Supplementary Methods

Australian Genetics of Depression Study

Selection of Cases

Prior history of depression: Participants with prior depression were selected by comparing the reported age of the first episode of depression to the reported age of first pregnancy. Where the depression onset age preceded pregnancy, participants were included amongst those with a prior history of major depression. Where the age of depression onset matched the age of first pregnancy (or age of first pregnancy +1), or the age of the worst episode of PND, participants were included amongst those who experienced their first episode of depression perinatally.

Measures

Severity of depression: DSM-V diagnostic criteria for MDD were assessed using the CIDI-SF (World Health Organization 1994). First onset age was assessed by asking participants when they had first experienced a 2-week period of depression. Severity of depression was assessed using the number of lifetime episodes, and age at first episode. The total number of periods of at least 2 weeks of depression and/or anhedonia was calculated using a dropdown box where participants could select from 1 to 12 or 13+.

Demographic measures: Demographic measures included current age, marital status, and highest level of education completed or partially completed measured using an ordinal scale (primary; lower or higher secondary school; diploma; degree; or post-graduate studies). Ancestry analysis (self-report of ancestry of great-great-grandparents assigned to 18 geographical regions, Supplementary Table S2) considered associations between rates of
endorsing PND in women with ancestors only from Europe, compared to women with at least one non-European ancestor. Further analysis compared the rate of PND in those reporting Australian Indigenous ancestry to those of only European ancestry.

Clinical measures: Participants were asked to report any previous diagnoses from a total list of 19 psychiatric disorders, of which 13, with frequencies > 3% for all women with PND, were analyzed in this study (Supplementary Table S3). History of childhood trauma was assessed using responses to three questions that asked whether participants had been emotionally abused, emotionally neglected, or physically neglected during childhood. Additionally, participants were asked whether they had experienced physical or sexual assault or unwanted sexual experience at any time in their life, as well as their age at that time. For these questions, an age less than 16 was used to designate a childhood experience.

Reproductive measures: Reproductive measures included age at menarche, parity (number of live births), age at first birth, presence and severity of nausea and vomiting during pregnancy (NVP), and diagnosis of endometriosis or polycystic ovarian syndrome. Severity of NVP was measured using a scale adapted from Zhang et al. (2011). Gestational diabetes was measured as part of a general question about experience of medical conditions, followed by a request to specify the type of diabetes (if diabetes was selected).

Effects of antidepressants: Efficacy of the top ten most commonly prescribed antidepressants in Australia was assessed by asking how well each antidepressant a participant had ever taken worked for them on a three-point scale (Not at all well, Moderately Well or Very Well).
Questions from the Australian Genetics of Depression Study Questionnaire used in phenotypic analysis (excluding Depression Scales)

**Biological sex, age and marital status**

Are you male or female?
How old are you now?
What is your marital status?
  - Married
  - Separated
  - Divorced
  - Widowed
  - Never married
  - Living with partner/defacto (for a period of six months or longer)

**Education**

What is your highest level of education?
  - No formal education
  - Completed or partially completed primary school (years 1-7)
  - Completed or partially completed junior secondary school (years 8-10)
  - Completed or partially completed senior secondary school (years 11-12)
  - Completed or partially completed certificate or diploma
  - Completed or partially completed a degree
  - Completed or partially completed a Post Graduate Diploma, Masters degree, Doctorate or PhD
  - Don’t know

**Ancestry**

Thinking about what you know of your family history, which of the following best describes the geographic regions where your ancestors (i.e. your great-great-grandparents) come from? You may select as many choices as you need
  - England, Ireland, Scotland or Wales
  - Australia - not of Aboriginal or Torres Strait Islander descent
  - Australia - of Aboriginal or Torres Strait Islander descent
  - New Zealand - not of Maori descent
  - New Zealand - of Maori descent
  - Northern Europe including Sweden, Norway, Finland and surrounding countries
  - Western Europe including France, Germany, the Netherlands and surrounding countries
  - Southern Europe including Italy, Greece, Spain, Portugal and surrounding countries
  - Eastern Europe including Russia, Poland, Hungary and surrounding countries
  - Middle East including Lebanon, Turkey and surrounding countries
  - Eastern Asia including China, Japan, South Korea, North Korea, Taiwan and Hong Kong
- South-East Asia including Thailand, Malaysia, Indonesia, Singapore and surrounding countries
- South Asia including India, Pakistan, Sri Lanka and surrounding countries
- Polynesia, Micronesia or Melanesia including Tonga, Fiji, Papua New Guinea and surrounding countries
- Africa
- North America - not of First Nations, Native American, Inuit or Métis descent
- North America - of First Nations, Native American, Inuit or Métis descent
- Caribbean, Central or South America
- Don't know

Comorbidities
Have you ever been diagnosed with any of the following? Please select all that apply.
- Depression
- Bipolar disorder
- Premenstrual dysphoric mood disorder
- Schizophrenia
- Anorexia nervosa
- Bulimia
- Attention-deficit/hyperactivity disorder (ADD/ADHD)
- Autism spectrum disorder (Autism, Asperger's disorder)
- Tourette's disorder
- Anxiety disorder (Generalised anxiety disorder)
- Panic disorder
- Obsessive compulsive disorder
- Hoarding disorder
- Posttraumatic stress disorder (PTSD)
- Specific phobia (e.g. animals, heights, storms, blood / injection / injury, flying, enclosed spaces)
- Seasonal affective disorder (SAD)
- Social anxiety disorder (also known as Social phobia)
- Agoraphobia
- Personality disorder
- Substance use disorder

