PSYC 260 (A01)
INTRODUCTION TO MENTAL HEALTH & WELLBEING

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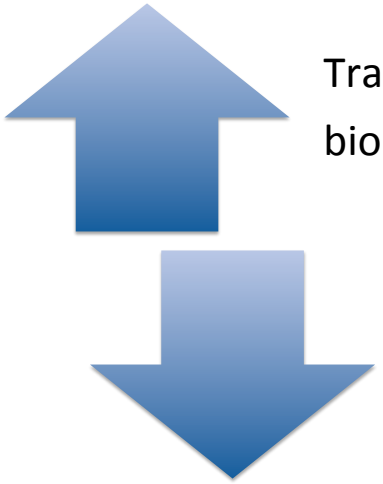
Today's Topics

- Biological perspective on abnormal behaviour:
  - Genetic vulnerabilities
  - Brain dysfunction and neural plasticity
  - Neurotransmitter & hormonal abnormalities
  - Temperament

Contemporary theories



Traditional biological viewpoint

Current viewpoint

Biological perspectives

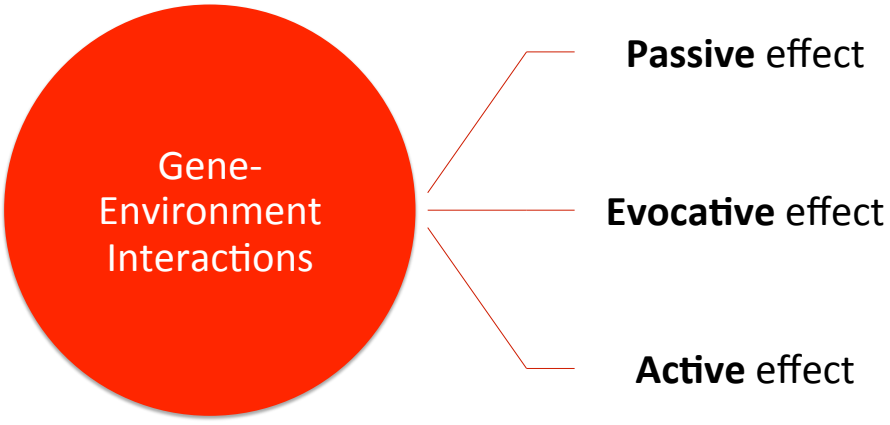
Four categories of biological factors relevant to maladaptive behavior

- Genetic vulnerabilities
- Brain dysfunction and neural plasticity
- Neuro-transmitter & hormonal abnormalities in brain and CNS
- Temperament

1. Genetic perspectives

Genotype:	*Phenotype*:
• Total genetic endowment	• Observed structural and functional characteristics

1. Genetic perspectives

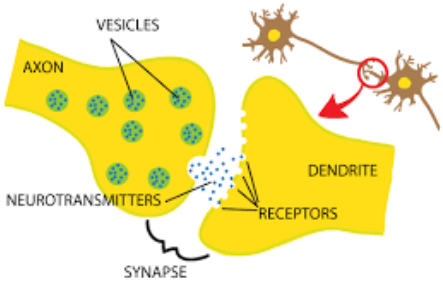


1. Genetic perspectives

- Traditional methods
  - Family history method
  - Twin method
  - Adoption method
- More recent methods
  - Linkage analysis
  - Association studies

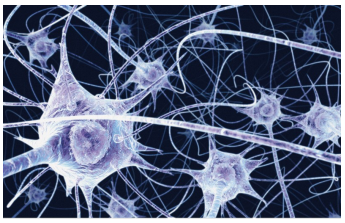
2. The BRAIN!

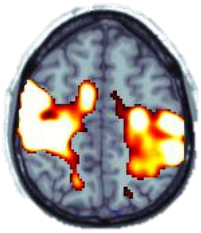
- Synapse: a tiny fluid-filled space between the axon endings of one neuron and the dendrites or cell body of another
- Neurotransmitter: chemical substances that are released into the substances by the presynaptic neuron when a nerve impulse occurs



2. Neural plasticity

- The brain remains "plastic", or adaptable, into adulthood
- Sensitive periods where dramatic brain development occurs
- Changes in organization, function, synaptic connections, and myelination
- E.g., recovery following brain injuries
- Brain changes in response to both positive and negative events





2. Neurotransmitters

"Neurotransmitter imbalances"

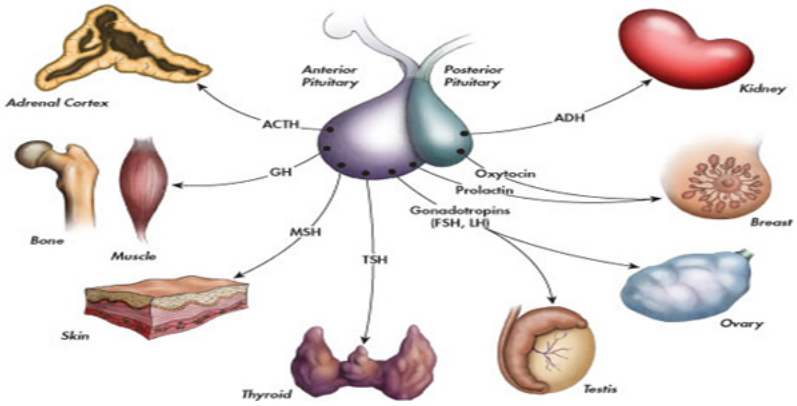
- Excess production and release into synapse
- Deactivation of neurotransmitters after their release into synapse
- Problems with receptors in postsynaptic neuron: too sensitive, not sensitive enough

