

Mental health research in UK Biobank

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UK Biobank Annual Meeting

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Mental health research in UK Biobank

- What data on mental health are available?
- What have we done so far?
- Where next?

Touchscreen questionnaire items (baseline):

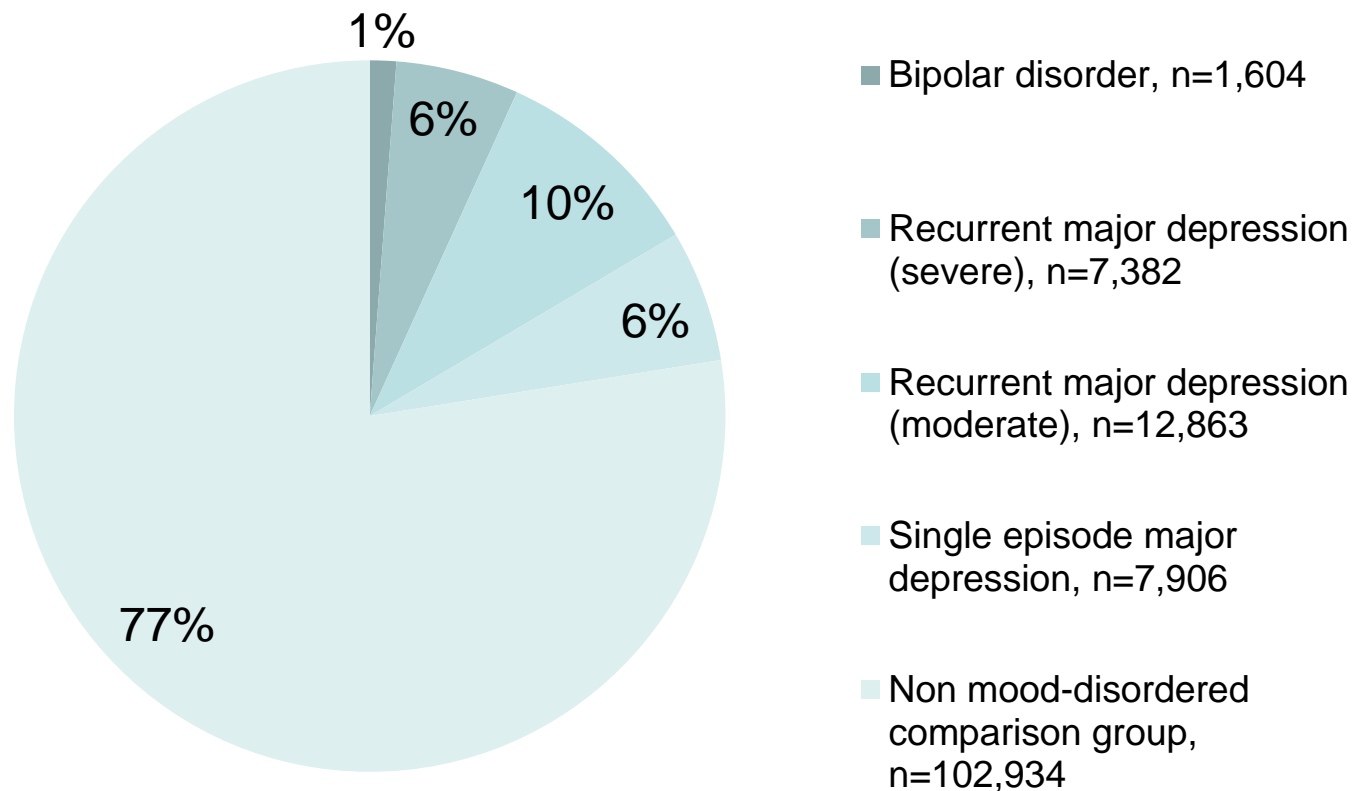
On all participants:

- Self-reported mental illness
- Current psychiatric medication use
- Family history of mental illness
- Self-reported alcohol use
- Neuroticism assessment

On one third of participants:

- Current and lifetime features of depression
- Lifetime features of bipolar disorder

Diagnostic breakdown, probable lifetime diagnoses of mood disorder (n=132,689)





ELSEVIER

Contents lists available at [ScienceDirect](#)

European Psychiatry

journal homepage: <http://www.europsych-journal.com>



Original article

Cognitive function and lifetime features of depression and bipolar disorder in a large population sample: Cross-sectional study of 143,828 UK Biobank participants



B. Cullen^{a,*}, B.I. Nicholl^b, D.F. Mackay^c, D. Martin^a, Z. Ul-Haq^{c,d}, A. McIntosh^e,
J. Gallacher^f, I.J. Deary^g, J.P. Pell^c, J.J. Evans^a, D.J. Smith^a

Summary: People with features of depression or bipolar disorder had worse cognitive performance, but not when confounding factors were considered in detail.

