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## **Low birth weight and risk of neuroticism and mood disorder in 83,545 participants of the UK Biobank cohort**

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**Background:** Low birth weight has been inconsistently associated with risk of developing affective disorders, including major depressive disorder (MDD). To date, studies investigating possible associations between birth weight and bipolar disorder (BD), or personality traits known to predispose to affective disorders - such as neuroticism - have not been conducted in large cohorts. In the UK Biobank cohort, we assessed whether low or very-low birth weight (1,500 g-2,490 g and <1,500 g, respectively) were associated with higher neuroticism scores in middle age, and/or lifetime history of either MDD or BD.

**Methods:** We controlled for possible confounding factors including year of birth, gender, maternal smoking and depression, ethnicity, socioeconomic status, and also potentially mediating physical disorders such as hypertension, in 83,545 participants with relevant data.

**Results:** Referent to normal birth weight, very-low/low birth weight were associated with higher neuroticism scores (b range = 0.21-0.31 inventory points), increased MDD in unadjusted and adjusted analyses (relative risk ratio range = 1.05 to 1.32), and BD (relative risk ratio range = 1.10 to 1.74). The associations between birth weight category and MDD were partially mediated by higher neuroticism.

**Conclusion:** Low/very-low birth weight was significantly associated with neuroticism, MDD and BD in adulthood, with evidence of a dose effect across low and very-low birth weight. These findings suggest that intra-uterine programming may play a role in lifetime vulnerability to affective disorders.

### **Biography**

Donald M Lyall is a Research Associate in Epidemiology at the Institute for Lifelong Health and Wellbeing, University of Glasgow. He completed his PhD at the University of Edinburgh, supervised by Prof. Ian Deary, Prof. David Porteous, and Prof. Joanna Wardlaw, and has previously worked as a Postdoctoral Research Fellow in cognitive neuroscience at the National Institute on Aging, NIH, Baltimore USA, and as an Assistant Clinical Psychologist at NHS Greater Glasgow and Clyde. His main research interests are in Epidemiology, Dementia, Neuroscience and Psychiatric disorders.

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