

PSYCHIATRY

for

Medical Students and Residents

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PSYCHIATRY

Classification

- **Biological Psychiatry**
 - Physiological & Neurochemical imbalance
 - Treatment: Medications &/or ECT
- **Psychodynamic Psychiatry**
 - Psychological Stresses
 - Treatment: Psychotherapy &/or Psychoanalysis
- **Psychosis**
 - Impaired Reality Testing
 - Thought Disorders
 - Content (Delusions)
 - Process (Loose Associations)
- **Neurosis**
 - No abnormal Reality / Behavior
 - Ex: Mild Depression, Sexual Dysfunction, Anxiety Disorder
- **Organic Disorder**
 - Clear Medical Etiology
 - Ex: Drug Toxicity
- **Functional Disorder**
 - No identifiable Medical Etiology / Pathophysiology
 - Ex: Schizophrenia

DSM-IV

- Analyze symptoms
- Diagnostic features: Course of illness & Exclusion Criteria
- Diagnostic reliability: Concordance between physicians' diagnoses of same patient
- Lack of validity
- Guidelines
 - Precedence to conditions due to Substance Abuse &/or Medical problems
 - DO NOT give separate Dx for minor disorder
- Main Axes
 - **Axis I**: Majority of Diagnoses
 - **Axis II**: Disorders of Personality & Retardation
 - **Axis III**: Any other Medical Conditions (related or not)
 - **Axis IV**: Environmental &/or Psychosocial problems
 - **Axis V**: Global Assessment of Functioning (**GAF**)
 - Psychological, Social & Occupational functions
 - NOT Physical functions
 - Scored 1-100
 - **V-codes**: No Diagnosis in **Axis I** or **Axis II**
 - Used for problems w/o disorder
 - Ex: Relational problems (Marital), Abuse/Neglect (Physical, Sexual)

Mental Status Examination

- The mental status examination is used to describe the clinician's observations & impression of the patient during the interview. In conjunction with the history of the patient, it is the best way to make an accurate diagnosis.
- **General Description**
 - **Appearance:** grooming, poise, clothes, body type (disheveled, neat, childlike)
 - **Behavior:** quantitative & qualitative aspects of motor behavior (restless, tics)
 - **Attitude** toward the examiner: (cooperative, frank & seductive)
- **Speech**
 - The physical characteristics of speech (Rate, clarity, volume, rhythm, relevancy, coherency, fluency)
- **Mood & Affect**
 - **Mood:** Predominant emotional state of patient (depressed, anxious, angry)
 - **Affect:** Expression of patient's present emotional responsiveness, appropriateness, variability (range; labile), intensity (blunted, flat)
 - **Congruent** - when Mood & Affect are the same
 - **Incongruent** - when Mood & Affect are opposite each other
- **Thought**
 - **Form (Process)** of thought
 - The way in which a person thinks (flight of ideas, loose associations, Tangentially "point of conversation never reached" & circumstantiality)
 - **Content** of thought
 - What the person thinking about (delusions, idea of reference, thought insertion/withdrawal, broadcasting, paranoia, obsession, compulsion, phobia, suicidal ideas)
- **Appropriateness**
 - In reference to the context of the subject (appropriate or inappropriate)
- **Perceptual Disturbances**
 - Experienced in reference to self or the environment (hallucinations, illusions, dissociative states "depersonalization & derealization")
- **Sensorium & Cognition (Mini Mental Status Exam)**
 - **Alertness** & level of ***Consciousness***: (awake, clouding of consciousness, etc.).
 - **Orientation**: time, place, and person.
 - **Concentration & Attention**: serial sevens, serial threes, spell backwards
 - **Memory**: recent, remote, recent past, and immediate retention and recall.
 - **Language (Read & Write)**: Ability to read a sentence & perform what it says
 - **Visuospatial Ability**: Copy a figure
 - Lost in Construction Apraxia (Non-dominant Partial)
 - **Abstract Thinking**: similarities and proverb interpretation
 - Fund of information and **knowledge**: calculating ability, name past presidents
- **Impulse Control**
 - Estimate in history or behavior during the interview
- **Judgment & Insight**
 - Ability to act appropriately and self-reflect
- **Reliability**
 - Ability to accurately assess his/her situation

Interviewing Techniques

- **Open-Ended Questions**
 - Allow the patient to speak in his own words as much as possible
 - **Not** YES or NO answers: “Can you tell me about the voices?”
- **Closed-Ended Questions**
 - Ask for specific information without allowing options in answering
 - YES or NO answers: “Are you hearing voices?”
- **Facilitation**
 - Physician helps the patient continue by providing verbal and nonverbal cues
 - “Yes, please, continue”
- **Confrontation**
 - Physician points something out to the patient
 - “You are very upset today”
- **Reassurance**
 - If truthful, can lead to increased compliance
 - “We both know that what you have is serious” - Truthful
 - If false, can lead to decreased compliance
 - “Everything will be alright” - False
- **Leading**
 - The answer is suggested in the question
 - “Are voices telling you to hurt yourself?”

Psychiatric Tests

Intelligence Tests

- **Intelligence Quotient (IQ)** measures academic performance
$$IQ = MA / CA \times 100$$

MA = Mental Age (Performance Score)
CA = Chronological Age (Actual Age)
Mean IQ = 100 ± 1 SD (SD = 15)
- Adults
 - Wechsler Adult Intelligence Scale Revised (**WAIS-R**)
- Children
 - Wechsler Intelligence Scale for Children Revised (**WISC-R**)
 - For children ≥ 6 yo
 - Stanford-Binet: Intelligence Scales (First IQ test developed)
 - For young children < 6 yo

Personality Tests

- **Objective Tests:** Use simple stimuli & do not need much clinical experience
 - Minnesota Multiphasic Personality Inventory (**MMPI**)
- **Projective Tests:** Use ambiguous stimuli, need clinical experience, not diagnostic
 - Rorschach Test (**inkblot**)
 - Thematic Apperception Test (**TAT**)
 - Sentence Completion Test
 - Drawings
- **Neuropsychologic Tests:** Used to detect organicity from any psychiatric disorder:
 - Bender-Gestalt
 - Luria-Nebraska
 - Halted-Reitan

Psychodynamic Theories

Drive Theories

- Internal drives give rise to thoughts, feelings, behaviors
- Problems arise when drives conflict
- **Psychoanalytic:** Freud → sex, pleasure, hunger, aggression, avoidance of pain
 - Topographical model: Conscious, preconscious, unconscious
 - Psychosexual development: oral, anal, phallic, latency, genital
 - Structural model
 - **Id** (Unconscious Drives/Instincts - Sex & Aggression): Present at birth
 - **Ego** (Rational/Abstract Thought, Defense Mechanisms, Judgment, Objective Relationships): Developed shortly after birth
 - **Superego** (Moral Conscience): Formed during latency period. (Right & Wrong)
- **Analytic Psychology:** Jung; shared symbolic past forms
 - Collective unconscious (structure)
 - Archetypes: Concepts the brain is preprogrammed to use
 - Complexes formed from interactions of archetypes with individual experience, tested by free association (time to respond)

Relationship Theories

- Thoughts, feelings, behaviors are driven by need for attachment to others
- Object Relations
 - Klein (infant + mother-object)
 - Bowlby (attachment-separation; parent + child)
- Interpersonal therapy
 - Sullivan; interpersonal forces important for development
- Self-Psychology
 - Kohut: Create cohesive sense of self through empathic interactions w/ parents & others

Humanistic Theories

- Each individual has potential for autonomous function, growth & self-actualization (become who you truly are)
- Client-centered Therapy
 - Rogers: individual strives for self-actualization
 - Helped by therapists w/ unconditional positive regard for patient
- Existential therapy
 - May; authenticity of patient & therapist crucial for development

Developmental Theories

- Personal growth occurs in series of developmental stages
 - Psychosocial Theory - Erickson (Lifelong)
 - Integrity vs. Despair
 - Major depression in > 65 y.o. age group
 - Cognitive Theory - Piaget (Children)

Psychodynamic Psychotherapy

DEFENSE MECHANISMS

- The way & means that the *Ego* wards off anxiety & controls instinctive, urges & unpleasant affects (Emotions)
- All Defense Mechanisms are Unconscious (except *Suppression*), Discrete, Dynamic & Irreversible, Adaptive & Maladaptive
- Highly adaptive (*mature*)
 - Altruism, Humor, Sublimation & Suppression
- Less adaptive
 - Displacement, Intellectualization, Isolation of Affect, Rationalization, Reaction Formation & Repression
- Primitive (*immature*)
 - Acting out, Denial (deletion from consciousness), Projection & Splitting
- Transference & Countertransference
 - Brings unconscious topics into consciousness
 - Transference
 - Feelings of patient toward therapist
 - Occurs in all patient/physician relationships
 - Countertransference
 - Feelings of therapist toward patient
 - Occurs in all patient/physician relationships
 - Interpretation
 - Therapist identifies feelings, drives, and defenses in action

Types of Defense Mechanisms

- **Projection**
 - Attributing your own wishes, thoughts, or feelings onto someone else
 - Usually seen in **Paranoid Personality**
 - “I’m sure my wife is cheating on me”
- **Denial**
 - Used to avoid becoming aware of some painful aspect of reality
 - “I know I do not have cancer”
 - The next step in management
 - If patient continue treatment: Do Nothing
 - If patient refuse treatment: Find out why & confront
- **Splitting**
 - External objects are divided into all good or all bad
 - Usually seen in **Borderline Personality Disorder**
 - “The morning staff is much better than the evening staff”
- **Blocking**
 - Temporary block in thinking
 - “I can’t seem to remember his name”
- *** **Regression** (*The Least Mature “Most Immature” D.M.*)
 - Return to an earlier stage of development
 - “Older person acting as a child”
 - “Ever since my divorce, my 5-year-old has begun to wet the bed”

- **Somatization**
 - Psychic derivatives are converted into bodily symptoms
 - “Just thinking of the exam I get butterflies in my stomach”
 - Somatoform Disorder - Usually seen in **Depression**
- **Introjection**
 - Features of the external world are taken and made part of the self
 - Opposite to **Projection**
 - “The resident physician dresses like the attending”
- **Displacement**
 - An emotion or drive that is shifted to another that resembles the original
 - Usually seen in **Phobias**
 - “My husband kicked the dog every time we had an argument”
- **Repression**
 - An idea or feeling is withheld from consciousness (unconscious forgetting)
 - “I do not remember having had a dog”
- ***** Suppression (*The only Conscious D.M.*)**
 - Conscious forgetting
 - “I would rather forget that my dog was run over by a car”
- **Intellectualization**
 - Excessive use of intellectual processes to avoid affective experience
 - Used to decrease anxiety
 - “It is interesting to note the specific skin lesions which seem to arise as a consequence of my end-stage disease”
- **Isolation**
 - Separation of an idea from the affect that accompanies it
 - Horrible thing happened & person don’t show emotion, as if nothing happened
 - “As she arrived to identify the body, she appeared to show no emotion”
- **Rationalization**
 - Rational explanations used to justify unacceptable attitudes or behaviors
 - “I did not pass the test because it was very difficult”
- **Reaction Formation**
 - An unacceptable impulse is transformed into its opposite
 - Results in the formation of character traits
 - “Listen to him telling he was not afraid, when I saw him crying”
- **Reaction Formation**
 - Thoughts of an unacceptable behaviors
 - **Reaction Formation = Obsession “*thoughts*” in OCD**
- **Undoing**
 - Acting out the reverse of an unacceptable behavior
 - **Undoing = Compulsion “*Acts*” in Obsessive Compulsive Disorder**
 - “I need to wash my hands whenever I have these thoughts”
- **Acting out**
 - Behavioral or emotional outburst
 - “I can't explain why he has those temper tantrums”
- **Humor**
 - Permits the expression of feelings & thoughts without personal discomfort
- ***** Sublimation (*The Most Mature D.M.*)**
 - Impulse gratification has been achieved, but the aim or object has been changed from unacceptable to acceptable; allows instincts to be channeled
 - “Jack the Ripper becomes a surgeon”

CNS Development

CRITICAL DEVELOPMENT PERIODS

- As you develop, you make more and neuronal (synaptic) interconnections, utilizing fewer and fewer neurons. That is, many neurons undergo apoptosis after initial neonatal period.
 - 2nd and 3rd trimesters
 - 8 months - 2 yrs old
 - 6-7 years
 - 8-9 years

HARLOW'S MONKEYS

- Experiments raising monkeys in different environments and observing them as adults.
- Three conditions were set up:
 - Raised in bare-wire cage, artificial nipple, wooden armature & source of food:
 - The monkeys died
 - Raised in similar cage, but arm and nipple were covered by terry cloth, providing snugly cutaneous touch:
 - They survived to become antisocial but had no reproductive success
 - Raised as in (2) but they saw a picture of a simple face reproductive success. They had more success than the other groups though
 - Grew up to be nerd monkeys and tried to interact with other monkeys but had very little reproductive success. They had more success than the other groups though.

CRECHE SYNDROME

- Baby's denied love in neonatal period have higher mortality & morbidity rate
- Baby's raised in a prison where they were allowed to interact with their mothers thrived even better than the babies raised by an orphanage without such interaction
- Talking to baby's is crucial for language development

PARENTING

- Child should be able to engage parent's attention but should not have total control over parent's attention (for fear of manipulation)
- Child should have reasonable boundaries for undergoing exploratory behavior.

CHILD & ADOLESCENT DEVELOPMENT

- **INFANCY** (0-2 yrs): attachment, social smile (2 months), stranger anxiety (7-8 months), oral stage, basic trust, sensorimotor
- **PRESCHOOL** (2-6 yrs): language, cognitive/motor skills, separation/individuation, negativity ("NO"), anal stage, Oedipal stage (dyad → triad)
- **SCHOOL AGE** (6-12 yrs): logic/reason (concrete operations), latency stage, industry/inferiority
- **ADOLESCENCE** (12-18 yrs): abstract thought (formal operations), autonomy, identity vs. role confusion, peer influences

Childhood Development

DEVELOPMENTAL MILESTONES

- **Gross Motor**
 - 0-6 months: Innate motor reflexes.
 - 6 months: Sits up well and can roll over.
 - 1 year: Walks.
 - 18 months: Climbs.
 - 2 years: Runs.
 - 3 years: Jumps, stands on one foot.

- **Fine Motor**
 - 0-6 months: Undeveloped.
 - 6 months: Transfers objects from one hand to the other.
 - 1 year: Manipulates objects.
 - 18 months: Uses simple objects, such as spoons and sticks.
 - 2 years: Able to copy a circle, and later a square and triangle.
 - 3 years: Able to copy a cross.

- **Perceptual-Cognitive**
 - 0-6 months: Attends to stimuli and moves in relation to them.
 - 6 months: Visually tracks, inspects and discriminates among people & objects.
 - 1 year: Notes discrepancies between expected and actual events.
 - 18 months: Identifies common objects, such as a ball or a shoe.
 - 2 years: Able to think abstractly and classify information.
 - 3 years: Capable of internal reasoning.

- **Communicative**
 - 0-6 months: Cries and coos.
 - 6 months: Cries, laughs, and babbles using consonants.
 - 1 year: First words are spoken.
 - 18 months: 20-100-word vocabulary.
 - 2 years: 200-300-word vocabulary.
 - 3 years: 1,500 words, including pronouns.

- **Emotional**
 - 0-6 months: Negative and neutral affects.
 - 6 months: Enjoys interacting playfully with others.
 - 1 year: Displays pride, anger, and shame.
 - 18 months: Displays complex emotion.
 - 2 years: Displays increasingly more complex emotion.
 - 3 years: Displays a full range of complex emotion.