Low birth weight and features of neuroticism and mood disorder in 83 545 participants of the UK Biobank cohort

Donald M. Lyall, Hazel M. Inskip, Daniel Mackay, Ian J. Deary, Andrew M. McIntosh, Matthew Hotopf, Tony Kendrick, Jill P. Pell and Daniel J. Smith

Summary: Individuals with low birth weight or ‘very low’ birth weight had higher neuroticism scores and were more likely to have features of depression or bipolar disorder as adults.

BJPsych

The British Journal of Psychiatry (2016)
208, 343–351. doi: 10.1192/bjp.bp.114.157784

Cardiometabolic disease and features of depression and bipolar disorder: population-based, cross-sectional study

Daniel J. Martin, Zia Ul-Haq, Barbara I. Nicholl, Breda Cullen, Jonathan Evans, Jason M. R. Gill, Beverly Roberts, John Gallacher, Daniel Mackay, Andrew McIntosh, Matthew Hotopf, Nick Craddock, Ian J. Deary, Jill P. Pell and Daniel J. Smith

Summary: Individuals with features of depression or bipolar disorder had increased risk of cardiovascular disease and high blood pressure, particularly those taking psychiatric medications.

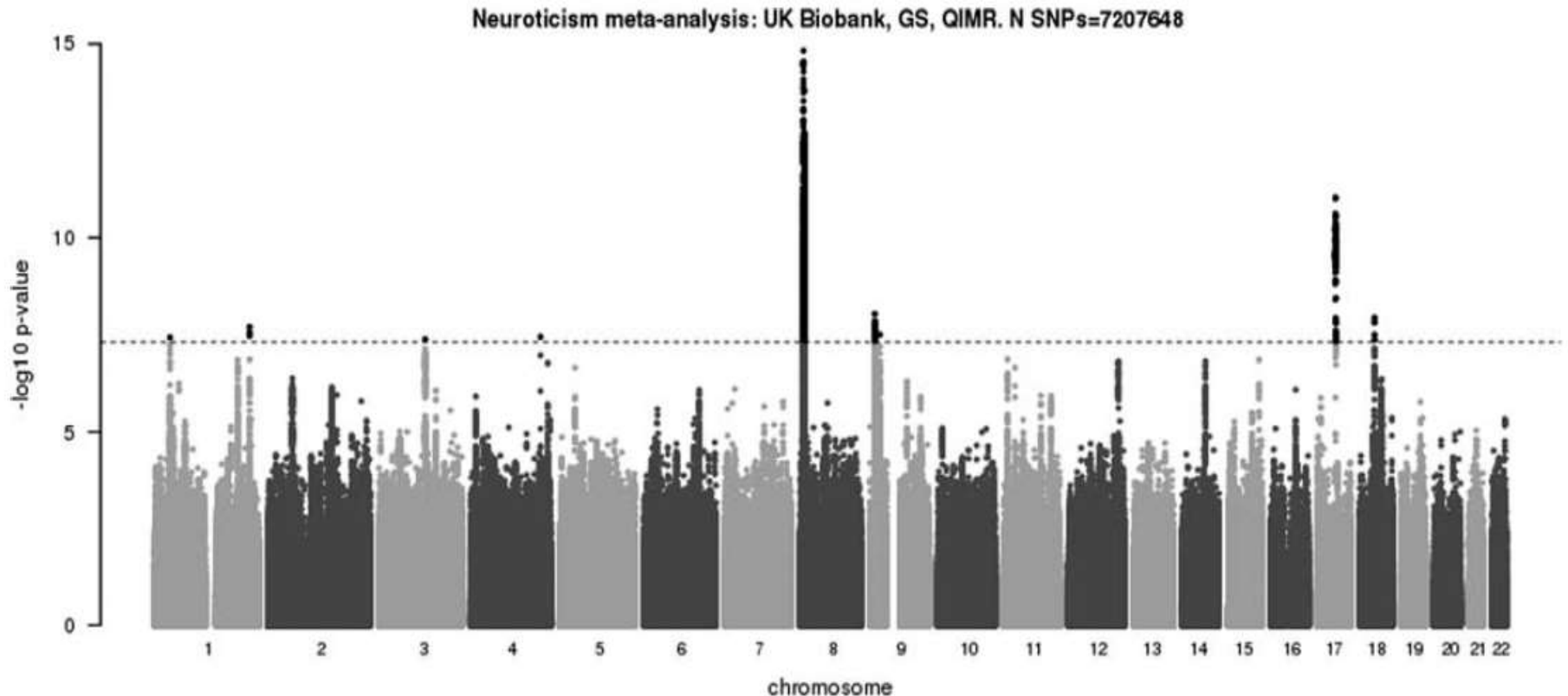
Assessment of Neuroticism:

1. Does your mood often go up and down?
2. Do you ever feel 'just miserable' for no reason?
3. Are you an irritable person?
4. Are your feelings easily hurt?
5. Do you often feel 'fed-up'?
6. Would you call yourself a nervous person?
7. Are you a worrier?
8. Would you call yourself tense or 'highly strung'?
9. Do you worry too long after an embarrassing experience?
10. Do you suffer from 'nerves'?
11. Do you often feel lonely?
12. Are you often troubled by feelings of guilt?

IMMEDIATE COMMUNICATION

Genome-wide analysis of over 106000 individuals identifies 9 neuroticism-associated loci

DJ Smith^{1,15}, V Escott-Price^{2,15}, G Davies^{3,15}, MES Bailey⁴, L Colodro-Conde⁵, J Ward¹, A Vedernikov², R Marioni^{3,5,6}, B Cullen¹, D Lyall¹, SP Hagenaars³, DCM Liewald³, M Luciano³, CR Gale^{3,7}, SJ Ritchie³, C Hayward^{6,8}, B Nicholl¹, B Bulik-Sullivan^{9,10,11}, M Adams¹², B Couvy-Duchesne⁵, N Graham¹, D Mackay¹, J Evans¹, BH Smith^{8,13}, DJ Porteous^{3,8,14}, SE Medland⁵, NG Martin⁵, P Holmans², AM McIntosh^{3,8,12}, JP Pell^{1,16}, IJ Deary^{3,8,16} and MC O'Donovan^{2,16}



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Health record linkage:

- Death registrations
- Hospital inpatient episodes (ICD-10 diagnoses)
- Primary care data
 - (Read codes, diagnoses, referrals, prescriptions, etc.)

Mental health questionnaire (2016)

- Current depression (PHQ-9 score)
- Major depressive disorder (including post-partum depression)
- Bipolar disorder
- Current anxiety (GAD-7 score)
- Generalised anxiety disorder
- Alcohol use disorder screening (AUDIT score)
- Previous addiction to alcohol or drugs
- Screening for previous psychotic symptoms
- Traumatic experiences as a child and as an adult
- Self-harm and suicidal behaviour

Conclusion: mental health in UK Biobank

- Significant discoveries already published and several others are in progress
- A new mental health questionnaire in 2016 will add considerable value to the resource
- Genomics, blood assay, brain imaging data and linkage to primary care data will all greatly enhance future research possibilities (and benefits to patients).

Thanks:

- **All UK Biobank participants**
- The UK Biobank administrative team:
 - Lorraine Gillions
 - Erin Scobie
- The UK Biobank scientific committee and data management teams

Collaborators:

Glasgow: Jill Pell, Danny Mackay, Donald Lyall, Breda Cullen, Joey Ward, Nick Graham, Dan Martin, Mark Bailey, Jonathan Cavanagh, Jon Evans

Edinburgh: Ian Deary, Andrew McIntosh, Mark Adams, Gail Davies

Cardiff: Mick O'Donovan, Ian Jones, Valentina Escott Price

London: Matthew Hotopf, Katrina Davies, Cathryn Lewis, Gerome Breen