Antidepressants
Have you ever taken any of the following antidepressants (even if it wasn't for depression or anxiety)? *Please select all that apply.*

1st List (10 most commonly prescribed antidepressants):
- Sertraline (e.g. Zoloft, Eleva, Sertra, Sertracor, Setrona, Xydep)
- Escitalopram (e.g. Lexapro, Cilopam, Escicor, Esipram, Esitalo, Lexam, LoxaLate)
- Venlafaxine (e.g. Efexor, Altven, Elaxine, Enlafax, Venla, Venlexor)
- Amitriptyline (e.g. Endep)
- Mirtazapine (e.g. Avanza, Remeron, Milivin, Axit, Aurozapine, Mirtazon)
- Desvenlafaxine (e.g. Pristiq, Desfax)
- Citalopram (e.g. Cipramil, Celapram, Celica, Ciazil, Citalo, Talam)
- Fluoxetine (e.g. Prozac, Auscap, Lovan, Zactin)
- Duloxetine (e.g. Cymbalta, Andepra, Coperin, Deotine, Depreta, Drulox)
- Paroxetine (e.g. Aropax, Paxtine, Extine, Roxet)

2nd List:
- Dothiepin (e.g. Dothep)
- Fluvoxamine (e.g. Luvox, Faverin, Movox, Voxam)
- Doxepin (e.g. Sinequan, Deptran)
- Nortriptyline (e.g. Allegron)
- Moclobemide (e.g. Amina, Clobemix, Mohexam, Aurorix)
- Clomipramine (e.g. Anafranil, Placil)
- Reboxetine (e.g. Edronax)
- Mianserin (e.g. Lumin)
- Imipramine (e.g. Tofranil, Tolerade)
- Tranylcypromine (e.g. Parnate)
- Phenelzine (e.g. Nardil)

How well does / did each antidepressant work for you?
- Not at all well
- Moderately well
- Very well
- Don’t know

**Abuse**
Listed below are a number of difficult or stressful things that sometimes happen to people. For each event mark one or more of the boxes to the right to indicate that: (a) it **happened to you** personally; (b) you **witnessed it** happen to someone else; (c) you **learned about it** happening to a close family member or close friend; (d) you were exposed to it as **part of your job** (for example, paramedic, police, military or other first responder);
(e) you’re not sure if it fits; or (f) it doesn’t apply to you. Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.

(Relevant categories (only considered those marked “Happened to me”))

- Physical assault (e.g. being attacked, hit, slapped, kicked, beaten up)
- Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)
- Other unwanted or uncomfortable sexual experience

How old were you the first and last time these things happened?

**Childhood abuse**

People may experience stressful situations in childhood which may affect their future health and well-being. Please indicate if you experienced any of these situations during your childhood.

- Emotional abuse (e.g. often being told you were no good, yelled at in a scary way, threatened, ignored, or stopped from making friends)
- Emotional neglect (e.g. often not being shown affection, or not being given encouragement or support)
- Physical neglect (e.g. often not being given enough to eat or drink, appropriate clothing, shelter, medical care, education, supervision or a safe home environment)

**Menarche**

Have you begun to menstruate (started having your period)?

How old were you when you had your first menstrual period?

**Parity**

How many times have you been pregnant? If you’re unsure, please provide your best estimate. How many of these pregnancies resulted in live births (including caesarean section)?

**Morning sickness**

While many women experience morning sickness, there are differences in how severe morning sickness is. Did you have any morning sickness, nausea or vomiting during any of your pregnancies?

Thinking back to each pregnancy, which of the following best describes your experience?

- I did not have any nausea or vomiting
- Nausea and/or vomiting for less than 7 days, but I didn’t see a doctor about this and it didn’t disrupt my daily routine.
- Nausea and/or vomiting for more than 7 days, but I didn’t see a doctor about this. It didn’t disrupt my daily routine.
• It disrupted my daily routine, but it didn't affect my weight and I didn't need medication to manage it.
• It really disrupted my daily routine and I was prescribed medication (or was put on a drip) but it didn't lead to weight loss.
• It really disrupted my daily routine. I lost weight. I was prescribed medication or was put on a drip or feeding tube.
• I don't remember or am unsure.

**Gestational diabetes**

Have you ever had any of the following medical conditions? **Please select all that apply**
• Diabetes or high blood sugar

[For those selecting diabetes or high blood sugar:]

Please select the specific type of the medical condition(s) you have had.
• Type 1 diabetes
• Type 2 diabetes
• Gestational diabetes
• Other diabetes or high blood sugar

**Reproductive disorders**

Has a doctor ever diagnosed you with any of the following?
• Polycystic ovarian syndrome (a hormonal disorder characterised by ovarian follicles failing to ovulate and remaining as multiple cysts, distending the ovary)
• Endometriosis (the presence of tissue similar to the kind lining the uterus, at other sites in the pelvis)

