The Genes and Environment of Depression

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Questions

In regard to genes, shared environment and nonshared environment:

1) What are thought to be the influences of Depression?

2) What is not thought to be an influence of Depression?
The DSM-IV

Mood Disorders:

Depressive Disorders:
- Major Depressive Disorder (MDD)
- Dysthymic Disorder
- Depressive Disorder NOS

Mood Disorder Due to General Medical Condition

Additional Features and subtype specifications:
- Chronic
- Melancholic
- Atypical
Outline

- Interesting facts
- Heritability
- Genes
- Women and depression
- Medications
Interesting Facts

- Up to 1 in 5 Americans
- The 2nd most disabling disease in the USA by the year 2020
- Most common Ψ disorder in USA
- Found across the economic spectrum, cultures & ethnic groups
  - Not all cultures share same symptoms
- 20% of women and 10% of men
“Environment”

- Genes, Shared Environment and Nonshared Environment

- **Shared Environment**
  = how you were raised, parental influence, etc.

- **Nonshared Environment**
  = unique environmental effects, biological influences, anoxia, viruses, etc.

- Ultimately, “environment” does not necessarily mean “shared environment”
Heritability: Twin Studies

- Higher concordance rates in MZ twins than DZ twins
- Unique Environment Effects = 62%
- Additive Genetic Effects = 36%
- Shared Environment Effects = 2%
Family Studies

- Relatives have a threefold to ninefold increase in risk of developing MDD

- Recurrent illness runs in families more so than a single episode
Molecular Genetics

- Two ways for finding genes:
  - Linkage Studies
    - Just starting
  - Association Studies
    - Some support for polymorphisms in the DRD3 and the DRD4 genes (dopamine receptor genes)
    - More research needed
Why A Prevalence in Women?

- A 2:1 ratio for unipolar depression
- However, genders are equally affected for bipolar depression
  - And greater genetic influence
- Most twin studies show no evidence for sex differences in depression heritability

→ Social and Cultural?
Attributable or at least exacerbated by the presence of sex hormones

An Estrogen Receptor alpha gene polymorphisms may play a role in the susceptibility of MDD in females
  - Variability shown in women and not in men
  - More research needed
Medications

- Understanding the underlying mechanisms of depression arose from the development of treatments.
- About half (50%) of all patients will respond to a given medication.
- Does not protect against recurrence once use is terminated.
In Conclusion:
Is our current diagnostic system inadequate?

- Studies done on: depression, MDD, single depressive episode, depressive symptoms, premenstrual depression
- Some people respond to medications and some do not; but all these people are classified as “Depressed”
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- Recurrent depression more heritable than nonrecurrent depression
- More severe depression has different causes than milder forms
  - More severe form is more heritable
In Conclusion:
Is our current diagnostic system inadequate?

- Many women are successfully treated for premenstrual depression with SSRI’s.

- A Prevalence in Women
  - Misdiagnosis: MDD or premenstrual depression?
    - Insurance purposes?
In Conclusion: Further Research Needed

- Finding a specific gene
- Sex differences and age differences in depression heritability
1) Q: What are thought to be the influences of Depression?
A: Genetic influences and nonshared environmental effects.

2) Q: What is not thought to be an influence of Depression?
A: Shared environment

= Pinker and Harris!