- **Social**
 - 0-6 months: Attracted to faces, has social smile (2 months)
 - 6 months: Displays stranger anxiety
 - 1 year: Displays separation anxiety
 - 18 months: Displays assertiveness and social communication
 - 2 years: Displays complex social interaction
 - 3 years: Displays complex social interaction & goal setting

THEORIES ON HUMAN DEVELOPMENT

- **ETHOLOGIC (DARWIN, BOWLBY)**
 - Deals with mother/child bonding & imprinting
 - Deals w/superfluous neurons loss after birth (neurons development & apoptosis)

- **PSYCHOANALYTIC (FREUD)**
 - Freud believed that children are influenced by sexual drives
 - Infants are capable of sexual activity from birth, the first stages of which nonsexual
 - **ORAL PHASE (BIRTH - 1 YR)**
 - Revolve around oral pleasure, self-satisfaction
 - Manifested by chewing, biting & sucking
 - **ANAL PHASE (1-3 YRS)**
 - Toilet training; anal-retentive
 - Primarily involved in bowel functions & bladder control
 - If harsh toilet training, may become “Anally fixated” (obsessive-compulsive personality disorder) ***
 - **PHALLIC-OEDIPAL PHASE (3-5 YRS)**
 - Genital area is the main site of gratification
 - Penis envy & fear of castration are evident during this stage
 - Fantasies involving opposite-sex parent “Oedipal complex”
 - **LATENCY PHASE (5-12 YRS)**
 - Nothing / Smoldering
 - Formation of the superego
 - Sexual interests are quiescent (inactive)
 - Sublimation of sexual energy into energetic learning & play activities
 - **GENITAL PHASE (11+ YRS)**
 - Adult sexuality & relationships
 - Capacity for true intimacy

- **PSYCHOSOCIAL (ERICKSON)**
 - Human personality was determined by childhood and adult experiences
 - Stages are determined by crises, which are the turning points of the stages
 - Important for boards but not clinically
 - **TRUST -VS- MISTRUST (BIRTH - 1 YR)**
 - Analogous to Freud's Oral Stage
 - Infants develop feeling of trust or mistrust according to satisfying their needs (Infant learns to trust his mother)
 - **AUTONOMY -VS- SHAME (1-3 YRS)**
 - Analogous to Freud's Anal Stage
 - Child learns to act alone
 - Children have a sense of mastery over themselves & their drives
 - They can be cooperative or stubborn. (NO)
 - **INITIATIVE -VS- GUILT (3-6 YRS)**
 - Analogous to Freud's Phallic Stage
 - Does child acquire guilt?
 - Initiates both motor & intellectual activity
 - Sexual curiosity & sibling rivalry

- **INDUSTRY -VS- INFERIORITY (6-12 YRS)**
 - Analogous to Freud's Latency Stage
 - Mastery of grade school skills
 - Child enters program of learning
 - Able to work & acquire adult skills
- **IDENTITY -VS- ROLE CONFUSION (12-20 YRS)**
 - Group identity
 - Time to discover yourself
 - Deal with morality & ethics
 - Identity crisis occurs at the end of this stage
- **INTIMACY -VS- ISOLATION (20-30 YRS)**
 - Form relationships or become a loner
 - Intimacy of sexual relations, friendships & all deep associations
- **GENERATIVITY -VS- STAGNATION (30-65 YRS)**
 - Having & raising children as well as other interests outside the home
 - If childless, development of altruism & creativity
 - Mid-life crises
- **EGO INTEGRITY -VS- DESPAIR (> 65 YRS)**
 - A sense of satisfaction OR dissatisfaction with one's life
- **COGNITIVE THEORY (PIAGET)**
 - Intelligence is an extension of biologic adaptation & has a logical structure
 - How children & adolescents think & acquire knowledge
 - **SENSORIMOTOR (BIRTH - 2 YRS)**
 - Child develops **Schema**, patterns as to how things work
 - **Object Permanence** is acquired & achieved
 - Child knows an object is still there when it is removed from view
 - Infants begin to learn through sensory observation & motor functions
 - Child begins to learn concept of causality (If I cry, then Mom comes)
 - **PREOPERATIONAL (2-7 YRS) *****
 - Acquisition of **declarative memory** (memory of facts & events, which are represented symbolically, as opposed to how to do things) & language, the two of which must be co-acquired
 - Child uses symbols & language more extensively
 - They are unable to distinguish fact from fiction. Fantasies are common
 - **Personification**: Typically attribute child feelings to inanimate objects
 - Children are egocentric, use animistic thinking & sense of justice
 - Death is reversible *** & Lack the law of conservation ***
 - **CONCRETE OPERATIONAL (7-11 YRS)**
 - Grade school
 - Acquire logical steps & sequencing
 - Understand the law of conservation
 - Egocentricity is replaced by operational thought
 - They can see things in other's perspective
 - Death is irreversible at the age of 10
 - **FORMAL OPERATIONAL (11+ YRS to End of Adolescence)**
 - Abstract & existential thinking (reason deductively & define concepts)
 - The ability to think about one's own thoughts
 - Characterized by hypothetical thinking & deductive reasoning

- **OBJECT RELATIONS THEORY (MAHLER)**
 - Development of individuation in infants and toddlers (1-3 yrs old)
 - **NORMAL AUTISTIC PHASE (BIRTH - 4 WEEKS)**
 - Child can't sense that he is a separate identify from parent
 - Existence strictly as extension of parent
 - **NORMAL SYMBIOTIC PHASE (4 WEEKS - 5 MONTHS)**
 - Child can begin to identify an environment separate from parent, but still relies almost exclusively on parent
 - **SEPARATION INDIVIDUATION PHASE (5 MONTHS - 36 MONTHS)**
 - Child begins to separate from parents
 - **1ST SUB-PHASE -- DIFFERENTIATION (5-10 MONTHS)**
 - Child learns that he or she can walk away from Mom
 - **2ND SUB-PHASE -- PRACTICING (10-16 MONTHS)**
 - Child practices independence
 - Walks away & comes back
 - **3RD SUB-PHASE -- RAPPROACHMENT (16-24 MONTHS)**
 - Child throws tantrums in frustrating attempts at independence
 - **4TH SUB-PHASE -- CONSOLIDATION & OBJECT CONSTANANCE (24-36 MONTHS)**
 - Child build permanent picture of Mom and begins to understand that when Mom is absent, she will return
 - Do not confuse this with object permanence (Piaget), in which a child knows that an object is present when it is removed from site

- **MORAL THEORY (GILLIGAN)**
 - What is right is what makes Mommy happy & what is wrong is what makes Mommy angry

- **SOCIAL THEORY**
 - Child imitation of parents

- **ATTACHMENT THEORY**
 - Need for emotional comfort & security from Mommy
 - **HARLOW**
 - Infants preferred cloth mother over metal mother even when metal mother provided food
 - **BOWLBY**
 - Program infant to produce behaviors that elicit care-giving from adults

- **ATTACHMENT DISORDERS**
 - **ANACLITIC DEPRESSION**
 - Failure to thrive of infants in institution, given food but not given tender loving care
 - **Psychosocial Dwarfism**
 - Can result from neglect
 - Failure to thrive & hence no development

- **TEMPERAMENTAL DIFFERENCES IN INFANTS**
 - Inherent, genetic traits in infants
 - These behavior dimensions remain stable over time
 - Activity Level
 - Rhythmicity
 - Approach or Withdrawal
 - Adaptability
 - Intensity of Reaction
 - Threshold of Responsiveness
 - Distractibility
 - Attention Span and Persistence

- **THREE COMPONENTS OF BEHAVIOR**
 - COGNITION: Learning & memory
 - EMOTION: Also involves memory
 - **Aversive** (avoidant) behavior
 - **Appetitive** (desirous) behavior
 - Hunger
 - Sex
 - CONATION: Goal-seeking, directed or planned motor behavior
 - **FRONTAL LOBES** are required for conation. Lesion of frontal lobes results in normal cognition, but inability to execute planned (conative) motor tasks

- **LEARNING THEORY & BEHAVIORAL THERAPY**
 - Goals = change behavior & think more accurately
 - **Specific phobia**: ex. dogs, flying, heights, snakes
 - Therapy
 - Behavioral – Exposure therapy
 - Prolonged & frequent (6-10) sessions
 - Gradual exposure to stimulus
 - End when anxiety reduced
 - Learning principles
 - Conditioning (stimulus elicits maintained response)
 - Negative reinforcement (behavior repeated to avoid a negative emotion)
 - Habituation (fear eliminated by prolonged contact w/ phobic stimulus)
 - **Social phobia**: ex. public speaking; fear of being scrutinized by others
 - Therapy
 - Cognitive – Cognitive restructuring
 - Correct irrational thinking
 - Behavioral – Exposure therapy & social skills training
 - Social distance, eye contact, movement, content
 - Learning principles
 - Modeling (observe others)
 - Shaping (acquire behavior by reinforcement)
 - Positive reinforcement (behavior ↑ in frequency by reward)
 - Punishment (behavior ↓ in frequency)
 - Irrational thinking (inaccurate beliefs that others are scrutinizing)

Childhood Disorders

MENTAL RETARDATION (AXIS II) ***

- Definition
 - **IQ < 70** & must be accompanied by impairment in social adapting functioning to demands in school, work, social & must occur < **18 years** of age
- Risk Factors/Etiology
 - Associated Genetic & Chromosomal abnormalities
 - Down, fragile X & Cri du Chat syndromes
 - Inborn errors of
 - Metabolism Errors
 - Lipidoses, Aminoacidurias & Glycogen Storage diseases
 - Associated intrauterine infections
 - Rubella, Cytomegalovirus & other viruses
 - Intrauterine exposure to toxins & other insults
 - Alcohol, Hypoxia or Malnutrition
 - Postnatal causes
 - Exposure to toxins, infection & heavy metals
 - Poor prenatal care
 - Physical trauma & social deprivation
- Prevalence
 - **1%** of the population. Males > Females
- Physical Examination
 - Evidence of underlying disorder or injury.
- Diagnostic Tests
 - Amniocentesis: May reveal chromosomal abnormalities associated with mental retardation in high-risk pregnancies (mother > 35 years)
- Differential Diagnosis
 - Learning & communication disorders, sensory impairment & Autistic disorder
 - Borderline intellectual functioning (IQ 70-100) & Environmental deprivation
- Treatment
 - Primary prevention: Genetic counseling, good prenatal care & environment
 - Special education techniques & Behavioral guidance

Mild Retardation (IQ 50-70)

- Attain academic skills to approximately the sixth-grade level
- Live independently in the community or with minimal supervision
- Have problems with impulse control and self-esteem
- Associated with conduct disorders, substance-related disorders & ADHD

Moderate Retardation (IQ 35-50)

- Attain academic skills to a second-grade level
- Manage activities of daily living under supervision in residential community settings
- Have significant problems conforming to social norms
- Individuals with Down's are at high risk for development of Alzheimer's disease.

Severe Retardation (IQ 20-35) & Profound Retardation (IQ < 20)

- Little or no speech
- Limited abilities to manage self-care & requires highly supervised care settings

LEARNING DISORDERS

- Definition
 - Learning achievement in specific areas that is below expectations
 - Types are reading disorder (most common), mathematics disorder & disorder of written expression
- Risk Factors/Etiology
 - Cerebral palsy effects on the central nervous system (CNS) function
 - Substance-induced conditions: Lead poisoning & fetal alcohol syndrome
- Prevalence
 - 5% of school-age children
- Onset
 - Usually during elementary school
- Presenting Symptoms
 - Conduct disorder, oppositional defiant disorder & ADHD
 - Poor self-esteem & social immaturity
 - School failure & behavioral disturbances
 - Deficits sometimes persist into adulthood & interfere w/occupational function
- Diagnostic Tests
 - IQ testing & academic achievement tests
- Differential Diagnosis
 - Environmental deprivation
 - Hearing or vision impairment
 - Mental retardation
- Treatment
 - Special education
 - Counseling of patients & families

AUTISTIC DISORDER ***

- Definition
 - Impairments in social interaction, **communication**, activities & interests
- Risk Factors/Etiology
 - The cause is CNS damage due to known or unknown factors
 - Maternal Rubella, Phenylketonuria, Encephalitis, Fragile X syndrome, Tuberos Sclerosis & Perinatal Anoxia
- Prevalence
 - **0.04%** of the general population.
- Occurs
 - **5 to 1 male-to-female** ratio
- Onset
 - < 3 years of age.
- Social symptoms
 - **Lack of peer relationships** & failure to **use nonverbal social cues**
- Communication symptoms
 - **Absent or bizarre use of speech**
- Behavioral symptoms
 - Odd preoccupation with Repetitive activities, Bizarre mannerisms & Rigid adherence to purposeless ritual
 - **Mental retardation** is present in **75%** of patients with autistic disorder
 - **No bonds** between the child & parents (No separation anxiety)

- Physical findings
 - Higher incidence of abnormal EEG, seizures & abnormal brain morphology
 - **30%** of individuals with **Autism** become semi-independent in adulthood
 - Almost all have severe residual disabilities
 - Poor outcome are associated w/ mental retardation & failure to develop speech
 - **Seizures** develop by adulthood in **25%** of Autistic individuals.
- Physical Examination
 - **Self-injuries** caused by head banging or biting
- Differential Diagnosis
 - Mental retardation (no speech problems)
 - Hearing Impairment (no eye contact problems)
 - Environmental Deprivation & Selective Mutism
- Treatment
 - Family Counseling & Special Education
 - **Antipsychotics** to control episodes of severe agitation &/or self-destruction

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) ***

- Definition
 - Characterized by **inattention, hyperactivity & impulsivity** that interfere with social &/or academic function
 - Symptoms last for at least 6 months
 - Onset occurs before 7 years of age
 - Symptoms are present in **multiple settings** ***
 - Subtypes are based on the predominance of symptoms
 - Persists into adulthood in **30%** of affected individuals
 - **ADHD** is due to ↓ **Dopamine**
- Risk Factors/Etiology
 - No specific etiologies have been identified
 - Maybe due to CNS pathology, disadvantaged family & school situations
- Prevalence
 - **5%** of school-age children
 - **9 to 1 male-to-female** ratio
- Family history
 - Attention deficit hyperactivity disorder, mood and anxiety disorders, substance-related disorders & antisocial personality disorder.
- Symptoms
 - Short attention span, Constant failure in school, Inability to sit through cartoons or meals, Inability to wait in lines, Failure to stay quiet or sit still in class, Disobedience, Shunning by peers, Fighting, Poor academic performance, Carelessness & Poor relationships with siblings.
- Common Associated Problems
 - Low self-esteem, mood lability, conduct disorder, learning disorders, motor skills disorder, communication disorders, drug abuse, school failure & physical trauma as a result of impulsivity.
- Physical Examination
 - Normal Physical Exam
 - May have Perceptual Motor Problems &/or Incardination
- Diagnostic Tests
 - IQ tests & various structured symptom-rating scales

- Differential Diagnosis
 - Age-appropriate behavior
 - Response to environmental problems
 - Mental retardation
 - Autistic disorder
 - Mood disorders
- Treatment
 - Psychological, Social & Specialized Educational techniques
 - Pharmacotherapy ***
 - Psycho-stimulants (to increase Dopamine) / (Consider drug holiday)
 - **Methylphenidate** (Ritalin) (≥ 6) - (Side effect: GH suppression)
 - **Dextroamphetamine** (≥ 3 years)
 - **Pemoline**
 - Other medications: Antidepressants & Clonidine

CONDUCT DISORDER ***

- Definition
 - Persistent violations in four areas
 - Aggression
 - Property destruction
 - Deceitfulness or theft
 - Breaking the rules
- Risk Factors/Etiology
 - Genetic influences play a role by affecting temperament.
 - Stressful family & school environments have also been implicated.
- Prevalence
 - **10%** of school-age children
 - Occurs at **9 to 1** male-to-female ratio.
- Onset
 - During late childhood or early adolescence.
- Course
 - In most individuals, the symptoms gradually remit.
- Family History
 - Antisocial personality disorder, ADHD, mood disorders, & substance-abuse
- Symptoms
 - Bullying, fighting, cruelty to people or animals, rape, vandalism, fire setting, theft, robbery, running away &/or school absence.
- Complications
 - Substance-related disorders & school failures.
- Outcome
 - Antisocial personality disorder, somatoform disorders, depressive disorders & substance-related disorders.
- Differential Diagnosis
 - Major rule-outs are
 - Environmental problems, ADHD & Oppositional Defiant Disorder.
- Treatment
 - Healthy group identity & role models are provided by structured sports programs & other programs (e.g., Big Brothers)
 - Structured living settings that place value on group identification and cooperation are useful. Punishment & incarceration are not often effective

OPPOSITIONAL DEFIANT DISORDER ***

- Definition
 - Persistent pattern of negativistic, hostile & defiant behaviors toward adults, including arguments, temper outbursts, vindictiveness & deliberate annoyance
 - **Remember:** Don't break the Laws
 - Individuals w/ Conduct Disorder: Break the Laws
- Risk Factors/Etiology
 - High reactivity & increased motor behavior are innate features of temperament
 - Inconsistent or poor parenting may also contribute
- Prevalence
 - **10%** of school-age children
 - Males = Females
- Onset
 - Usually in latency or early adolescence & may start gradually
 - Onset later in girls
- Course
 - Family conflict often escalates after the onset of symptoms
- Outcome
 - Conduct disorder often follows
- Associated Problems
 - Family conflict & School failure
 - Low self-esteem & Mood lability
 - Early onset of substance abuse
 - ADHD & learning disorders
- Differential Diagnosis
 - Conduct disorder
- Treatment
 - Special Parenting Education
 - Alternative care-givers may be indicated in some cases

CHILDHOOD ENURESIS

- Definition
 - Characterized by **repeated voiding** of urine into the patient's clothes or bed
 - Diagnosed in children ≥ 5 years
 - Diagnosed only if the behavior is not due to a medical condition
- Risk Factors/Etiology
 - Psychologic stress, family history of enuresis & urinary tract infections (**UTI**)
- Prevalence
 - $>$ in boys
 - **3%** of children ≥ 10 years
 - Often causes emotional turmoil in the child or parents
- Physical Examination
 - Assessment for **UTI** or other **UT** abnormalities
- Treatment
 - Appropriate toilet training & avoiding large amounts of fluids before bed
 - Behavioral Techniques: Bell-pad apparatus
 - Decreasing emotional stressors & rewarding the child with praise for a dry bed
 - Pharmacotherapy
 - Imipramine & Desmopressin (**DDAVP**) for short-term treatment

CHILDHOOD ANXIETY

- Normal Childhood Anxiety
 - Stranger Anxiety
 - Fear of strangers
 - From 8 months to 2 years of age
 - Separation Anxiety
 - Fear of separation from the caregiver
 - Present from 1 to 3 years of age
 - Phobias
 - Irrational fears
 - From 3 to 6 years of age
- Childhood Anxiety Disorders
 - Involve anxiety that is inappropriate in terms of focus or intensity
 - Separation Anxiety Disorder
 - Excessive & persistent anxiety concerning separation from caregivers
 - Social Phobia in children
 - Excessive timidity, embarrassment & fear of strangers
 - Generalized Anxiety disorder in children
 - Excessive or unrealistic anxiety about future events or past behaviors
- Risk Factors/Etiology
 - Excessively close-knit families, excessive expectations of children & innate temperamental anxiety all predispose
- Prevalence
 - **5%** of school-age children
- Symptoms
 - Stomach aches & Malaise
 - Unrealistic fears (e.g. monsters) & nightmares
 - Various phobias such as school phobia & fear of animals or the dark
 - Difficulty sleeping & self-mutilation such as nail-biting & hair-pulling
- Physical Examination
 - Evidence of nail biting & scratching is sometimes present
- Treatment
 - Family therapy
 - Cognitive behavioral therapy
 - SSRIs & Benzodiazepines are useful in carefully selected cases.
- Complications
 - Social avoidance, low self-esteem & inhibited social development

TOURETTE DISORDER

- Definition
 - Childhood onset of multiple motor & vocal tics
- Risk Factors/Etiology
 - Autosomal dominant transmission may occur in some cases.
 - Due to ↓ **Dopamine** & Adrenergic system abnormalities
- Prevalence
 - 5 per 10,000. Twice as frequent in males
- Onset
 - Average age 7 years

- Symptoms
 - Vocal and motor tics wax & wane over time.
 - Motor tics: May present as Twitching of face, trunk or extremities or may involve complex behaviors such as pacing, spinning or touching
 - Vocal tics: grunts & **Coprolalia** (violent & obscene language) in 10% of cases
- Associated Problems
 - **ADHD (50%)** & Obsessive Compulsive Disorder (**40%**)
- Course
 - Lifelong, with remissions & exacerbations
- Treatment
 - **Antipsychotics** (to ↑ *Dopamine*): **Pimozide, Haloperidol & Risperidone**
 - Adrenergic Antagonists: Clonidine & Clonazepam

PROFOUND DEVELOPMENTAL EXPERIENCES

DIVORCE

- Outcome predicted by prior psychological function of parents & degree of post-divorce hostility & conflict
- 2nd leading risk factor (to death of parent) for mental illness
- Over 1 million children affected annually
- 50% have not seen father in last year
- 50% of children experience 1 divorce & 20% experience 2 divorces
- Average 6-7 yrs before divorce
- Mother in custody 90% of time

CHILD ABUSE

- Risk Factors: Low birth weight, handicapped, behaviorally disordered
- 1 million children abused, 3000 deaths annually
- Abuse → ↑ rates of psychiatric disturbances (depression, anxiety, conduct disturbance hyperactivity, substance abuse, suicide)
- Neurological impact of abuse
 - Delayed myelination
 - Abnormal dendritic pruning
 - Inhibited neurogenesis
 - Neuronal loss
 - Small cerebral volume

Psychotic Disorders

SCHIZOPHRENIA ***

Definition

- Thought disorder that impairs judgment, behavior & ability to interpret reality
- Symptoms must be present at **least 6 months** to be able to make a diagnosis

Risk Factors/Etiology

- Men have an earlier onset, usually at 15 to 25 years of age.
- ↑ Dopamine & abnormalities in **Serotonin**
- Many believe the family may be the cause of the patient's schizophrenia. If the mother gives mixed messages, it is called the double-bind theory
- There are families that are critical, intrusive, and hostile to the patient. When this occurs, it has been linked to high rates of relapse
- Schizophrenia may be viral in origin
- Schizophrenia is more prevalent in the low socioeconomic status groups, either as a result of downward drift or social causation

Prevalence

- Genetic in origin: General population 1%. Monozygotic twin 47%. Dizygotic twin 12%. One schizophrenic parent 12%. Two schizophrenic parents 40%. First-degree relative 12%. Second-degree relative 5-6%

Physical & Psychiatric Presenting Symptoms

- Hallucinations (mostly auditory)
- Delusions (mostly bizarre)
- Disorganized speech or behavior
- Catatonic behavior
- Negative symptoms
- Usually experience social &/or occupational dysfunction
- Physical exam usually unremarkable, but may find saccadic eye movements, hyper vigilance, etc.

