression?" (Fields 2090 and 2100) - **No**
      * "Looking back over your life, have you ever had a time when you were feeling depressed or down for at least a whole week?" (Field 4598) - **No**
      * "Have you ever had a time when you were uninterested in things or unable to enjoy the things you used to for at least a whole week?" Field 4631) - **No**

**ICD-coded MDD definition**

* **Cases**
  + From Hospital Episodes Data from UK bodies (English HES Data, Scottish Morbidity Register, Patient Episode Data) (Fields 41202 and 41204)
    - Any primary or secondary diagnosis of ICD-10 Codes for mood disorders
      * F32 - Single Episode Depression
      * F33 - Recurrent Depression
      * F34 - Persistent mood disorders (Cyclothymia, Dysthymia)
      * F38 - Other mood disorders
      * F39 - Unspecified mood disorders
* **Controls**
  + **NOT** a case per the Smith definition using touchscreen information (above)
  + From Hospital Episodes Data from UK bodies (English HES Data, Scottish Morbidity Register, Patient Episode Data) (Fields 41202 and 41204)
    - * No primary or secondary diagnosis of ICD-10 Codes for mood disorders, as above

**Exclusions applied to all definitions**

* **For cases and controls**
  + Bipolar (ICD codes F30, F31 or non-cancer illness code 1291)
  + Multiple personality disorder (ICD code F44.8)
  + Schizophrenia / psychosis (ICD codes F2\*, or non-cancer illness code 1289)
  + Treatment/medication codes for antipsychotics (Field 20003)
* **For controls**
  + Treatment/medication codes for antidepressants (Field 20003)
  + Mood disorders (ICD codes F32, F33, F34, F38, F39 or non-cancer illness code 1286)



Supplementary Figure 1. Q-Q plot of the observed *P*-values for an association with broad depression on that expected

Supplementary Figure 2. Q-Q plot of the observed *P*-values for an association with probable MDD on that expected



Supplementary Figure 3. Q-Q plot of the observed *P*-values for an association with ICD-coded MDD on that expected



Supplementary Figure 4. Manhattan plot of the adjusted –log10 *P*-values of each gene or region for an association with broad depression in the UK Biobank cohort. The dotted horizontal line represents the gene-based threshold for significance and the solid horizontal line represents the region-based threshold for significance after multiple testing correction.



Supplementary Figure 5. Manhattan plot of the adjusted –log10 *P*-values of each gene or region for an association with probable MDD in the UK Biobank cohort. The dotted horizontal line represents the gene-based threshold for significance and the solid horizontal line represents the region-based threshold for significance after multiple testing correction.



Supplementary Figure 6. Manhattan plot of the adjusted –log10 *P*-values of each gene or region for an association with ICD-coded MDD in the UK Biobank cohort. The dotted horizontal line represents the gene-based threshold for significance and the solid horizontal line represents the region-based threshold for significance after multiple testing correction.