5 most studied neuro-transmitters

- Norepinephrine
- Dopamine
- Serotonin
- Glutamate
- Gamma aminobutyric acid (GABA)

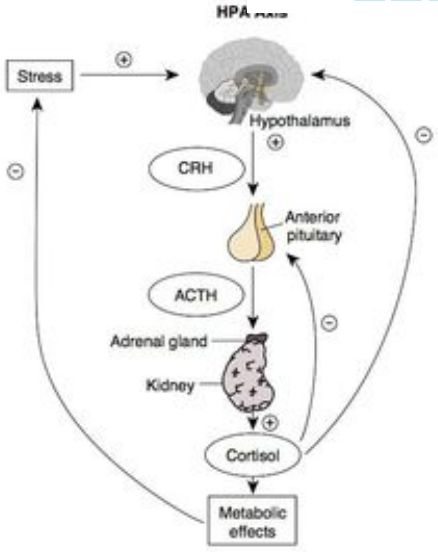
3. Hormone signaling

- Hormones: chemical messengers secreted by endocrine glans



3. Hormone signaling

Hypothalamic-pituitary-adrenal (HPA) axis



4. Temperament

Temperament: Child's reactivity and characteristic ways of self-regulation

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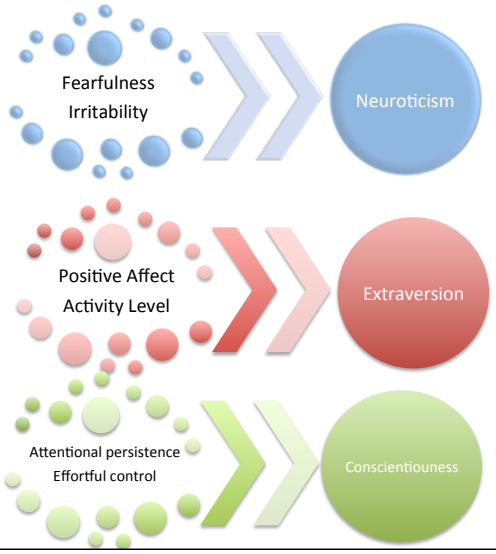
Early temperament is basis from which personality develops

4. Temperament

- Fearfulness
- Irritability & frustration
- Positive affect
- Activity level
- Attentional persistence and effortful control

4. Temperament



Biological Perspective

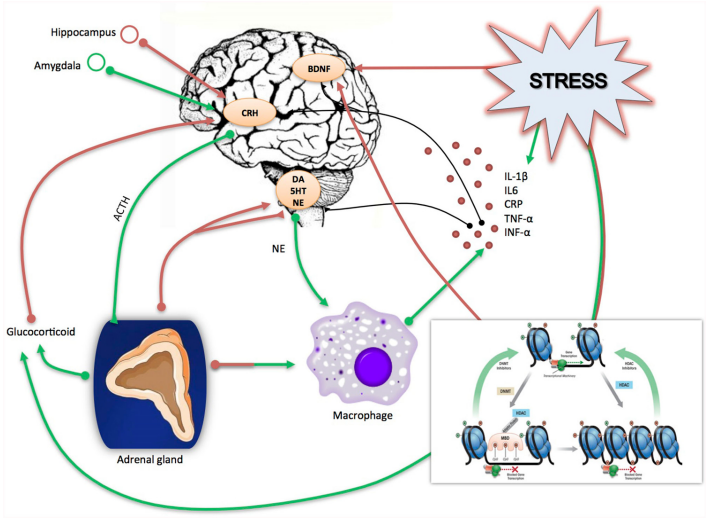
Importance of biochemical factors and innate characteristics in both normal and abnormal behavior.

Effects of psychological events are always mediated through CNS

Require multiple perspectives to fully understand abnormal (and normal) behavior

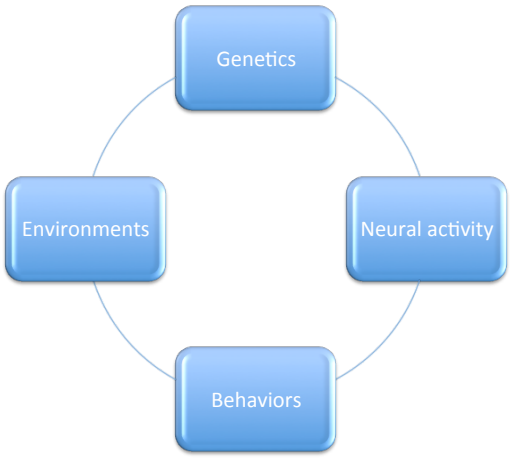
Just because there is a biological basis does not mean it is an illness

Biological Models



Biological Models

Developmental systems approach



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