Brain Imaging Findings

- CT: Lateral and third ventricular enlargement, reduction in cortical volume
- MRI: Increased cerebral ventricles
- PET: Hypoactivity of the frontal lobes

Psychological Tests

- **IQ** tests: ↓ intelligence
- Neuropsychologic: Tests consistent with bilateral frontal & temporal lobe dysfunction (deficits in attention, retention time & problem-solving ability)
- Personality (Projective Tests): Abnormal findings, such as bizarre ideations, etc.

Treatment

- Hospitalization is recommended for either stabilization or safety of the patient.
- **Antipsychotics (Atypical)**: To help control both positive and negative symptoms.
- If no response, consider using **Clozapine**
- The suggested psychotherapy will be supportive psychotherapy

Differential Diagnosis

- Substance-induced: Psychostimulants, Hallucinogens, alcohol hallucinosis, barbiturate withdrawal, etc. Consider urine drug screen to rule out.
- Epilepsy: Temporal lobe epilepsy.
- Other psychotic disorders: Schizoaffective, Schizophreniform, brief reactive psychosis, delusional disorder.
- Malingering & Factitious disorder: Must assess whether patient is in control of the symptoms & whether there is an obvious gain.
- Mood disorders: Look at duration of mood symptoms; these tend to be brief in schizophrenia.
- Medical: HIV, steroids, tumors, cerebral vascular accidents, etc.
- Personality disorders: ***Schizotypal*** (patient is **functioning** in contrast with **Schizophrenia**), Schizoid & ***Borderline personality disorders*** (have short duration of psychosis). **Must look at duration of symptoms** as well as patient's level of functioning

TYPES OF SCHIZOPHRENIA ***

Schizophrenia Paranoid Type

- **MC Type of Schizophrenia**
- **Older** patients (Onset is in their late twenties or thirties) → **Best prognosis**
- Presenting Symptoms: Preoccupation with delusions and/or hallucinations, usually involving **grandeur** or **persecution**

Schizophrenia Disorganized Type

- Presenting Symptoms: Disorganized speech and behavior. Flat or inappropriate affect. Marked regression to primitive disinhibited behavior (**Bizarre Behavior**). Severe thought disorder. Poor contact with reality
- Risk Factors: These patients tend to be **younger** than 25 → **Worst prognosis**

Schizophrenia Catatonic Type

- Presenting Symptoms: **Psychomotor Disturbances**, ranging from severe retardation to excitation. Extreme negativism. Peculiarities of voluntary movements. Mutism is very common
- Complications: Medical care may be necessary because of exhaustion, malnutrition, self-inflicted injury, or hyperpyrexia

Schizophrenia Residual Type

- Presenting Symptoms: Absence of **positive symptoms** (delusions, hallucinations, disorganized speech/behavior & catatonic behavior)
- Patients tend to have **negative symptoms** (Social Withdraw, Flat Affect, Occupational Dysfunction)

Schizophrenia Undifferentiated Type

- Presenting Symptoms: Meet criteria for schizophrenia. **Do not meet criteria for other schizophrenia types**

OTHER PSYCHOTIC DISORDERS

Schizophreniform Disorder (> 1 month but < 6 months)

- Presenting Symptoms: Same as in **Schizophrenia** (Hallucinations, Delusions, Disorganized speech, Grossly disorganized or catatonic behavior, Negative symptoms, Social &/or Occupational dysfunction)
- Difference from **Schizophrenia**: Symptoms are present > 1 month but < 6 months & most of the patients return to their baseline level of functioning
- Risk Factors: Many of these patients have **affective symptoms** as compared with schizophrenics. **Suicide** is a risk factor given that the patient is likely to have a depressive episode after the psychotic symptoms resolve
- Treatment
 - Must assess whether the patient needs hospitalization, to assure safety of patient &/or others
 - Antipsychotic medication is indicated for a 3-6 month course
 - Individual psychotherapy

Schizoaffective Disorder

- Presenting Symptoms: **Mood Disorders** (major depressive episode, manic episode, or mixed episode) + **Psychosis** (schizophrenia). Delusions or hallucinations for at least 2 weeks in the absence of mood symptoms
- Prognosis: Better prognosis than patients with schizophrenia. Worse prognosis than patients with affective (mood) disorders
- Treatment: Must first determine whether hospitalization is necessary. Use antidepressant medications &/or anticonvulsants to control the mood symptoms. If these are not effective, consider the use of antipsychotic medications to help control the ongoing symptoms. Start with treatment of the worst syndrome

Delusional Disorder

- Presenting Symptoms: Non-bizarre delusions for at least one month. No impairment in level of functioning.
- **Types** include erotomanic, jealous, grandiose, somatic, mixed, unspecified.
- Risk Factors: Mean age of onset is about 40 years (better prognosis). Seen more in **women** & most of these patients are married and employed.
- Associated with low socioeconomic status as well as recent immigration.
- Associated with conditions in either the limbic system or basal ganglia
- Treatment: Antipsychotic medications & Individual psychotherapy

Brief Psychotic Disorder (> 1 day but < 1 month)

- Presenting Symptoms: Same as in **Schizophrenia**
- Difference from **Schizophrenia**: Symptoms are present > 1 day but < 1 month
- Patient appears to be responding to internal stimuli (Hearing Voices)
- Risk Factors: Seen most frequently in the low socioeconomic status as well as in those who have preexisting personality disorders or the presence of stressors.
- Treatment
 - Hospitalization is warranted if the patient is acutely psychotic
 - Antipsychotics & short-term Benzodiazepines (for Rx of agitation)

Mood Disorders ***

MAJOR DEPRESSIVE DISORDER (*MAJOR DEPRESSION*)

- Mood disorder that presents **with at least a 2-week** course of symptoms that is a change from the patient's previous level of functioning
- Must have depressed mood or anhedonia (absence of Pleasure)

Risk Factors/Epidemiology

- **Women > Men (2:1)** due to several factors, such as hormonal differences
- **Onset is 40** years
- **Incidence** is higher in those who have **no close interpersonal relationships**
- Neurotransmitters **abnormalities**: (↓) **Serotonin, Norepinephrine & Dopamine**
 - *** Serotonin metabolites (**5 HOIAA**) ↓ in **suicide & aggression**
- Other risk factors include family history, exposure to stressors & behavioral reasons, such as learned helplessness.

Presenting Symptoms

- Depressed mood & Anhedonia (absence of Pleasure) during most of the day
- **Typical Features** (Vegetative Changes of Depression)
 - ↓ Appetite, Weight & Sleep (Insomnia)
 - Psychomotor retardation or agitation
 - Fatigue or loss of energy nearly every day
 - Feelings of worthlessness or guilt
 - Diminished ability to concentrate
 - Recurrent thoughts about death. (Ask about Suicide)
- **Atypical Features**
 - ↑ Appetite, Weight & Sleep (Hypersomnia)
- May Also Include **Psychotic features**: Worse prognosis

Physical Examination

- Usually within normal limits
- May find Psychomotor retardation, such as slowing of movements & speech
- May also find evidence of cognitive impairment, such as decreased concentration
- Lab tests are not diagnostic but may find abnormal **Dexamethasone Suppression** test or **Thyrotropin-Releasing Hormone** test

Treatment

- Must first (Ask about Suicide) & Secure the safety of the patient
- Antidepressants: Selective Serotonin Reuptake Inhibitors (**SSRI**), Tricyclic Antidepressants (**TCA**) & Monoamine Oxidase Inhibitors (**MOI**)
- Electro-Convulsive Therapy (**ECT**) may be indicated if patient is suicidal or worried about side effects from medications
- Individual Psychotherapy: To help the patient deal with conflicts & sense of loss
- Cognitive Therapy: To change the patient's distorted thoughts about self & world

Differential Diagnosis

- Medical disorders: Hypothyroidism, Parkinson's disease, Dementia, Medications, Pseudo-dementia, Tumors, Cerebrovascular Accidents (Rt. sided)
- Mental disorders: Other Mood Disorders, Drug abuse (Cocaine withdraw) & **Grief**

BIPOLAR DISORDER

- A mood disturbance in patient that experiences **manic symptoms** for ≥ 1 week & cause significant impairment in his/her functioning level

Risk Factors/Epidemiology

- Men = Women
- Onset in young adults & average age of about **30** years
- More prevalent among **High Socioeconomic** status & who didn't finish college
- Considered to be the illness with the greatest genetic linkage. (**50-70%**)
- Coexisting disorders: Anxiety, Alcohol Dependence & Substance Abuse

Presenting Symptoms

- Abnormal or persistently elevated mood lasting ≥ 1 week
- \uparrow Self-esteem or grandiosity
- Excessive involvement in activities & Distractibility
- Psychomotor agitation & more talkative than usual
- Flight of ideas
- \uparrow Sexual activity
- \uparrow in goal-directed activity

Physical Examination

- Usually within normal limits
- May find evidence of psychomotor agitation & pressured speech

Treatment

- Must assess patient safety to determine the need for hospitalization.
- Pharmacotherapy: Antimanic "Mood Stabilizers" (Lithium, Carbamazepine & Valproic Acid), Benzodiazepines & Antipsychotics in ER
- Individual psychotherapy
- **Differential Diagnosis**
- Mental disorders: Schizophrenia & Personality Disorders
- Medical disorders: CNS diseases, Hyperthyroidism & Medications (Stimulants)

DYSTHYMIC DISORDER

A chronic mood disorder (**mild Depression**) characterized by a **depressed mood** that lasts most of the time for ≥ 2 years. (Major depression - usually up to **1 year**)

Risk Factors/Epidemiology

- $>$ in women who are < 64 years of age as well as in those that are unmarried & young individuals from low-income families
- Coexisting disorders: Anxiety, Substance Abuse &/or Borderline Personality
- **Treatment**
- Hospitalization is usually not indicated in these patients
- Long-term individual insight-oriented Psychotherapy
- **SSRI**, TCA or MOI

Differential Diagnosis

- Differential diagnosis is essentially the same as for major depression
- Must consider minor depressive disorder & recurrent brief depressive disorder

CYCLOTHYMIC DISORDER

- A chronic mood disorder (**mild Bipolar II Disorder**) characterized by many periods of Depressed Mood & many periods of Hypomanic Mood for ≥ 2 years

Risk Factors/Epidemiology

- Seen more frequently in **women**.
- Family histories of bipolar disorder
- It frequently coexists with borderline personality disorder
- Alcohol & substance abuse are common
- Many of the patients have interpersonal and marital difficulties

Treatment

- Pharmacotherapy: Antimanic "**Mood Stabilizers**" (Lithium, Carbamazepine & Valproic Acid)
- Psychotherapy will focus on helping the patients gain insight into their illness & how to cope with it

Differential Diagnosis

- Medical: Seizures, substances & medications
- Mental: Other mood disorders, personality disorders, medications again

SEASONAL AFFECTIVE DISORDER

- A mood disorder characterized by depressive symptoms found during winter months & absent during summer months
- Believed to be caused by abnormal melatonin metabolism (\downarrow MSH)

Treatment

- Phototherapy or sleep deprivation

*** GRIEF ***

	GRIEF "Bereavement"	DEPRESSION "Pathological Grief"
Definition	<ul style="list-style-type: none"> ▪ Sadness & Tearfulness ▪ \downarrow Sleep, Appetite & Interest 	<ul style="list-style-type: none"> ▪ Sadness & Tearfulness ▪ \downarrow Sleep, Appetite & Interest
Symptoms	<ul style="list-style-type: none"> ▪ Wax & Wane ▪ Shame & guilt less common ▪ Threaten suicide less often ▪ Symptoms can last < one year ▪ Usually return to baseline level of functioning within 2 months 	<ul style="list-style-type: none"> ▪ Pervasive & Unremitting ▪ Shame & guilt are common ▪ Threaten suicide more often ▪ Symptoms continue > one year ▪ Patients do not return to baseline level of functioning
Treatment	Supportive Psychotherapy	Antidepressant (SSRI)

***** DEATH & DYING *****

- Based on the stages identified by Elisabeth Kubler-Ross
 - These stages **NOT LIMITED** to **death ONLY**
 - These stages (common reactions to death) do not have to occur in order
 - Stage 1: Shock & Denial
 - Stage 2: Anger
 - Stage 3: Bargaining
 - Stage 4: Depression
 - Stage 5: Acceptance

***** POSTPARTUM DEPRESSION *****

	Postpartum Blues “Baby Blues”	Postpartum Depression	Postpartum Psychosis
Occur after	Any baby	The 2 nd baby	The 1 st baby
Begins after birth	Up to 2 weeks	Within 1 month	Within 1 month
Thoughts of hurting the baby	NO. Mother cares about the baby	YES	YES
Symptoms	Mild Depression	Severe Depression	Severe Depression & Psychotic symptoms
Treatment	No Treatment necessary	Antidepressants	Antidepressants & Mood Stabilizers or Antipsychotics

Anxiety Disorders ***

- Definition: Anxiety is a syndrome with Psychologic & Physiologic components
 - **Psychologic components**
 - Worry that is difficult to control
 - Hypervigilance
 - Restlessness
 - Difficulty Concentrating
 - Sleep Disturbance
 - **Physiologic components**
 - Autonomic Hyperactivity
 - Motor Tension
- Risk Factors/Etiology
 - **Psychodynamic Theory**
 - Anxiety occurs when instinctual drives are thwarted.
 - **Behavioral Theory**
 - Anxiety is a conditioned response to environmental stimuli originally paired with a feared situation
 - **Biologic Theory** implicate
 - Various neurotransmitters (*GABA, Norepinephrine & Serotonin*)
 - Various CNS structures (*Reticular Formation & Limbic System*)
- Presenting Symptoms
 - Excessive Nervousness
 - Fears
 - Sense of impending Doom
 - Irrational Avoidance of objects or situations
 - Anxiety Attacks
- Physical & Psychiatric Examination
 - Mental Status: Hyper-arousal, ↑ Startle Reflexes, Timidity & Worries
 - Physical Examination: Evidence of Autonomic Arousal & Motor Restlessness
- Diagnostic Tests
 - Evidence of medical conditions (Thyroid Problems) or substances that cause anxiety disorders
- Differential Diagnosis
 - Adjustment disorders with Anxious mood
 - Anxiety disorders (Generalized Anxiety disorder, panic disorder, phobias & Post-Traumatic Stress Disorder)
 - Anxiety disorder due to general medical conditions (Thyroid Problems)
 - Substance-induced Anxiety disorder
- Treatment
 - Psychotherapies (Behavioral Modification)
 - Pharmacotherapy: Antidepressants & Benzodiazepines

PANIC DISORDER

- Definition
 - Recurrent unexpected Attacks of Intense Anxiety that include marked physical symptoms, such as Tachycardia, Hyperventilation, Dizziness & Sweating
- Risk Factors/Etiology
 - Have a Genetic Component
 - Associated w/ separations during childhood & interpersonal loss in adulthood
 - Occur in response to “Panicogens” (i.e. *Lactate*, *CO₂*, *Caffeine* & *Yohimbine*)
- Presenting Symptoms
 - Prevalence: **2%** of the population
 - Occurs at a **1** to **2** male-to-female ratio
 - Onset: Often during the third decade
 - Course: Severity of symptoms may **Wax & Wane** and may be associated with inter-current stressors
 - Duration: Attacks usually last a few minutes
 - Associated problems
 - *Agoraphobia*, Depression, Generalized Anxiety & Substance Abuse
- Treatment
 - Pharmacotherapy
 - Short term Treatment: Benzodiazepines (Alprazolam)
 - Long term Treatment: SSRI (Fluoxetine) &/or TCAs (Imipramine)
 - Others: Clonazepam & MOI (Phenelzine)
 - Psychotherapy
 - Relaxation Training for panic attacks
 - Systematic Desensitization for *Agoraphobia*

