

Physio Psych 2200, Study Guide Section V (wrapping up)

About 10 - 15 questions (out of 50) on the Make-up and Final will come from these two lectures.

Definition of Developmental Disability – Lifelong, manifest before age 22 (even if not diagnosed), affects functioning in 3 or more of these areas (independent living, self-sufficiency, learning, mobility, language, self-care, self-direction).

Know definitions for:

Williams syndrome (deletion of gene on ch7, mental retardation, language sparing, unusually friendly).

Down syndrome (trisomy ch21, mental retardation and/or learning disabilities).

Dyslexia (reading impairment in absence of other intellectual impairment).

Autism (one of the PDDs (pervasive developmental disorder), causes impairments in sensory processing, social skills, language).

ADD/ADHD (attention deficit disorder/attention deficit hyperactivity disorder; inattention, impulsivity, may include hyperactivity).

FAS (fetal alcohol syndrome, caused by prenatal alcohol exposure, mental retardation or learning disabilities).

Birth anoxia and/or premature bleeds (can cause cerebral palsy, mental retardation, learning disabilities).

How do we define disorders with no clear biological marker? Behavioral criteria as defined in the DSM (Diagnostic and Statistical Manual) are used.

What are some problems with using diagnostic criteria that depend on behavioral definitions? Example -- diagnostic criteria for autism has changed over the years, and now we cannot be sure *why* the apparent incidence of autism is rising. Is it just because more kids are being diagnosed who would have been missed before? Also, in the case of ADD, there is great controversy about whether the disorder is “real” or an artifact of an educational system that forces small children (especially boys) to sit quietly for long periods of time.

Mental retardation is behaviorally defined as an IQ under 70, using a standardized IQ test where the average is 100.

Both Williams and Down syndrome are characterized by MR – how are they different? Overall IQ is reduced, but Williams shows severe visuospatial deficits and language sparing, while Down shows more “even” cognitive deficits.

How are these differences reflected in the brain? Cortical reductions in WMS are primarily seen in visual and parietal cortex with sparing of language (temporal) areas, while in Down the reductions are more evenly distributed through cortex.

Define “savante” – Occurs in combination with autism (autistic savante) about 50%, remainder other developmental or acquired disabilities. An individual who is impaired on many scales, but has one genius-level ability (e.g., calculations, counting, drawing, music).

ADD/ADHD is treated with stimulants, which produces paradoxical calming in people with the disorder (even though it increases activity in normal individuals). The effectiveness of drug treatment is taken as one piece of evidence that the disorder is biological and not a “contrived” diagnosis for badly behaved children.

Psychopathologies

Define:

Schizophrenia

Depression

Bi-Polar Disorder

OCD (obsessive-compulsive disorder)

PTSD (post traumatic stress disorder)

Positive versus negative symptoms of schizophrenia -- positive (present but should not be (hallucinations)); negative (normally present but are missing in schizophrenia).

Biological aspects of schizophrenia – some heritability (not 100%), increased ventricle size, reduced hippocampal size, hippocampal cellular disarray, abnormal grey matter loss in adolescence, hypofrontality (reduced frontal cortical activation), increased incidence in babies born at end of winter (reduced sunlight?)

Dopamine hypothesis of schizophrenia – led to use of D2 blockers (typical antipsychotics), newer drugs block dopamine and also block serotonin (atypical antipsychotics).

Regions over-activated in depression – amygdala, and possibly frontal cortex (although latter is controversial as to whether hyperactivity is seen during resting state vs difficult tasks).

Drugs used to treat depression – most recently used drugs with best results are serotonin reuptake inhibitors (SSRIs).

Other features of depression – increased cortisol levels, poor HPA (hypothalamic-pituitary-adrenal) feedback, reduced stage 3-4 (deep) sleep.

Features of bi-polar disorder – increased ventricular size, use mood stabilizers (like lithium), poor drug compliance due to not wanting to lose the positive aspects of manic phase.

Features of OCD – over-activity in cortico-striatal circuit, can be treated by small lesions of structures in this circuit such as anterior cingulate. Drug treatments focus on anti-anxiety and anti-depressants.

Features of PTSD – flashbacks and panic attacks associated with traumatic memories, may be able to be treated by retrieval and re-consolidation of memories under simulated conditions with lower emotional content.