Depression: What (if anything) is it, and what are its evolutionary origins?

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Figure 4: Rates of disability-adjusted life years (DALYs) per 100,000 individuals for mental and substance use disorders in 2010, by region.

Figure 3: Disability-adjusted life years (DALYs) for each mental and substance use disorder in 2010, by age

DSM-V diagnostic criteria for major depression

• Depressed mood
• Anhedonia
• Appetite or weight changes (+ or -)
• Sleep changes (+ or -)
• Psychomotor retardation or agitation (+ or -)
• Fatigue or loss of energy
• Loss of concentration
• Feelings of worthlessness or excessive guilt
• Suicidal ideation
Evolutionary explanations for depression

- Saving energy
- Sickness behaviour
- Disengagement from goals
- Managing risk-taking in adverse circumstances
- Problem solving
- Rumination
- Learning

Signalling and care eliciting
The issues about these are (a) their multiplicity; (b) people who experience bad circumstances and become depressed should have higher fitness than people who experience the same bad circumstances and are resilient.
Depression / low mood distinction

Harmful dysfunction of (adaptive) low mood system

- Genetic mutation
- Neurobiological malfunction
- Developmental dysregulation
Problems with the depression / low mood distinction

Fig. 7.1 Distribution of scores on a self-report measure of affective symptoms (the short form of the General Health Questionnaire; higher scores indicate more symptoms reported; “count” means the number of individuals in the sample with that symptom score), by 11,281 British 42-year-olds from the National Child Development Study cohort.
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Heterogeneity

Depression as a latent variable

Latent variable

‘Depression’

Anhedonia

Fatigue

Appetite

Suicidality
Latent variables in psychology

- ‘Extraversion’
  - Sociability
  - Ambition
  - Boldness
  - Leadership
‘Symptomics’ approach

- Fatigue
- Anhedonia
- Appetite
- Flat affect
- Suicidality
Depression is more than the sum score of its parts: Individual DSM symptoms have different risk factors. 
Symptomics approach: Different individuals have not just different symptom profiles, but different causal networks.

- Fatigue
- Appetite
- Anhedonia
- Flat affect
- Suicidality
- Poor concentration
- Stress
- Sleep
- Anhedonia

Diagram showing causal relationships between different symptoms.
Symptom networks as dynamical systems
Symptom networks as dynamical systems

Symptomic approach and evolutionary explanation

• The entities in need of evolutionary explanations are not ‘depression’ or even ‘low mood’ but (i) individual symptoms (fatigue, vigilance, etc.); and (ii) common causal linkages between symptoms

• By and large these have animal counterparts and already have sensible explanations

• Much ‘depression’ and ‘anxiety’ represents the normal functioning of this network in the face of adverse environments; and it’s ultimately a homeostatic network in most cases

• ‘Disorder’ in the system arises idiopathically, due to genetic risk, or because the contemporary environment does not contain certain regularities that the system evolved to expect
Evolution: Medicine or public health?

• Poverty
• Social isolation
• Physical inactivity
• Food insecurity
• Poor working conditions/ lack of job control
• Shift work