PHOBIC DISORDERS

- Definition
 - Irrational fear & avoidance of objects & situations
- Presenting Symptoms
 - *Agoraphobia*
 - Fear or avoidance of open spaces from which escape would be difficult in the event of panic attack (Public Places, Transportation, Crowds)
 - More common in women
 - Often leads to severe restrictions on individual’s travel & daily routine.
 - *Social Phobia*
 - Fear of humiliation or embarrassment in either general or specific social situations (e.g., Public Speaking, “Stage Fright”)
 - *Specific Phobia*
 - Fear or avoidance of Objects or Situations other than Agoraphobia or Social Phobia.
 - Involves Animals (Carnivores, Spiders), Natural Environments (Storms), Injury (Injections) & Situations (Heights, Darkness)
- Treatment
 - Cognitive-Behavioral Therapies for phobias
 - Systematic Desensitization, Flooding & Assertiveness Training
 - Pharmacotherapy
 - SSRI, Bupirone & B-Blockers (for Stage Fright)

OBSESSIVE-COMPULSIVE DISORDER (OCD) ***

- Definition
 - Characterized by recurrent **Obsessions** or **Compulsions** that are recognized by the individual as unreasonable
 - **Obsessions**: Anxiety-Provoking & Intrusive Thoughts commonly concerning Contamination, Doubt, Guilt, Aggression & Sex
 - **Compulsions**: Peculiar Behaviors that reduce Anxiety via Hand-Washing, Organizing, Checking, Counting & Praying

OBSESSIONS	DELUSIONS
Doubt	Certainty
Minute possibility	False/bizarre/impossible
Insight	No insight

- Risk Factors/Etiology
 - Associated with abnormalities of Serotonin metabolism
- Presenting Symptoms
 - Symptoms usually Wax & Wane
 - Prevalence: **2%** of population.
 - Occurs at a **1 to 1** male-to-female ratio ***
 - Onset: Insidious & occurs during childhood, adolescence or early adulthood
 - Depression, other Anxieties & Substance Abuse are common
- Physical Examination
 - Chapped hands when hand-washing compulsion is present
- Treatment
 - **Pharmacotherapy**: SSRI (Fluoxetine or Fluvoxamine) & Clomipramine
 - Behavioral Psychotherapies: Relaxation Training, Guided Imagery, Exposure, Response Prevention, Thought Stopping Techniques & Modeling

ACUTE STRESS DISORDER & POST TRAUMATIC STRESS DISORDER

- Definition
 - These disorders are characterized by Severe Anxiety symptoms & follow a threatening event that caused feelings of Fear, Helplessness or Horror
 - **Acute Stress Disorder**: Anxiety lasts < **1 month** (but > 2 days)
 - **Post Traumatic Stress Disorder (PTSD)**: Anxiety lasts > **1 month**
- Risk Factors/Etiology
 - Traumatic events precipitate Acute Stress & Post Traumatic Stress Disorders
 - Pre-morbid factors, such as personality traits &/or play an uncertain role
 - Onset: May occur at any age
 - **50%** of cases resolve within 3 months
 - Symptoms begin immediately after trauma, but may occur after months / years
- Three key symptom groups
 - Re-experiencing of the Traumatic Event
 - Dreams, Flashbacks or Intrusive Recollections
 - Avoidance of Stimuli associated with the trauma or numbing of general responsiveness
 - Increased Arousal: Anxiety, Sleep disturbances & Hypervigilance
 - Anxiety, Depression, Impulsivity & Emotional Lability are common
 - “Survivor guilt” - A feeling of irrational guilt about an event sometimes occurs

- Treatment
 - **Counseling** after a stressful situation to prevent PTSD from developing
 - **Group Psychotherapy** with other survivors is helpful
 - **Pharmacotherapy**: Antidepressants (SSRI, TCAs) or Benzodiazepines

GENERALIZED ANXIETY DISORDER

- Definition
 - Excessive & poorly controlled **Anxiety** about life circumstances (> **6 months**)
 - Both Psychologic & Physiologic symptoms of Anxiety are present
- Risk Factors/Etiology
 - Genetic Predisposition for an anxiety trait
- Presenting Symptoms
 - Prevalence: **5%** of the population
 - Occurs > in Women at a **2 to 3** male-to-female ratio
 - Onset: Often during childhood, but can occur later
 - Course: Usually chronic, but symptoms worsen with stress
 - Associated problems: Depression, Somatic Symptoms & Substance Abuse
- Treatment
 - Behavioral Psychotherapy: Relaxation Training & Biofeedback
 - Pharmacotherapy: Venlafaxine, Antidepressants, Buspirone & Benzodiazepine

Cognitive Disorders

- Definition
 - Characterized by the syndromes of **Delirium, Dementia & Amnesia**, which are caused by General Medical Conditions, Substances or both
- Risk Factors/Etiology
 - Very young or Advanced age
 - People w/ Debilitation
 - Presence of specific general medical conditions
 - Excessive exposure to a variety of Substances
- Presenting Symptoms
 - **Memory Impairment**, especially Recent Memory
 - **Aphasia**: Failure of language function
 - **Apraxia**: Failure of ability to execute complex Motor Behaviors
 - **Agnosia**: Failure to recognize or identify People or Objects
 - **Disturbances in executive functioning**: Inability to think abstractly & plan activities (i.e. organizing, shopping & maintaining a home)
- Physical Examination
 - There may be evidence of impairment in CNS function, such as Dyskinesia, Incoordination, Tremor, Focal Motor Deficits & Sensory Impairment
 - There may be evidence of underlying general medical conditions or Substance-specific syndromes, such as Alcohol withdrawal
- Diagnostic Tests
 - **EEG**: Generalized slowing of activity, fast-wave activity or focal abnormality
 - Abnormal findings from Neuroimaging or Neuropsychiatric Testing
- Treatment
 - Correction of underlying medical condition
 - Management: Frequent Orientation, Reassurance & Emotional Support

DELIRIUM

- Definition
 - **Fluctuation level of consciousness**: Prominent Disturbances in Alertness, Confusion w/ Short & fluctuating course (Days to Weeks)
- Risk Factors/Etiology
 - **Medical conditions** (i.e. Systemic Infections, Metabolic Disorders, Hepatic & Renal Diseases, Seizures & Brain Injuries)
 - **Substance Intoxications or Withdraws**
 - Occurs in **25%** of elderly, hospitalized patients
- Presenting Symptoms
 - Agitation or Stupor, Fear, Emotional Lability, Hallucinations, Delusions, Disturbed Psychomotor Activity & Incontinence
 - Motor abnormalities: Incoordination, Tremor, Asterixis & Nystagmus
- Diagnostic Tests
 - EEG, Neuroimaging & Neuropsychiatric Testing
- Differential Diagnosis
 - Dementia, Substance Intoxication or Withdrawal & Psychotic Disorders
- Treatment
 - Correction of underlying conditions, Frequent Orientation & Reassurance
 - Protective use of physical restraints & Antipsychotics for dangerous agitation

DELIRIUM	DEMENTIA
Global Cognitive Disorder	Global Cognitive Disorder
Impaired function of Neurons	Death of Neurons
Acute, often dramatic onset	Gradual onset, often insidious
Global Amnesia: Complete loss of orientation, attention & short-term memory	Selective Amnesia: Short-term / Attention loss is far more significant than long-term, if long-term loss is present at all
Waxing & Waning of severity	Sun-downing: It gets worse at night due to loss of long-term-enabled orientation cues
CAUSES: <ul style="list-style-type: none"> ▪ Infectious ▪ Metabolic ▪ Hemodynamic ▪ Respiratory ▪ Toxic ▪ Traumatic 	CAUSES: <ul style="list-style-type: none"> ▪ Idiopathic: Alzheimer's ▪ Cumulative: Multi-Infarct Dementia ▪ Residual: Untreated delirium leading to permanent neuronal damage
EEG <u>always</u> reveals an abnormally slow rhythm	The EEG in pure dementia shows a baseline rhythm of normal frequency, unless the condition is sufficiently advanced.
MISDIAGNOSIS Confused with <ul style="list-style-type: none"> ▪ Acute Psychoses ▪ Agitated Mania 	MISDIAGNOSIS <ul style="list-style-type: none"> ▪ Pseudo-dementia in the elderly. ▪ Elderly are often diagnosed with Dementia when in fact they just have Depression.
Frequently multifactorial etiology	Frequently exacerbated by other conditions that complicate it, such as Depression or Alcoholism.
PROGNOSIS for recovery is good if treated on time (Reversible)	PROGNOSIS is poor (Irreversible)
Tx: Treat the cause of Delirium	Tx: Cholinesterase Inhibitors

DEMENTIA

- Definition
 - Prominent Memory Disturbances coupled with other Cognitive Disturbances that are present even in the absence of delirium (Irreversible)
 - Caused by CNS damage & likely to have a chronic course (Months to Years)
- Risk Factors/Etiology
 - Neurodegenerative Diseases such as *Alzheimer*, *Parkinson*, *Huntington*, *Pick*, *Creutzfeldt-Jakob* & other fronto-temporal degeneration
 - Cerebrovascular diseases & Intracranial processes such as CNS infections (due to **HIV**), Traumatic Brain Injuries (**TBI**), Radiation & Tumors
 - Other Diseases: Seizures, Metabolic Disorders (Wilson disease), Myelin Disorder, Uremic Encephalopathy & Endocrinopathy (Hypothyroidism)
 - Nutritional deficiencies: *Beriberi* (Thiamine/Vitamin B1 deficiency), *Pellagra* (Niacin deficiency) & *Pernicious Anemia* (Vitamin B12 deficiency)
 - Toxins: **Alcohol**, **Inhalants**, **Antineoplastics**, **Sedative-Hypnotics**, **Anxiolytics**, **Anticonvulsants**, **Heavy Metals**, **Insecticides** & **Solvents**
- Prevalence
 - **5%** of the population > **65 years** & > **20%** of population > **85 years**

- Course
 - Depending on the etiology, function may stabilize or deteriorate further
- Heritability
 - Some types of Neurodegenerative Dementias (e.g. *Huntington* Disease)
- Key Symptoms
 - ↑ Disorientation, Anxiety, Depression, Emotional Lability, Hallucinations, Delusions & Personality Disturbances
- Physical Examination
 - Evidence of CNS motor pathology is often present
 - Evidence of underlying Medical Conditions or Substances (Alcohol # 3 cause)
- Diagnostic Tests
 - EEG (Not specific), Neuroimaging & Neuropsychiatric Testing
 - Folstein Mini-Mental Status Exam is used to detect Dementia
 - Laboratory: **B12 & Folate** levels, **RPR, CBC** with metabolic profile & **TSH**
- Reversible **Dementia**
 - **D**rugs
 - **E**ndocrine
 - **M**etabolic
 - **E**motional
 - **N**utritional
 - **T**umor / **T**rauma
 - **I**nfections
 - **A**therosclerosis
- Differential Diagnosis
 - *Delirium* & Age-related Cognitive declines
- Treatment
 - Correction of underlying condition
 - Provision of Familiar Surroundings, Reassurance & Emotional Support

SPECIFIC DEMENTIAS

Dementia of the Alzheimer's type

- **MCC of Dementia**
- Occupy more than **50%** of nursing-home beds
- Found in **50-60%** of patients with *Dementia*
- Risk factors
 - Females > Males
 - **Family history, TBI & Down** syndrome
 - Associated with chromosome # **21** (gene for the Amyloid Precursor Protein)
- **Neuroanatomic findings**
 - Cortical Atrophy, Flattened Sulci & Enlarged Ventricles
- Histopathology
 - **Senile Plaques (Amyloid Deposits)**, Neurofibrillary Tangles, Neuronal Loss, Synaptic Loss & Granulovacuolar Degeneration of Neurons
 - ↓ **Acetylcholine & Norepinephrine**
- Deterioration is gradual with average duration from onset to death being about **8** years
- **Focal neurological symptoms are rare (Opposite of Vascular Dementia) *****
- Treatment:
 - Long-acting Cholinesterase Inhibitors such as Donepezil & Tacrine
 - Risperidone & other Antipsychotics in low doses to decrease agitation

Vascular Dementia (Multi-Infarct Dementia)

- **# 2 Cause of Dementia**
- Found in **15-30%** of patients with **Dementia**
- Risk factors
 - **Male**, Advanced Age, **Hypertension** &/or other **Cardiovascular disorders**.
 - Affects small and medium-sized vessels.
- Examination may reveal Carotid Bruits, Fundoscopic abnormalities & enlarged Heart
- MRI may reveal Hyperintensities & focal atrophy suggestive of old infarctions
- Deterioration may be Stepwise or Fast, depending on underlying pathology
- **Focal Neurologic Symptoms**
 - Pseudo-bulbar Palsy, Dysarthria & Dysphagia are most common
 - Abnormal reflexes & Gait Disturbance are often present
- Treatment
 - Control of risk factors such as Hypertension, Smoking, Diabetes, Hypercholesterolemia & Hyperlipidemia
 - Correction of sources of Emboli, Endarterectomy & Anticoagulant therapy
 - Thrombolytic Agents (**tPA**) are given in Acute Ischemic Strokes

Pick disease

- Neuroanatomic findings
 - **Atrophy in the Frontal & Temporal lobes** ***
- Histopathology
 - Pick bodies (Intraneuronal Argentophilic Inclusions)
 - Pick cells (Swollen Neurons) in affected areas of the brain
- Etiology is unknown
- **MC** in men with family history of Pick disease
- Difficult to distinguish from **Alzheimer's**
- May see features of **Kluver-Bucy syndrome** (Hypersexuality, Hyperphagia, Passivity)

Creutzfeldt-Jakob disease

- Rare **Spongiform Encephalopathy** is caused by a **Prion**
- Presents with **Dementia, Myoclonus**
- **EEG**: Sharp, Triphasic, Synchronous discharges & later, Periodic discharges
- **The most rapidly progressive** (Symptoms progress to death over months) ***
 - From vague malaise & personality changes to Dementia & death
 - Visual & Gait disturbances, Choreoathetosis & **Myoclonus** ***
 - Other **Prions** that cause Dementia (e.g., **Kuru**)

Huntington disease

- Neurodegenerative disease involving loss of **GABAergic** neurons of basal ganglia
- **Manifested by Triad** ***: **Choreoathetosis, Dementia & Psychosis**
- Caused by a defect in an **Autosomal dominant gene** located on **Chromosome 4**
- Atrophy of the Caudate Nucleus → Ventricular Enlargement
- Onset usually occurs at approximately **age 40**
- Early symptoms include Personality Changes & Subtle Movement Disturbances (**Clumsy**) with progression to **Choreoathetosis, Dementia & Psychosis (Triad** ***)
- Behavioral Disorganization, severe Mood instability, Suicidal behavior

Parkinson disease

- Neurodegenerative disease involving loss of **Dopaminergic** neurons in Substantia Nigra
- Clinical Onset is between age 50 & 65
- Motor Symptoms: Resting Tremor, Rigidity, Bradykinesia & Gait Disturbances
- **Dementia** occurs in **40%** of cases
- **Depressive Symptoms** are common
- Caused by multiple factors: Genetic, Environmental Toxins, Infection, TBI & Aging
- Treatment
 - Dopamine Precursors (Levodopa & Carbidopa)
 - Dopamine Agonists (Bromocriptine)
 - Anticholinergics (Benztropine & Trihexyphenidyl)
 - Amantadine & Selegiline
- Antiparkinsonian medications Side effects
 - Personality Changes, Cognitive Changes & Psychotic Symptoms

HIV-related Dementia (HIV Encephalopathy)

- **HIV** directly & progressively destroys brain parenchyma
- Becomes clinically apparent in at least **30%** of individuals with **AIDS**
- Beginning with Subtle Personality Changes
- Diffuse & rapid multifocal destruction of brain structures occurs
- **Delirium** is often present
- May be misdiagnosed as **Depression** in the Early Stages
- Motor findings: Gait Disturbance, Hypertonia & Hyperreflexia, Oculomotor Deficits & Pathologic Reflexes
- Mood Disturbances in individuals with **HIV** may mimic Cognitive Impairment

AMNESTIC DISORDERS

- Definition
 - Prominent Memory Impairment in the absence of disturbances in level of Alertness or other cognitive problems that are present w/Delirium & Dementia
- Risk Factors/Etiology
 - Associated with bilateral damage to Diencephalic & Mediotemporal Structures (Mammillary Bodies, Fornix & Hippocampus)
 - Also, maybe caused by Thiamine Deficiency associated with alcohol dependence, Brain Trauma, Cerebrovascular Accident (**CVA**), Hypoxia, Local Infection (e.g., Herpes Encephalitis), Surgical Procedures & Seizures
 - **Alcohol is the most common cause among Substances**
- Presenting Symptoms
 - **Memory Loss** may be sudden or gradual, depending upon etiology
 - Recent memory is disproportionately affected
 - **Confabulation (making up stories)** occurs, as with “Korsakoff psychosis”
 - Evidence of chronic **Alcohol abuse** is often present
- Diagnostic Tests: **EEG**, Neuroimaging & Neuropsychiatric Testing
- Differential Diagnosis: Delirium, Dementia & Dissociative Amnesia (*Due to Stressor*)
- Treatment
 - Correction of the underlying pathophysiology (e.g. Administration of **Thiamine** in alcohol-induced Amnesic disorder)

Personality Disorders ***

- Definition
 - Personality patterns that are pervasive, inflexible & maladaptive (**Maladaptive pattern of behavior**)
 - Children may have all personality disorders except antisocial personality disorder (must be > 18 to diagnose). If < **18**, it is called **conduct disorder**
- There are 3 clusters
 - Cluster A: (Odd): Peculiar thought processes, inappropriate affect.
 - Cluster B (Moody): Mood lability, Amnesia & preoccupation w/ rejection.
 - Cluster C (Anxious): Anxiety, sensitive, preoccupation w/ criticism or rigidity.
- Risk Factors/Etiology
 - Innate temperamental difficulties, such as irritability;
 - Adverse environmental events, such as child neglect or abuse
 - Personality disorders in parents.
- Prevalence & Onset
 - More males have antisocial & narcissistic personality disorders
 - More females have borderline & histrionic personality disorders
 - Usually not diagnosed until late adolescence or early adulthood
 - Course: Usually very chronic over decades without treatment
 - Paranoid, schizoid & narcissistic (moody) personality worsen with age
 - Antisocial & borderline (violent) personality disorder improve with age
- Key Symptoms
 - Long pattern of difficult interpersonal relationships, problems adapting to stress, failure to achieve goals, chronic unhappiness, low self-esteem.
 - Associated Diagnoses: Mood disorders.
- Differential Diagnosis
 - Mood disorders, personality change due to a general medical condition & adjustment disorders.
- Treatment
 - **Psychotherapy** (Psychodynamic & Cognitive therapy)
 - Mood stabilizers & Antidepressants maybe used in Cluster B personality

SPECIFIC PERSONALITY DISORDERS

Cluster A (Odd)

- **Paranoid personality disorder**
 - Distrust & suspiciousness
 - Often secretive & isolated, emotionally cold & odd.
 - Associated features: brief episodes of psychosis w/ persecutory delusions & pre-existing sensory impairment.
 - Defense mechanism: Projection
 - Difference from schizophrenia
 - Duration - all life
 - Functioning level - Can function
 - No psychotic syndromes (No hallucination)
- **Schizoid personality disorder** (a loner)
 - Detachment & restricted emotionality
 - Individuals are disinterested in others & indifferent to praise or criticism
 - Associated features include social drifting & dysphoria
- **Schizotypal personality disorder** (The most Odd / Bizarre)
 - Discomfort with social relationships; thought distortion; eccentricity
 - Individuals are socially isolated & uncomfortable with others
 - Can have Schizophrenia if under stress
 - Unlike schizoid personality disorder, they have
 - Peculiar patterns of thinking: (ideas of reference & persecution)
 - Odd preoccupations
 - Odd speech & affect

Cluster B (Moody)

- **Histrionic personality disorder**
 - Colorful, exaggerated behavior & shallow expression of emotions
 - Uncomfortable in situations where he or she is not the center of attention.
 - Uses physical appearance to draw attention to self; sexually seductive
- **Borderline personality disorder**
 - Unstable affect, mood swings, marked impulsivity, recurrent suicidal behaviors, feelings of emptiness or boredom & inappropriate anger.
 - If stressed, may become psychotic.
 - Defense mechanism is splitting.
- **Antisocial personality disorder**
 - Antisocial or criminal acts, inability to conform to social rules, disregard for the rights of others, aggressiveness, lack of remorse & deceitfulness.
 - Symptoms start at the age of 15, but the individual is diagnosed at **≥ 18**
- **Narcissistic personality disorder**
 - Sense of self-importance, grandiosity & preoccupation w/ fantasies of success.
 - This person believes she/he is special, requires excessive admiration,
 - Reacts with rage when criticized & interpersonally exploitative.

Cluster C (Anxious, Fearful)

- **Avoidant personality disorder**
 - Social inhibition, feelings of inadequacy & hypersensitivity to criticism
 - Shy away from work or social relationships because of fears of rejection
 - Feel lonely & substandard and are preoccupied with rejection

- **Dependent personality disorder**
 - Submissive & clinging behavior & worry unrealistically about abandonment.
 - Feel inadequate & helpless.
 - Avoid disagreements with others.
 - They usually focus dependency on a family member or spouse
 - Can be found in many abusive relationship
 - Associated features include self-doubt, excessive humility, poor independent functioning, mood disorders, anxiety disorders & adjustment disorder

- **Obsessive-compulsive personality disorder**
 - Individuals are preoccupied with orderliness, perfectionism & control.
 - Consumed by the details of everything and lose their sense of overall goals.
 - They are strict, perfectionist & inflexible.
 - Obsessed with work & are hesitant to delegate tasks to others.
 - Other traits include being miserly and unable to give up possessions.
 - Associated features: Indecisiveness, dysphoria, anger, social inhibition, & difficult interpersonal relationships.

- **Remember:** This personality disorder should not be confused with obsessive - compulsive disorder (**OCD**)

	Obsessive Compulsive disorder (OCD)	Obsessive Compulsive Personality Disorder
Type of Disorder	Anxiety Disorder	Personality Disorder
Duration	Been normal before	All life
Functioning	Can't function	Can function
Treatment	Medications: SSRIs	Psychotherapy

Somatoform Disorders

- A group of disorders characterized by the presentation of physical symptoms with **no medical explanation(s)**
- The symptoms are severe enough to interfere with the patient's ability to function in social or occupational activities
- Don't ever refer to **Psychiatrics**
- Don't ever tell the patients that they don't have any problem

SOMATIZATION DISORDER

- Definition: A disorder consisting of multiple symptoms affecting multiple organs.
- Risk Factors/Etiology: young Women > Men & ↑ in low socioeconomic status.
- Within families, male relatives tend to have antisocial personality disorder, whereas female relatives tend to have histrionic personality disorder.
- Physical & Psychiatric Symptoms
 - Many physical symptoms affecting many organ systems. No medical explanation can be found. Interpersonal & Psychologic problems are present
 - Patients will seek out Rx & have impairment in their level of functioning
- Differential Diagnosis
 - Medical: Multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, AIDS, thyroid & chronic systemic infections
 - Psychiatric: Major depression, generalized anxiety disorder, schizophrenia
- Treatment
 - Individual psychotherapy
 - Must have a single identified physician as the primary caretaker
 - Patient should be seen during regularly scheduled brief monthly visits

CONVERSION DISORDER

- Definition: A disorder in which the individual experiences one or more **neurologic symptoms** that cannot be explained
- Associated with passive-aggressive, dependent, antisocial & histrionic personalities
- Risk Factors/Etiology: young Women > Men & ↑ in low socioeconomic status, low IQs & military personnel
- Psychiatric & Physical Symptoms
 - One or two neurologic symptoms affecting voluntary or sensory function
 - Must have psychologic stressor associated with onset or the ↑ of symptoms
 - **MC Symptoms** Mutism, Blindness & Paralysis
 - Other Symptoms: Anesthesia, paresthesia, gait disturbance & pseudo-seizures
- Primary gain: Keeps internal conflicts outside patient's awareness
- Secondary gain: Benefits received from being "sick"
- **La belle indifférence**: Patient seems unconcerned about impairment
- Patients model their behavior on someone who is important to them
- Differential Diagnosis
 - Neurologic: Dementia, tumors, basal ganglia disease & optic neuritis
 - Psychiatric: Schizophrenia, depressive disorders, anxiety disorders, factitious
 - Other: Malingering
- Treatment
 - Psychotherapy with focus on stress & coping skills
 - Amobarbital interview may be helpful in obtaining more information

HYPOCHONDRIASIS

- Definition: A disorder characterized by the patient's belief that he/she has specific disease. Despite constant reassurance, the patient's belief remains the same
- Risk Factors/Etiology: **Men = Women**. Onset is between the **ages of 20 & 30**
- Physical & Psychiatric Symptoms
 - Preoccupation with diseases persists despite constant reassurance
 - The preoccupation affects the individual's level of functioning
 - Duration at least 6 months
- Treatment
 - Individual Psychotherapy to help relieve stress and help cope with illness
 - May give Rx: SSRIs, TCAs, MAOIs

BODY DYSMORPHIC DISORDER

- Definition: A disorder characterized by the belief that some body part is abnormal, defective or misshapen
- Risk Factors/Etiology: Unmarried **Women > Men** between the **ages of 15 & 20**
- Other disorders that may be found include depressive disorders, anxiety disorders, obsessive compulsive disorders & psychotic disorders
- Physical & Psychiatric Symptoms
 - MC concerns involve facial flaws (Constant mirror-checking)
 - Attempt to hide the alleged deformity & Avoids social situations
 - Causes impairment in their level of functioning
- Differential Diagnosis
 - Medical: Some types of brain damage, such as neglect syndrome
 - Psychiatric: Anorexia, depressive disorders, anxiety disorders, obsessive compulsive disorders, narcissistic personality & psychotic disorders
- Treatment
 - Individual psychotherapy
 - May offer Antidepressants (SSRIs, TCAs, MAOIs)

PAIN DISORDER

- Definition: A disorder in which the patient's main complaint is **pain**
- Risk Factors/Etiology: **Women > Men**. Onset in the **ages of 40 & 50**
- Secondary gain may be seen in many patients
- Tend to be preoccupied with pain. More than half of patients may have depression, whereas most of them have dysthymia
- Physical & Psychiatric Symptoms
 - Pain is present in one or more anatomic sites
 - Pain causes distress to the patient
 - Psychological factors (stressors) are usually found
 - Symptoms are not faked. May have long history of surgeries or medical care
- Differential Diagnosis
 - Medical: Muscle contraction headaches
 - Psychiatric: Other somatoform disorders
- Treatment
 - Individual psychotherapy
 - Biofeedback, hypnosis & nerve-blocking have been helpful in some cases
 - May offer Antidepressants (SSRI)

FACTITIOUS DISORDER

- Definition: A disorder characterized by the **conscious production of signs & symptoms** of medical or mental disorders or both
- **Factitious Disorder By Proxy**: Signs & symptoms are faked for another person, as in mother and child
- Etiology: Seen > **in men & in health care workers**. As children, many patients suffered abuse that resulted in frequent hospitalizations
- Physical & Psychiatric Symptoms: Typically **demand treatment** when in the hospital. If tests return negative, they tend to accuse doctors & **threaten litigation**. Become angry when confronted
- Differential Diagnosis
 - Psychiatric: Other somatoform disorders, antisocial & histrionic personality disorders, schizophrenia, substance abuse, malingering & Ganser's syndrome
- Treatment: Usually involves management rather than cure. Must be aware of **counter-transference** when the physician suspects factitious disorder

MALINGERING

- Definition: Characterized by the conscious production of signs & symptoms for an **obvious gain** (money, avoidance of work, free bed and board, etc.)
- It is not a mental disorder
- Risk Factors/Etiology: > **Men**, especially in prisons, factories & the military
- Physical & Psychiatric Symptoms: Most express subjective symptoms
- Tend to complain a lot & exaggerate its effect on their functioning & lives. Preoccupied more with rewards than with alleviation of symptoms
- Differential Diagnosis. Psychiatric: Other somatoform disorders
- Treatment: Allow the patient to save face by not confronting the patient and by allowing the physician-patient relationship to work.

Dissociative Disorders

- Dissociation (**Defense Mechanism**) is the fragmentation or separation of aspects of consciousness (Splitting the Brain from Conscious Awareness), including **Memory, Identity & Perception**.
- Presenting complaints & findings
 - Amnesia, Personality Changes, Erratic Behavior, Odd Inner Experiences (e.g. Flashbacks, ***de ja vu*** (a sense of unfamiliar things being familiar) & Confusion

DISSOCIATIVE AMNESIA

- Definition
 - Significant episodes in which the individual is unable to recall important & emotionally charged memories due to a ***Stressor***
 - **Patient is AWARE of Memory Loss (Opposite to Dissociative Fugue) *****
- Risk Factors/Etiology
 - Psychological stress
 - MC in young women
 - Onset is usually detected retrospectively by the discovery of memory gaps of extremely variable duration
- Symptom: **Amnesia** that may be general or selective for certain events
- Course: Amnesia may suddenly or gradually remit or may become chronic
- Associated Problems
 - Mood Disorders
 - Conversion Disorder
 - Personality Disorders
- Differential Diagnosis
 - Medical conditions (Brain Trauma, Seizures & Cerebrovascular Diseases)
 - Substances (Anxiolytics, Hypnotics & Alcohol)
 - Other Dissociative Disorders
- Treatment
 - Patient should be removed from stressful situations when possible
 - Psychotherapy, ***Hypnosis, Suggestion & Relaxation Techniques***

DISSOCIATIVE FUGUE

- Definition
 - Sudden unexpected travel accompanied by inability to remember one's past & by confusion about personal identity or by assumption of a new identity
 - **Patient is NOT AWARE of Memory Loss (Opposite to Dissociative Amnesia) *****
- Risk Factors/Etiology
 - Psychosocial Stressors (***Severe***)
 - Incidence: **0.2%**
 - Onset: Usually sudden, often following a stressful life event
 - Course: Most episodes are isolated & last from hours to months
 - Outcome: Resolution is usually rapid, but Amnesia may persist
- Associated Problems. Mood disorders, PTSD & Substance abuse
- Differential Diagnosis: Complex Partial Seizures, Factitious Disorder & Malingering
- Treatment: Psychotherapy, Hypnosis, ***Suggestion & Relaxation Techniques***

DISSOCIATIVE IDENTITY DISORDER: (formerly *Multiple Personality Disorder*)

- Definition
 - Presence of multiple, distinct personalities that recurrently control the individual's behavior, accompanied by failure to recall important personal information (****Look for gaps in the Memory****)
- Risk Factors/Etiology
 - Childhood sexual abuse
- Prevalence: **> in women**
- Onset: Clinical presentation is several years
- Key Symptoms: Presence of distinct personalities is often subtle; in some cases & it is discovered only during treatment for associated symptoms
- Associated Problems: Chaotic interpersonal relationships, impulsivity & self-destructive behavior, suicide attempts, substance abuse
- Co-morbidity: Borderline Personality Disorder, PTSD, Depression, Substance-related Disorders, Sexual Disorders & Eating Disorders
- Course: Symptoms may fluctuate or be continuous
- Differential Diagnoses
 - Borderline personality disorder & other personality disorders
 - Bipolar disorder with rapid cycling
 - Factitious disorder & Malingering
- Treatment: **Psychotherapy**

DEPERSONALIZATION DISORDERS

- Definition
 - Persistent or recurrent feeling of being detached from one's mental processes or body, accompanied by intact sense of reality "**You believe you are not real**"
- Risk Factors/Etiology
 - Psychologic stress.
- Prevalence
 - Episodes of depersonalization are common.
- Onset
 - Usually in adolescence or early adulthood.
 - Stressful events may precede the onset of the disorder.
- Key Symptoms
 - Depersonalization: Believe that **he/she is not real** "**Out-of-Body Experience**"
 - Derealization: Believe that the **world is not real**
 - Perception Distortion of the environment during episodes of Depersonalization
 - Jamais vu (a sense of familiar things being strange)
 - Deja vu (a sense of unfamiliar things being familiar)
- Differential Diagnosis
 - Substance-induced mental disorders with Dissociative symptoms
 - Hallucinogen-induced persisting perceptual disorder
 - Panic disorder
 - Post traumatic stress disorder
- Treatment: **Psychotherapy**

Adjustment Disorders ***

- Definition
 - Maladaptive Reactions to a psychosocial **STRESSOR** ***
- Risk Factors/Etiology
 - Cause: environmental stressors having an effect on functioning
 - Risk that a stressor will cause an adjustment disorder depends on an individual's emotional strength & coping skills
 - Prevalence: Extremely common; all age groups
 - *** Onset: Within 3 months of the initial presence of the stressor
 - *** Course: Lasts 6 months or less once the stressor is resolved
 - Can become chronic if stressor continues & no ways of coping with stressor
- Associated Problems
 - Social & occupational performance deterioration or withdrawn behavior
- Differential Diagnosis
 - Normal reaction to stress
 - Disorders that occur following stress
 - Post Traumatic Stress Disorder (PTSD) - Severe Symptoms
 - **Grief** - Same symptoms as **Adjustment Disorder**, but **due to death**
 - Major Depressive Disorder - Severe Symptoms
 - General Anxiety Disorder
- Treatment
 - Supportive Psychotherapy
 - Pharmacotherapy: Anxiolytics or Antidepressants

Impulse Control Disorders

- Definition
 - A group of disorders in which patients are unable to resist an impulse.
 - **↑ Anxiety before the act & ↓ Anxiety after the act**
 - Impulse disorders are ego-syntonic (feel **pleasure** after the act)
 - Compulsive disorders are ego-dystonic (feel **unease** after the act)
 - Both Impulse & Compulsive disorders are mediated by ↓ Serotonin

INTERMITTENT EXPLOSIVE DISORDER

- Definition
 - A disorder characterized by discrete episodes of failure to resist aggressive impulses that result in serious assaultive acts or destruction of property
 - The degree of the aggressive act is typically out of proportion to the stressor
 - Attacks may occur within minutes or hours & tend to resolve spontaneously.
- Risk Factors/Epidemiology
 - **Men > Women**, especially men in prisons & women in psychiatric facilities.
 - Many patients have had a history of head trauma, seizures, encephalitis
 - May be linked to ↓ levels of **5HTAA & testosterone**
 - The symptoms lessen as the patients age
- Physical & Psychiatric Symptoms
 - Psychologic tests & EEG often normal
 - Poor work histories. Marital difficulties. Problems with the law
- Differential Diagnosis
 - Medical: Epilepsy, brain tumors, degenerative & endocrine disorders.
 - Psychiatric: Antisocial personality disorder, borderline personality disorder, Schizophrenia & substance intoxication
- Treatment
 - Pharmacotherapy: Anticonvulsants, Antipsychotics, beta-blockers, **SSRIs**.
 - Group Psychotherapy, although not the preferred treatment, may be beneficial.

KLEPTOMANIA

- Definition
 - Recurrent failure to resist impulses to steal objects that patient does not need.
 - **↑ Anxiety before the act & ↓ Anxiety after the act**
- Risk Factors/Epidemiology
 - > in women. Symptoms may be linked to stress in the patient's life.
 - Associated with **eating disorders**, such as **bulimia nervosa**, obsessive-compulsive disorders & mood disorders
 - It has been linked to brain disease & mental retardation.
- Physical & Psychiatric Symptoms
 - Signs of anxiety & depression. Feel guilty or ashamed of their actions.
- Differential Diagnosis
 - Psychiatric: Antisocial personality disorder, mania & schizophrenia.
- Treatment
 - Insight-oriented psychotherapy
 - Behavioral therapy: Aversive conditioning & systematic desensitization
 - Consider SSRIs or anticonvulsants.

PYROMANIA

- Definition
 - Deliberate fire setting on more than one occasion.
 - **↑ Anxiety before the act & ↓ Anxiety after the act**, followed by gratification.
- Risk Factors/Epidemiology
 - **> in men** who are mildly retarded & may have a history of alcohol abuse.
 - Many have histories of truancy and cruelty to animals.
- Physical & Psychiatric Symptoms
 - Lack remorse for the consequences of their actions & show resentment toward authority figures. May become sexually aroused by the fire.
- Differential Diagnosis
 - Medical: Brain dysfunctions.
 - Psychiatric: Antisocial personality disorder, conduct disorder & schizophrenia.
- Treatment: No treatment is beneficial, incarceration may be indicated

PATHOLOGIC GAMBLING

- Definition
 - Persistent & recurrent gambling behavior & preoccupation with gambling
- Risk Factors/Epidemiology
 - **> in men & seen in their parents** as well.
 - **↑ incidence of alcohol dependence**
 - May be predisposed by death &/or other stressor
 - May link to mood disorders, obsessive-compulsive disorders & agoraphobia
- Physical & Psychiatric Symptoms
 - May engage in antisocial behavior to obtain money for gambling.
 - Suicide attempts. Multiple arrests and/or incarceration.
- Differential Diagnosis
 - Psychiatric: Mania, antisocial personality disorder.
- Treatment
 - **Gamblers anonymous** is the most effective treatment, consider **SSRIs**

TRICHOTILLOMANIA

- Definition
 - Pulling one's own hair, resulting in hair loss.
 - **↑ Anxiety before the act & ↓ Anxiety after the act**
- Risk Factors/Epidemiology
 - Women **> Men** & associated with obsessive-compulsive disorder, obsessive-compulsive personality disorder & depressive disorders.
- Physical & Psychiatric Symptoms
 - Hair loss is significant over all areas of the body. Scalp is most the affected
 - May eat the hair, resulting in bezoars (hair boll), obstruction & malnutrition.
 - Head banging, nail biting & gnawing may be present.
- Differential Diagnosis
 - Medical: Alopecia areata & Tinea Capitis (biopsy would be indicated).
 - Psychiatric: Obsessive-compulsive disorder, factitious disorder.
- Treatment
 - Behavior-modification techniques to decrease anxiety
 - SSRIs, Anticonvulsants or Antipsychotics to help **↓** the urges.

Eating Disorders ***

ANOREXIA NERVOSA

- Definition
 - Failure to maintain a normal body weight, fear & preoccupation with gaining weight, unrealistic self-evaluation as overweight & Amenorrhea for ≥ 3 cycles
 - **Body Image Disturbance, Losing > 15% body weight & Amenorrhea for ≥ 3 cycles**
- Subtypes
 - Restricting (no binge-eating or purging)
 - Binge-eating/purging (regularly engaged in binge-eating/purging).
- Risk Factors/Etiology
 - Biologic risk factors: Genetics.
 - Amenorrhea may precede abnormal eating behavior
 - Psychologic factors: Emotional conflicts concerning family control & sexuality
 - Cultural risk factor that emphasis on thinness
- Prevalence: **0.5%**
- Occurs at a **1 to 10** male-to-female ratio
- Onset
 - Average age is 17 years
 - Very late-onset anorexia nervosa has a poorer prognosis
 - Onset is often associated with emotional stressors, particularly conflicts with parents about independence & sexual conflicts
- Key Symptoms
 - Restricted food intake & maintaining diets of low-calorie foods & Exercises
 - Purging: Self-induced vomiting or the use of Laxatives, Diuretics or Enemas
 - Great concern with appearance
 - Significant amount of time spent examining & denigrating self for perceived signs of excess weight
 - Denial of emaciated conditions
- Associated Symptoms
 - Excessive interest in food-related activities (other than eating)
 - Obsessive-Compulsive symptoms & Depressive symptoms
- Course: Some recover after a single episode, others develop a waxing-&-waning
- Outcome
 - Long-term **mortality rate** of individuals hospitalized for anorexia nervosa is **10%**, due to the effects of starvation & purging or suicide.
- Physical Examination
 - Signs of Malnutrition: Emaciation, Hypotension, Bradycardia, Lanugo (i.e., fine hair on the trunk) & Peripheral Edema
 - Signs of Purging: Eroded Dental Enamel caused by emesis & scarred or scratched hands from self-gagging to induce emesis
 - Evidence of medical conditions due to Abnormal Diets, Starvation & Purging
- Diagnostic Tests
 - Signs of Malnutrition: **Normochromic Normocytic Anemia, Abnormal Electrolytes**, elevated liver enzymes, low estrogen & testosterone levels
 - Signs of Purging
 - Metabolic Alkalosis, Hypochloremia & Hypokalemia due to **Emesis**
 - Metabolic Acidosis caused by laxative abuse

- Differential Diagnosis
 - Bulimia Nervosa (**Anorexia - ↓ weight & Bulimia - Normal weight**), medical conditions that cause weight loss, Major Depression, Schizophrenia, OCD & Body Dysmorphic Disorder
- Treatment
 - Initial treatment should be correction of significant physiologic consequences of starvation with hospitalization if necessary
 - **Behavioral Therapy** should be initiated, with rewards or punishments based on absolute weight, not on eating behaviors
 - **Family Therapy** designed to reduce conflicts about control by parents
 - Antidepressants when co-morbid **Depression** is present

BULIMIA NERVOSA

- Definition
 - Binge-Eating, Purging & a self-image that is unduly influenced by weight
 - Normal body weight or Obese
- Subtypes
 - Purging: Self-induced vomiting or the use of Laxatives, Diuretics or Enemas
 - Non-purging: Fasting or Exercise, but no purging during bulimic episodes
- Risk Factors/Etiology
 - Psychologic conflict regarding guilt, helplessness, self-control & body image may predispose
 - Biologic factors are suggested by frequent association with mood disorders
- Prevalence: **2%** in young females
- Occurs at a **1 to 9** male-to-female ratio
- Onset: During late adolescence or early adulthood & often follows a period of dieting
- Course: May be chronic or intermittent
- Outcome
 - 70% of cases have remitted after 10 years
 - Co-occurring substance abuse is associated with a poorer prognosis
- Key Symptoms
 - Recurrent episodes of binge-eating
 - Obsession with dieting but followed by binge-eating of high-calorie foods
 - Binges are associated with emotional stress & followed by feelings of guilt, self-recrimination & compensatory behaviors
 - Recurrent, inappropriate compensatory behavior
 - Self-castigation for mild weight gain or binges. Attempts to conceal binge-eating or purging, or lies about behaviors
- Associated Problems: Depression, substance abuse & Impulsivity (Kleptomania) ***
- Co-morbid Disorders: **Borderline Personality Disorder** is present in **50%**
- Physical Examination: Evidence of purging
- Diagnostic Tests: Evidence of Laxative or Diuretic abuse
- Differential Diagnosis
 - Anorexia Nervosa (**Anorexia - ↓ weight & Bulimia - Normal weight**),
 - Depression & Borderline Personality Disorder
 - Depression, Schizophrenia, OCD & Body Dysmorphic Disorder
- Treatment
 - Antidepressants (**SSRI**)
 - Cognitive & Behavioral Therapy
 - Psychodynamic Psychotherapies are useful for borderline personality traits

Sleep Disorders

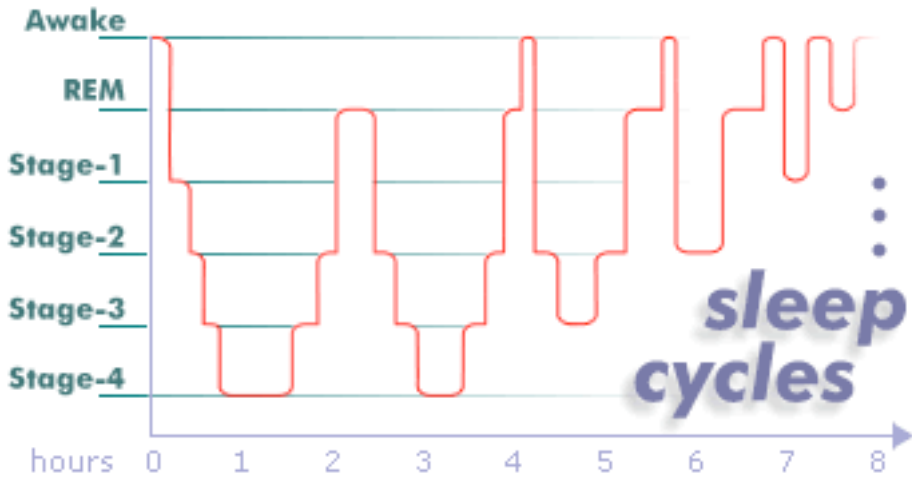
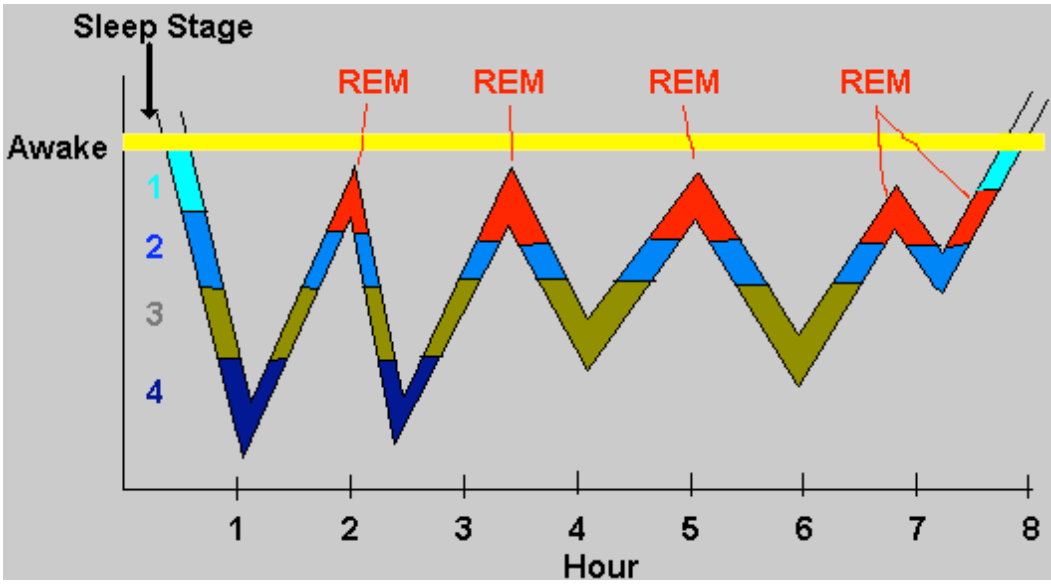
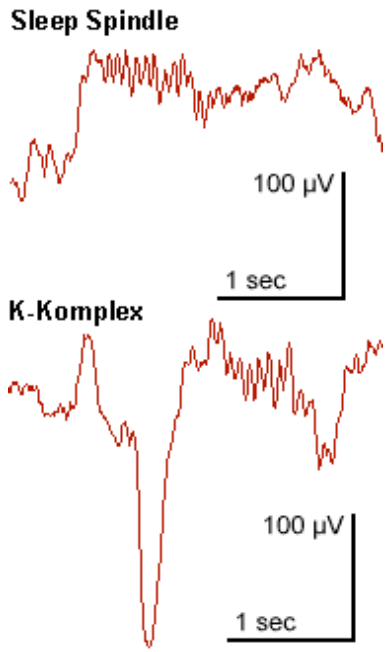
NORMAL SLEEP

- Sleep is divided into two stages: Non-rapid eye movement (**NREM**) & rapid eye movement (**REM**).
- **Non-rapid Eye Movement (NREM) Sleep**
 - A state of sleep characterized by:
 - Slowing of the EEG rhythms
 - High muscle tone
 - Absence of eye movements
 - In this state the brain is inactive while the body is active.
 - Non-rapid eye movement sleep is made up of 4 stages
- **Rapid Eye Movement (REM) Sleep**
 - A stage of sleep characterized by:
 - Aroused EEG patterns
 - Sexual arousal
 - Saccadic eye movements
 - Generalized muscular atony (except middle-ear & eye muscles)
 - Dreams
 - In this stage, the brain is active and the body is inactive
- **Sleep Stages (BATS Drink Blood)**
 - **B** - Awake / **A** - Awake closed eyes / **T** - Stage 1 / **S** - Spindles - Stage 2 / **D** - Stage 3 & 4 / **B** - **REM** (same as Awake)
- 1. **Stage 1 (5%)**
 - EEG: The appearance of theta waves (slow 3 to 7 cycles per second)
 - Disappearance of **alpha waves** - **drowsy** (rapid 8 to 12 cycles per second)
- 2. **Stage 2 (45%)**
 - **Longest stage**
 - EEG: K complexes & sleep spindles (very rapid 12 to 14 cycles per second)
- 3. **Stage 3 (12.5%)**
 - EEG: appearance of delta waves (slowest < 2 cycles per second).
 - **Hardest to arouse**
 - Tends to vanish in the elderly
 - **Stage 3** with **stage 4** are called slow wave sleep or delta sleep
- 4. **Stage 4 (12.5%)**
 - EEG: continuation of delta wave
- 5. **REM sleep (25%)**
 - EEG: **Saw-tooth waves**
 - **REM like SEX**: ↑ Pulse & Penile/Clitoral arousal, but ↓ with age
 - Lengthens in time as the night progresses
 - Increased during the second half of the night

- **REM** sleep latency
 - The period lasting from the moment you fall asleep to the first **REM** period
 - Lasts approximately 90 minutes in most individuals
 - Depression & Narcolepsy will ↓ **REM** latency
- Sleep Latency
 - The time needed before you actually fall asleep
 - Typically less than 15 minutes in most individuals
 - Abnormal in many disorders, such as insomnia, etc.
- Characteristics of Sleep from Infancy to Old Age
 - ↓ Total sleep time
 - ↓ % **REM**
 - ↓ Stages 3 & 4

NEUROTRANSMITTERS OF SLEEP (↑ SA-ND ↓)

- **Serotonin**
 - ↑ during sleep
 - Initiates sleep
- **Acetylcholine**
 - ↑ during sleep
 - ↑ **REM** sleep
- **Norepinephrine**
 - ↓ during sleep
 - ↓ **REM** sleep
- **Dopamine**
 - ↓ during sleep
 - ↑ arousal & wakefulness
- **Chemical** effects on Sleep
 - **Tryptophan**: → ↑ **Serotonin** → ↑ total sleep time
 - **Dopamine** agonists (**Bromocriptine**) → Produce arousal → ↓ total sleep time
 - **Dopamine** antagonists (**Haloperidol**) → ↓ Arousal → Produce sleep
 - **Imipramine** → ↓ Stage 4 & used for Rx of Enuresis
 - **Benzodiazepines**: ↓ Stage 4 & used for Rx of Night Terrors & Sleepwalking
 - **Benzodiazepines** withdrawal after chronic use → ↑ sleep latency (Can't Sleep)
 - **Alcohol & Barbiturate** intoxication → ↓ **REM**
 - **Alcohol & Barbiturate** withdrawal → ↑ **REM**
- **Major Depression** effects on Sleep
 - ↓ **REM** latency (from 90 minutes → 60 minutes)
 - ↑ **REM** time
 - ↓ delta (slow-waves) sleep
 - Early morning awakening & Multiple awakenings



SLEEP DISORDERS

Narcolepsy ***

- Definition
 - Excessive daytime sleepiness & **REM** abnormalities for > **3 months**
 - **REM** sleep occurs in less than 10 minutes
 - Patients feel refreshed upon awakening
- Physical & Psychiatric Symptoms
 - Sleep attacks: Most common symptom
 - **Cataplexy** (***Pathognomonic sign***)
 - Sudden loss of muscle tone & patient remains awake
 - Can be precipitated by a loud noise or intense emotion
 - Hypna-gogic & Hypno-pompic hallucinations
 - Hypnagogic Hallucinations occur as the patient is going to sleep
 - Hypnopompic occur as the patient is waking up from sleep
 - Sleep paralysis
 - Occurs during awakening, when patient is awake but unable to move.
 - Report falling asleep quickly at night.
- Treatment
 - Forced naps at a regular time of day is usually the treatment of choice.
 - **Psychostimulants**
 - Tricyclic Antidepressants (TCAs) to help suppress the **REM** sleep

Sleep Apnea

- Definition
 - The cessation of airflow at the nose or mouth during sleep (snoring)
 - These apnea episodes usually last > **10** seconds each
 - Loud snore followed by a heavy pause
 - Considered pathologic if patient has > 5 episodes/hour or > 30 episodes/night
 - In severe cases, patients may experience more than 300 apnea episodes during the night.
- Physical & Psychiatric Symptoms
 - **Obese**, middle-aged, **snoring** males
 - Associated with depression, mood changes & daytime sleepiness.
 - Complain of restlessness during the night & tired during the day
 - Complain of dry mouth & headaches in the morning.
 - May develop arrhythmias, hypoxemia, pulmonary hypertension & sudden death
- Types of Sleep Apnea
 - Obstructive (MC): Muscle atony in oropharynx; nasal or tonsil obstruction
 - Central: Lack of respiratory effort.
 - Mixed: Central at first, but prolonged due to collapse of the airway.
- Treatment
 - Continuous positive nasal airway pressure is the treatment of choice.
 - Other treatment includes weight loss, surgery.

Insomnia

- Definition
 - Difficulties in initiating or maintaining sleep.
- Risk Factors/Epidemiology
 - Associated with Anxiety or anticipatory anxiety
 - Seen > in women.
 - Underlying psychiatric disorders: Depression, Post Traumatic Stress Disorder, Obsessive Compulsive Disorder & Eating Disorders
- Physical & Psychiatric Symptoms
 - MC Complaint is difficulty initiating or maintaining sleep.
 - Affects the patient's level of functioning.
 - Frequent yawning & tiredness during the day.
- Differential Diagnosis
 - Medical: Pain, CNS lesions, endocrine diseases, aging, brain-stem lesions, alcohol, diet, medications.
 - Psychiatric: Anxiety, Depression & environmental changes
- Treatment
 - Good sleep hygiene techniques
 - Behavioral modification techniques such as stimulus control
 - **Benzodiazepines** for a short period of time

PARASOMNIAS

	Sleeping Stage	Characteristics	Rx
Nightmare (Bad Dream)	▪ Occurs during REM sleep.	<ul style="list-style-type: none"> ▪ Memory of the events upon awakening. ▪ ↑ during stress. ▪ Reported by 50% of the population. 	REM suppressants such as Tricyclic Anti-depressant's (TCAs)
Night Terror	▪ Occurs during stages 3 & 4 .	<ul style="list-style-type: none"> ▪ Awakened by scream or intense anxiety ▪ No memory of the event. ▪ > in children (Boys) 	No treatment is necessary <u>OR</u> use drugs to suppress stages 3 & 4, such as Benzodiazepines
Sleeptalking	▪ Can occur in all stages of sleep.	<ul style="list-style-type: none"> ▪ Usually involves a few words. ▪ May accompany night terrors & sleepwalking. ▪ > in children. 	No treatment is necessary.
Sleepwalking	▪ Occurs during stages 3 & 4 .	<ul style="list-style-type: none"> ▪ Sequence of behaviors without full consciousness. ▪ No memory of the events. ▪ Begins at young age > in boys 	Use drugs to suppress stages 3 & 4, such as Benzodiazepines

Sexual Disorders

TERMINOLOGY

- **Sexual Identity**
 - Based on the person's sexual characteristics, such as external & internal genitalia, hormonal characteristics & secondary sexual characteristics.
- **Gender Identity**
 - Based on the person's sense of maleness or femaleness
 - Established by the age of 3
 - Believed to have been determined by parents.
- **Gender Role**
 - Based on the external behavioral patterns that reflect the person's inner sense of gender identity.
- **Sexual Orientation**
 - Based on the person's choice of a love object
 - May be heterosexual (opposite sex), homosexual (same sex), bisexual (both sexes) or asexual (no sex).

MASTURBATION

- Normal precursor of object-related sexual behavior.
- All men & women masturbate.
- Genital self-stimulation begins at 15 to 19 months & no sexual fantasies present.
- Males learn to masturbate earlier than females & tend to do it more often.
- Excessive only if it interferes with daily functioning.

HOMOSEXUALITY

- Removed from the DSM in 1980 as a mental illness.
- Considered a variant of human sexuality, not a pathologic disorder.
- Most homosexuals report feelings toward same sex individuals since adolescence.
- Freud believed it was an arrest of psychosexual development.
- May be due to genetic (> in monozygotic) & biologic causes.
- No difference in the sexual practices from those exhibited by heterosexuals.
- Female-female relationships > stable & acceptable in society than male-male.
- Equal incidence of mental illness when compared with heterosexuals.
- Exceptions (normal during adolescence)
 - Visual comparison of genitalia
 - Mutual masturbation
 - Group exhibitionism, Handholding, Kissing, etc.

SEXUAL DYSFUNCTIONS

- A group of disorders related to a particular phase of the actual response cycle.
- These disorders can be physiological, biological or both.
- They include desire, arousal, orgasmic & pain disorders.
- **Rx:** Individual psychotherapy & Couples therapy

- **Desire**
 - Focuses on the patient's drives, motivations, fantasies & desires.
 - Hypoactive sexual desire disorder: patients have a decrease or absence of sexual fantasies, desires, etc.
 - Sexual aversion: a complete aversion to all sexual contact (disgusting w/sex).
 - **Treatment**
 - Individual psychotherapy
 - Couples therapy if due to marital conflict.

- **Arousal**
 - Consists of a sense of sexual pleasure with accompanying physiologic changes.
 - **Female sexual arousal disorder**
 - Persistent failure to achieve or maintain adequate lubrication during the sexual act.
 - **Impotence (Erectile Dysfunction)**
 - Persistent or recurrent inability to attain or maintain adequate erection until completion of the sexual act.
 - Must rule out if organic Vs. psychological via Plethysmography or Postage Stamp Test
 - **Treatment**
 - Individual psychotherapy
 - Couples therapy if due to marital conflict.

- **Orgasm**
 - Physiologic state in which sexual tension is released & contractions
 - **Female orgasmic disorder**
 - Recurrent or persistent inability to achieve an orgasm either through masturbation or sexual intercourse.
 - Treatment includes use of vibrators, education & fantasy.
 - **Premature ejaculation**
 - Ejaculation before the man wishes to do so
 - **MCC:** Anxiety about the sexual act.
 - Consider behavioral techniques such as squeeze & stop-and-go.
 - Consider the use of drugs that delays ejaculation (**SSRIs**)
 - **Treatment**
 - Individual psychotherapy
 - Couples therapy

- **Pain Disorders**
 - Subjective sense of pain associated with the sexual act.
 - **Dyspareunia**
 - Pain associated with sexual intercourse in either male or female.
 - Not diagnosed when organic cause has been found or if due to lack of vaginal lubrication.
 - **Vaginismus**
 - Involuntary constriction of the outer **1/3** of the vagina that interferes with the sexual act.
 - **Rx:** Behavioral techniques, such as the use of dilators.
 - **Treatment**
 - Individual & Couples Psychotherapy

PARAPHILIAS

- A group of disorders that is recurrent & sexually arousing that occur for more than 6 months & cause impairment in patient's level of functioning.
 - Focus on
 - Humiliation &/or suffering
 - The use of nonliving objects
 - Involvement non-consenting partners
- Risk Factors/Epidemiology
 - Men > women
 - Peak incidence is between the ages of 15 & 25
 - Tend to have other paraphilias & the frequency decreases with age
- Physical & Psychiatric Symptoms
 - Sexual activity is ritualistic
 - Fantasy is typically fixed & shows very little variation
 - Intense urge to carry out the fantasy.
- **Treatment**
 - Individual psychotherapy
 - Behavioral techniques, such as aversive conditioning
 - Pharmacotherapy: **Anti-androgens** or **SSRIs**

TYPES OF PARAPHILIAS

- **Exhibitionism**
 - Recurrent urge to expose oneself to strangers
- **Fetishism**
 - The use of nonliving objects that associated with the human body (panty hose)
- **Frotteurism**
 - Recurrent touching or rubbing against a non- consenting partner
- **Pedophilia**
 - Recurrent urges or arousal toward prepubescent children
 - **MC Paraphilia**
- **Voyeurism**
 - Observing an unsuspecting person who is engaging in sexual activity
 - Earliest Paraphilia to develop
- **Masochism**
 - Recurrent urge or behavior involving the receiving of humiliation
- **Sadism**
 - Pleasure by causing physical or psychologic suffering of a victim
- **Transvestic fetishism**
 - Cross-dressing & usually found in heterosexual men

GENDER IDENTITY DISORDER

- Definition
 - A disorder characterized by a persistent discomfort & sense of inappropriateness regarding the patient's assigned sex.
- Risk Factors/Epidemiology
 - Seen more frequently in men than in women
 - May be due to biological or hormonal reasons
- Physical & Psychiatric Symptoms
 - Children will have preference for friends of the opposite sex
 - Preoccupied with wearing opposite gender's clothes
 - Believe they were born with the wrong body
 - Routinely request medications or surgery to change their physical appearance
 - Women may have mastectomies & take testosterone to deepen the voice
 - Men may have electrolysis to remove body hair, take estrogens to change the voice & may have surgeries to remove the penis & create a vagina

Substance Related Disorders ***

- Definition
 - Substance abuse that leads to
 - Loss of control of substance use
 - Monopolization of time by substance use
 - The individual spends his time obtaining & using drugs, recovering from drug use & discussing drugs
 - Presence of adverse medical, social or emotional consequences from substance use, including Tolerance & Withdrawal
- Risk Factors/Etiology
 - **Family History: Sons of alcoholics** are more likely to develop alcoholism
 - **Physiology:** Individuals who are innately more tolerant to alcohol
 - **Developmental History:** Poor parenting, childhood physical & sexual abuse
 - **Environmental:** Peer Pressure, Economic Disadvantage & Social Isolation
 - **Psychiatric Disturbances:** Conduct Disorder, ADHD, Depression & Bipolar
 - **Self-medication Hypotheses:** Individuals with certain Psychological problems may abuse substances in an effort to alleviate symptoms (e.g., a person suffering from an anxiety disorder uses alcohol to decrease anxiety)
- Prevalence
 - Alcohol abuse affects 14 million people in USA (5% of population)
 - Drug abuse affects 3 million people in USA (1% of population)
 - The highest prevalence of substance abuse is between 18 & 22 years of age
- Onset
 - Experimentation with gateway drugs may start as early as preadolescence
- Physical & Psychiatric Examination
 - Clinician should maintain an index of suspicion, expect denial from abusers
 - Clinician should obtain additional history from family members or friends
 - Clinical interview should include questions about family function, school & Occupational Performance & interactions with friends & acquaintances
 - Substance-abuse history should include questions about types of substances used, amounts, circumstances of use & drug reactions.
- Diagnostic Tests
 - **CAGE:** Affirmative answers to any 2 of the following questions (or to the last question alone) are suggestive of alcohol abuse
 - Have you ever felt that you should **Cut** down your drinking?
 - Have you ever felt **Annoyed** by others criticizing your drinking?
 - Have you ever felt **Guilty** about your drinking?
 - Have you ever had a morning drink (**Eye-opener**) after hangover?
- **Michigan Alcohol Screening Test (MAST):** Questionnaire to detect alcohol abuse
- Physical signs of drug use
 - Poor hygiene, Poor nutrition & Cough.
 - Needle marks or skin infections & self-inflicted injuries or accidents
 - Signs of substance intoxication & withdrawal
- Laboratory Toxicology
 - Breath, blood & urine drug screens (**0.1%**)
- Laboratory detection of alcohol abuse
 - SGGT, SGOT, SGPT & LDH
- Intravenous drug abuse workup
 - HIV, Hepatitis B, Hepatitis C & TB

- Treatment
 - Group Psychotherapy
 - *Alcoholics Anonymous & Al-Anon* for family members
 - *Narcotic Anonymous*
 - Pharmacotherapy
 - **Disulfiram** (Aldehyde Dehydrogenase Inhibitor): Causes an unpleasant reaction when Alcohol is ingested
 - **Naltrexone** (Opioid Antagonist): Blocks pleasurable effects of Opioids & Alcohol
 - Detoxification
 - Prevention programs: Teach adolescents how to resist social pressures
 - Drug Rehabilitation: Cessation of drug use & development of new coping skills
- **Specific Drug-Dependence Disorders**
 - **Nicotine**
 - 25% of the U.S. population uses nicotine regularly
 - Rx: **Bupropion**, Group Psychotherapy, Nicotine replacement drugs
 - **Alcohol**
 - **MC abused substance in USA** (Beer & Wine are the most abused)
 - **Marijuana (Cannabis)**
 - **Most frequently used illicit drug**
 - Compulsive use of marijuana is associated with poor adaptation skills
 - **Cocaine**
 - Use of crack cocaine has declined recently
 - **↑ Dopamine** → Psychosis, Panic & Violence
 - Cocaine user - resemble **Schizophrenia Paranoid Type**
 - Differential Diagnosis from **Schizophrenia** → **Do Urine Drug Screen**
 - Cocaine withdraw - resemble Depression
 - **Amphetamines**
 - Rapidly increasing in popularity in USA
 - Methamphetamine (“**Crystal**” or “**Ice**”) is usually the Amphetamine of choice & is usually taken intranasally
 - Some occupational groups, especially those that require prolonged alertness (e.g. truck drivers), are at risk for amphetamine abuse
 - Binge abuse is the usual pattern because tolerance develops quickly
 - **Opioids**
 - **Heroin** MC abused Opioid
 - **Opioid Intoxication**: **Pin-Point-Pupils**, breathing depression, Constipation, Coma & Death
 - Rx: **Naloxone** (Opioid Antagonist)
 - Addiction Rx
 - **Naltrexone** (Opioid Antagonist): Blocks pleasurable effects
 - **Psychotherapy (NA)**
 - **Methadone** & long-acting **LAAM** (Opioid Agonists)
 - **Inhalants**
 - **Gasoline, Glues, paint thinners & Solvents** - Commonly abused
 - Gasoline & Toluene are associated w/irreversible cognitive impairment
 - **PCP**
 - Use of PCP has declined in USA
 - **Severe Violence & Psychosis** are common with PCP intoxication
 - Rx: Put the patient in dark quiet room & use **Benzodiazepines** or **Antipsychotics**

- **Hallucinogens**
 - Work on Serotonin → cause Hallucinations & **Flash Back**
 - Lysergic Acid Diethylamide (**LSD**; “**acid**”) & Mescaline (**Peyote** & **Psilocybin** “**mushrooms**”).
 - Use of Hallucinogens is usually intermittent
- “**Designer Drugs**”
 - Transiently popular among small groups
 - Methoxylated Amphetamines: **MDMA** (3,4-Methylene-dioxy-methamphetamine), aka “**XTC**” or “**ecstasy**” & **DMT**
- **Benzodiazepines** & other **Sedative-Hypnotics**
 - Tolerance & withdrawal are common
 - Withdraws → Seizures
- **Anabolic Steroids**
 - ~ **5%** of adolescents, > males, have used anabolic steroids
 - Some anabolic steroids may have **Psychoactive Effects**
 - Anabolic steroids are associated with other substance abuse
- “**Date-Rape**” Drugs
 - Flunitrazepam (**Rohypnol**) produces the rapid onset of **Benzodiazepine-like** intoxication including **Amnesia**
 - Gamma-Hydroxy-Butyrate (**GHB**) produces a **Giddy Intoxication**

INTOXICATION & WITHDRAWAL

- Definitions of **Substance-Induced Mental Disorders**
 - **Substance Intoxication**
 - Reversible, substance-specific syndrome caused by the recent ingestion of or exposure to a substance
 - **Substance Withdrawal**
 - Substance-specific, **maladaptive behavioral change**, with physiologic & cognitive concomitants, caused by the cessation of or reduction in heavy & prolonged substance use
- Risk Factors/Etiology
 - **Intoxication & Withdrawal** are disturbances that are a direct physiologic result of a substance abuse
 - Many recreational drugs (legal & illicit) can cause intoxication & withdrawal
 - Higher incidence of other mental disorders in substances abusers
- Presenting Symptoms
 - A temporal association between substance ingestion & a **mental disturbance**
 - The ingested substance is known to cause a particular disturbance
- Physical & Psychiatric Examination
 - Medical History: Complications of substance abuse
 - Psychiatric History: Other primary psychiatric diagnoses & past treatments
 - Mental status examination: Signs of substance-induced disorders
 - Physical examination: Includes signs of substance use
- Diagnostic Tests
 - Toxicological examination for types of substances & concentrations
 - Other laboratory studies for evidence of systemic damage from substance use
- Treatment
 - Correction of physiologic complications resulting from substance use
 - Emotional reassurance & providing a structured & secure environment
 - Pharmacologic intervention to ameliorate psychological or physical symptoms

Buzz Words....

- Paranoia - Cocaine/Amphetamine intoxication
- Arrhythmia - Cocaine intoxication
- Depression - Cocaine withdrawal
- Flashback - LSD
- Severe Violence - PCP
- Pin-point pupils - Opiate overdose
- Flu-like symptoms - Opiate withdrawal
- Lack of motivation - Marijuana
- Tremors - Alcohol
- Seizures - Benzodiazepines
- Death - Barbiturates

Psycho-Pharmacology ***

NEUROTRANSMITTERS

- Receptors
 - Metabotropic (Slower): G-protein coupled → cAMP or IP3
 - **Dopamine, Norepinephrine**, Serotonin, Ach, Glutamate, GABA
 - Iontropic (ligand-gated)
 - Serotonin, Ach, Glutamate, GABA (**NOT Dopamine or Norepinephrine**)
- Inactivation
 - Metabolism (Ach, Neuropeptides, Dopamine, Histamine)
 - Reuptake (GABA, monoamine, 5-HT, NE, glutamate)
 - Diffusion
- Long hierarchical
 - Motor & Sensory transmission
 - Very fast point-to-point
 - Ex. Glutamate, Aspartate
- Single source divergent
 - Cell bodies in brainstem
 - Project to many areas of forebrain
 - Ex. Ach, Monoamines, Neuropeptides
- Local circuits
 - Short inter-neurons
 - Important for regulatory actions
 - Ex. GABA, Glycine, Glutamate, Ach, Neuropeptides
- Excitatory ionotropes
 - Glu, Asp, nicotinic Ach → ↑ Na & Ca into cell
- Inhibitory ionotropes
 - GABA, Gly → ↑ Cl into cell

Glutamate (Glu)

- Main excitatory NT
- Synthesis
 - From Glutamine by Glutaminase
 - Stored in vesicles
- Inactivation
 - Reuptake (to vesicle storage) or Uptake by glial cells (make Glutamine, can go to neuron to make Glu again)
- AMPA receptor
 - **Na** influx
 - Major receptor for point-to-point excitatory transmission
- NMDA receptor
 - **Ca** influx
 - Important for **learning & memory**
 - **Mg** blocks NMDA
 - Falls off when AMPA excited
 - Stroke / Ischemia → Over-reactivation of NMDA → Excess Ca → Apoptosis (excitotoxicity) → pathology
 - **PCP & Ketamine** are antagonists

- Metabotropic receptor (mGluR)
 - G-protein coupled
 - \uparrow *Ca* via IP3 or \downarrow cAMP
- Glutamatergic Tracts
 - ***Corticospinal***
 - Corticostriate
 - Hippocampus
 - Primary afferents
- Diseases
 - Epilepsy (Seizures)
 - Stroke
 - Parkinson's
 - ALS

GABA

- ***Anti-Convulsant***
- Spatial/Temporal restriction
- Synthesis
 - From glutamate by GAD (enzyme localized to sites where GABA used as NT)
- Inactivation
 - Reuptake; GABA shunt: As one broken down, another being made
- GABA_A receptor
 - Many subunits
 - Sites for binding of GABA
 - ***Barbiturates, Benzodiazepines, Anesthetics*** (all are anti-convulsant) \rightarrow Cl⁻ influx \rightarrow Hyperpolarization
 - Also affected by EtOH, Picrotoxin (convulsant)
 - α 1 = sedative (cortical)
 - α 2 = anti-anxiety (limbic)
- GABAergic Tracts
 - Inhibitory inter-neurons
 - Projection circuits of basal ganglia
 - Cerebellum (Ataxia = blocked GABA)
- Local control
 - Feedback & feed forward inhibition via inter-neurons
- Serial GABA inhibitory synapse
 - 2 Consecutive inhibitory GABAs = Net positive effect
- Strychnine
 - Blocks Gly-R in cord \rightarrow Over-excitatory \rightarrow Convulse & die; therefore Gly is inhibitory

Acetylcholine (Ach)

- Inactivation
 - By Ach-esterase (***AchE***)
 - Choline uptaken into neurons to make Ach
- Cell bodies
 - In ***nucleus basalis*** to cortex (***Memory***; defect \rightarrow ***Alzheimer's***)
 - In Septal nucleus to Habenula
 - In Mesopontine area (***Attention***)

- Functions
 - Nucleus Basalis = Memory processing;
 - Thalamocortical = Arousal & REM sleep
 - Striatum = Posture & Movement
- Nicotinic receptors
 - Na influx (Ionotropic)
- Muscarinic receptors
 - G-protein coupled (Metabotropic)
 - Cause Ca influx & some K influx (Heart)
- Diseases
 - Alzheimer's (loss of cholinergic neurons in nucleus basalis)
 - Myasthenia Gravis (autoimmune antibodies to n-AchR)
- Drugs
 - *Nerve gas* (Sarin, Soman): Irreversible inhibitor AchE
 - *Neuromusc. Blockers*
 - *Nicotine*
 - *Tacrine*: Reversibly inhibits AchE (for Treatment of Alzheimer)

Dopamine (Da)

- Catecholamines = Tyrosine → L-Dopa → Dopamine → NE → Epinephrine (usually, only in Brainstem)
- Inactivation
 - MAO causes dopamine → DOPAC
 - COMT causes dopamine → HVA & DOPAC → HVA
- Cell bodies
 - *Nigrostriatal pathway [MOTOR]*
 - Substantia Nigra → striatum & caudate Putamen of basal ganglia
 - Degeneration in Parkinson's
 - *Mesolimbic-Mesocortical pathway [EMOTION & AFFECT]*
 - Ventral Tegmental area (VTA) → limbic areas
 - Anticipation of pleasure (drugs craving)
 - Psychosis & Depression
 - *Tubero-infundibular pathway*
 - Hypothalamus → Pituitary
 - ↓ Prolactine release
 - ↑ GH release
 - Used clinically to Dx Dopaminergic Activity
- Da receptors
 - In *Striatum, Cortex*
 - Metabotropic
 - D1 (↑ cAMP) & D2 (↓ cAMP)
 - Da receptors in CTZ → Nausea & Emesis
- Diseases
 - *Parkinson's*
 - *Psychosis*
 - *Drug abuse*
 - ADHD
 - Chorea
 - Schizophrenia

- Drugs
 - *Anti-psychotic* (block DaR)
 - *Anti-Parkinson* (↑ Da in synapses)
 - *Amphetamine/Cocaine* (block Da reuptake)
 - *Anti-emetic*

Norepinephrine (NE)

- Inactivated by reuptake
- Cell bodies
 - *Locus Coeruleus* → via forebrain to Thalamus, Cortex & Limbic areas
 - Affective behavior
 - *Depression*
 - Lateral Tegmental Area
 - Autonomic Activity
- Drugs
 - *Anti-psychotic*
 - *Anti-depressant*
 - *Amphetamine*

Serotonin (5-HT)

- Made from *Tryptophan*
- Can be metabolized to *Melatonin*
- Cell bodies
 - *Raphe n.* → to Forebrain, Striatum, Cortex, Hippocampus, Spinal Cord
- Inactivation
 - Reuptake
 - Metabolized by MAO to 5-HIAA → Measured to evaluate Serotonergic activity
- High 5-HIAA (& low 5-HT) related to *suicide*
- 5-HT receptors (7 subtypes)
 - 5-HT1R: Cerebral vasoconstriction (Migraines), Feeding, Sleep
 - *Sumatriptan* is antagonist; also, Buspirone (Anti-Anxiety)
 - 5-HT2R: Behavior, muscle contraction, platelet aggregation
 - *Clozapine* is antagonist (ant-psychotic); also, LSD (CNS agonist, peripheral antagonist)
 - 5-HT3R: Emesis (in CTZ)
 - *Metoclopramide* & Ondansetron are antagonists (Anti-Emetic)
 - 5-HT4R: GI motility
 - *Metoclopramide* & Cisapride are agonists
- Diseases
 - Affective behavior (*Depression*)
 - ↓ Appetite
 - *Migraine*
 - Anxiety
- Drugs
 - Tricyclics – *TCA* (Imipramine)
 - *SSRI* (Fluoxetine)
 - Appetite suppressant (fen-fen), Anti-Migraine (Sumatriptan), Anti-Anxiety (Buspirone) & Anti-Emetic (Ondansetron)

Neuropeptides (Opioids)

- Analgesia = Pain control
- Also Morphine & Heroin
- Metabolism
 - Stored in vesicle
 - Can be processed to Agonists or Antagonists
 - Inactivated by peptidases
 - **Hypothalamus** → Basal ganglia & Pituitary
- Precursors
 - Each Opioid has different precursor
 - Processing depends on location of neuron
 - Proopiomelanocortin (PomC) → B-Endorphin
 - Proenkephalin → Enkephalin (incl. met-enk)
 - Prodynorphin → Dynorphin

NT	Cell Bodies	Terminal Location	Notes
Glutamate	Cortex	Spinal Cord	AMPA (Na) NMDA (Ca) Ketamine Stroke/Ischemia
GABA	Striatum	Inter-neurons, Spinal Cord	Anti-Convulsants Barbiturate Benzodiazepine Anesthetics EtOH
Ach	Nucleus Basalis, Septum	Cortex, Habenula	Memory Alzheimer's Myasthenia Gravis
Dopamine	Substantia Nigra, VTA	Caudate Putamen, Limbic, Frontal Cortex, Pituitary	Parkinson's Drug craving Psychosis ↓ Prolactine
NE	Locus Coeruleus	Cortex Limbic	
5-HT	Raphe nuclei	Forebrain	Migraine Anti-anxiety Anti-psychosis Anti-emetic
Opioid peptides	Hypothalamus	Basal ganglia Pituitary	Hypothalamus Endorphin Enkephalin Dynorphin

ANTIPSYCHOTIC MEDICATIONS

- Used to treat Psychosis & other Psychiatric Disorders by blocking Dopamine (D2, D4) receptors in the brain
- New Atypical Antipsychotic Medications (Clozapine, Risperidone, Olanzapine & Quetiapine) block both Dopamine (D2, D4) & Serotonin receptors (5HT2), a property that may be associated with increased efficacy
- Some Antipsychotic medication also variably **blocks** Central & Peripheral Cholinergic, Histaminic & alpha-Adrenergic receptors

THREE MAIN GROUPS

- Typical Antipsychotic Medications “Typical APMs” (Pure D2 Antagonists)
 - Low-potency older Antipsychotic Medications (**Chlorpromazine**)
 - High-potency older Antipsychotic Medications (**Haloperidol**)
- D2 & 5HT2 Antagonists: **Risperidone**
 - Blocking D2 cause extra-pyramidal effects
- Multi-receptor Antagonists (Block both D4 & D2 → less extra-pyramidal effects)
 - **Clozapine**: Blocks D4, D2, 5HT2 (Blocks Meso-limbic Tract)
 - **Olanzapine**: Blocks D2, D4, 5HT2
 - **Quetiapine**: Blocks D2, D4, 5HT2

THREE TRACTS AFFECTED BY DOPAMINE

- Tubero-infundibular (when blocked → ↑ Prolactine)
- Meso-limbic - Meso-cortical (when blocked → ↓ Psychosis)
 - Drugs that blocks this tract: **Clozapine**
- Nigro-Striatal (when blocked → ↑ Extra-Pyramidal Symptoms → Tremor, Parkinson)

INDICATIONS

- Psychomotor Agitation: High potency APMs (**Haloperidol**) are used because injections are available
- Schizophrenia: Treatment of choice for acute psychotic episodes & for prophylaxis
- Other Psychotic Disorders: Treatment of Psychoses & Cognitive disorders due to general medical conditions & substances, delusional disorder, brief psychotic disorder, schizophreniform disorder & other rarer psychotic disorders
- Mood Disorders: Treatment of Agitation & Psychosis during mood episodes
- Sedation: Useful when **Benzodiazepines** are contraindicated (specially in older patients) or as an adjunct during anesthesia
- Movement Disorders: Treatment of choice for Huntington disease & Tourette disorder

GENERAL ADVERSE EFFECTS

- Sedation: Due to the blockade of Antihistaminic activity
- Hypotension: Effect is due to alpha-adrenergic blockade & is most common with low-potency antipsychotic medications.
- Anticholinergic Symptoms: Dry mouth, blurred vision, urinary hesitancy, constipation, bradycardia, confusion & delirium
- Endocrine Effects: Gynecomastia, Galactorrhea & Amenorrhea
 - **Remember**: Dopamine is Prolactine inhibitor (↓ Dopamine → ↑ Prolactine)

- Dermal & Ocular Syndromes: Photosensitivity, abnormal pigmentation, cataracts
 - This is due to anti-Cholinergic effect of older Typical APMs
 - **Thioridazine** cause → **Retinitis Pigmentosa**
- Cardiac conduction abnormalities, (especially with **Thioridazine**)
 - **Clozapine** cause → **Agranulocytosis**
- Movement Syndromes
 - Older APMs are associated with a high incidence of extrapyramidal syndromes
 - Newer APMs cause minimal or no EPS
 - **Low-potency APMs** (e.g., **Chlorpromazine**, **Thioridazine**) causes less EPS than higher-potency, but has more sedative effects

TYPES OF ACUTE MOVEMENT SYNDROMES

- **Acute Dystonia**
 - **Spasms** of various muscle groups
 - Due to ↓ Dopamine → ↑ ACh
 - Can be dramatic & frightening to patient → Noncompliance with treatment
Young men may be at higher risk
 - **Treatment**
 - Anticholinergics (Benztropine, & Trihexyphenidyl)
 - Antihistamines (Diphenhydramine “Benedryl”)
 - Amantadine: It may exacerbate psychosis
- **Bradykinesia (Parkinsonism)**
 - Presenting Symptoms
 - Slowed volitional movement, ↑ Muscle tone & Resting tremor
 - Key signs
 - ↓ Facial expression (Mask face), Festinating gait, Cogwheel rigidity & Pill-rolling
 - The elderly may be more predisposed
 - Differential Diagnosis: Catatonic rigidity or apathy and withdrawal
 - **Treatment**
 - Anticholinergics (Benztropine, & Trihexyphenidyl)
 - Antihistamines (Diphenhydramine “Benedryl”)
 - Amantadine: It may exacerbate psychosis
- **Akathisia**
 - Presenting Symptoms: Motor Restlessness (Ants in Pants)
 - Differential Diagnosis: Often mistaken for Anxiety & Agitation
 - **Treatment**
 - Switching to an antipsychotic medication with fewer EPS effects
 - Decreasing the dosage of antipsychotic medication
 - B-Blockers (Propranolol)
 - Other drugs used to treat acute movement syndromes include Benzodiazepines & Antihistamines (e.g. **Diphenhydramine**)

ADVERSE EFFECTS OF ANTIPSYCHOTIC MEDICATIONS

- **TARDIVE DYSKINESIA (TD)**
 - Characterized by *irreversible* Choreoathetosis & other involuntary movements
 - Movements often occur first in the tongue or fingers & later involve the trunk
 - Movements disappear during sleep
 - Etiology may be a form of “chemical denervation hypersensitivity”, which is caused by chronic *Dopamine* blockade in the basal ganglia
 - Older Patients who take high doses of older APMs for long periods of time are at highest risk & movements gradually worsen with continued use
 - **Treatment**
 - Stop older APMs
 - Use newer APMs

- **NEUROLEPTIC MALIGNANT SYNDROME**
 - Presentation: Fairly rare & potentially **life-threatening** condition
 - Symptoms: Muscular rigidity, Hyperthermia, autonomic instability & Delirium
 - Associated with high dosages of high-potency APMs
 - Diagnosis: ↑ CPK
 - **Treatment**
 - Discontinuation of the medication
 - Physiologic supportive measures (ICU)
 - *Dantrolene* or *Bromocriptine* may be used

SPECIFIC ANTIPSYCHOTIC MEDICATIONS

- **Chlorpromazine (Older Low-Potency D2)**
 - Highly Sedating. More Hypotension. More Anticholinergic effects
 - **Low frequency of EPS**
 - Few remaining indications for primary selection
- **Haloperidol (Older High-Potency D2)**
 - Less Sedating. Less Hypotension. Less Anticholinergic effects
 - **High frequency of EPS**
 - Remain useful for Rx of **Acute Agitation**, especially via IM injections
 - Long acting (*Haloperidol*: once q 4 wks & *Fluphenazine*: once q 2 wks)
- **Clozapine**
 - Most effective for Schizophrenia, but because of significant adverse affects (**5% Seizures & 1% Agranulocytosis**) make it a **Second-Line** medication
 - No movement disorders (**EPS**)
 - Anticholinergic effects: Drooling
 - Antihistamine effect: Sedation & Weight
- **Risperidone**
 - **I-choice** medication for treatment of **Schizophrenia**
 - No movement disorders (**EPS**) in doses < 6 mg. Minimal Sedation
- **Olanzapine, Quetiapine & Ziprasidone**
 - **I-choice** medications for treatment of Schizophrenia
 - No movement disorders (**EPS**). Significant Sedation & Weight gain
 - *** *Ziprasidone*: Can cause ↑ QRS interval
 - *** *Olanzapine & Quetiapine*: Can cause Diabetes

ANTIDEPRESSANT MEDICATIONS (ADs)

▪ Overview

- Used to treat **Mood, Adjustment & Psychotic** disorders
- Also used in **Anxiety, Bulimia, Impulse control, Enuresis & Chronic Pain**
- Treat Depression **ONLY** after determining the absence of ***Suicidal*** intent
- Some ADs are extremely dangerous when an overdose is ingested (e.g. TCAs)
 - TCAs can cause \uparrow QRS interval \rightarrow connect patient to Cardiac monitor

▪ Mechanisms of Action

- The mechanism(s) of therapeutic action is unknown
- Affect ***Monoamine Neurotransmission*** in the central nervous system (CNS) through Reuptake Inhibition & Modulation of the receptors function
- Many ADs inhibit reuptake of ***Serotonin, Norepinephrine*** or both
- **TCAs** block ***Acetylcholine, α -Adrenergic & Histamine*** receptors
 - Nortriptyline & Desipramine have the least side effects
 - Amitriptyline has the worst side effects
- **TCAs** inhibit reuptake of ***Serotonin, Norepinephrine & Dopamine***
- **TCAs** down-regulate ***β -Adrenergic*** receptors
- **MAOIs** inhibit the metabolism of ***Serotonin, Norepinephrine & Dopamine***
- **SSRIs** inhibit reuptake of ***Serotonin*** (I-choice in Rx of Depression)

▪ Indications

- Major depressive disorder (***SSRIs*** & others)
- Depressive episodes in Bipolar disorder (***SSRIs*** & others)
- Anxiety disorders: Panic disorder, OCD & Social Phobia (***SSRIs*** & others)
- Bulimia Nervosa (***SSRIs*** & others)
- Enuresis: (***Imipramine***)
- Chronic pain (***Amitriptyline*** \rightarrow \uparrow Endogenous Opiates \rightarrow \uparrow Pain threshold)

▪ Clinical Guidelines

- Overall efficacy for treatment of major depressive disorder is around 70%
- Treat Depression **ONLY** after determining the absence of ***Suicidal*** intent
- Newer ADs should be considered first because of better safety profile
- Individual ADs differ greatly in their side-effect profiles & must be matched to patient preference & ability to tolerate
- Older ADs (**TCAs**) are extremely dangerous when an overdose is ingested
- Difficult to predict which patient will respond to which ADs, so trials of several ADs may be necessary before an effective one is found
- If no response to treatment after 4 to 6 weeks or if patient cannot tolerate current AD, switch to another
- Treatment should continue for **6 months** after favorable response
- Treatment response may be augmented with ***Lithium*** or ***Thyroxine***

▪ Adverse Effects

- Sedation:
 - Most with Doxepin (Sinequan), Amitriptyline (Elavil) & Trazodone
 - Least with Desipramine (Norpramin), Protriptyline (Vivactil) & SSRIs
- Hypotension: More severe with **TCAs**. Less with others
 - Amitriptyline has the worst side effects
 - Nortriptyline & Desipramine have the least side effects
- Anticholinergic Effects
 - Most with Amitriptyline & Doxepin
 - None with **SSRIs** (except Paroxetine) & Trazodone (Desyrel)
- Cardiac
 - Most **TCAs** cause ↑ QRS interval
 - Conduction abnormalities most marked with **TCAs**
- Seizures
 - MC with **TCAs**, specially Maprotiline (Ludiomil)
 - Bupropion (Wellbutrin) also may cause ↓ seizures threshold
 - Uncommon with **SSRIs**
- Sexual dysfunction
 - **Anorgasmia** & decreased libido with **SSRIs**
 - **Citalopram** (Celexa) cause least sexual side effects
 - **Priapism** (painful & prolong erection) with Trazodone (Desyrel)
- Drug interactions
 - Antidepressants interact with many other medications

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Types: **Fluoxetine** (Prozac), **Paroxetine** (Paxil), **Sertraline** (Zoloft), **Fluvoxamine** (Luvox) & **Citalopram** (Celexa)
- I-line for treatment of Depression & some for treatment of Anxiety
 - Treat Depression **ONLY** after determining the absence of **Suicidal** intent
- Simple dosing schedules
- Fewer Cardiac, Anticholinergic or Hypotensive side effects
- Side Effects
 - Agitation, Sedation, Headache, Appetite, Nausea-Vomiting, Diarrhea & Sexual
 - **Citalopram** (Celexa) cause least sexual side effects
- **Specific Efficacy**
 - OCD, Panic Disorder & Bulimia Nervosa

Tricyclic Antidepressants: (TCAs)

- Earliest Antidepressants to be widely used
- Tertiary **TCAs**: Imipramine, Amitriptyline, Doxepin, Clomipramine & Trimipramine
- Secondary **TCAs** (active metabolites) Desipramine, Nortriptyline, & Protriptyline
- Efficacy: In addition to the use of tertiary **TCAs** for treatment of mood disorders, **Imipramine** is used to treat panic disorder, **Clomipramine** is used to treat OCD & **Amitriptyline** is used to treat chronic pain
- Adverse effects: **TCAs** (especially tertiary) tend to cause significant **sedation**, **Orthostatic Hypotension**, & **Anticholinergic effects**
- *** Choose Secondary **TCAs** > Tertiary **TCAs**, because they are safer
- **TCAs** are the most dangerous antidepressants in overdose (specially **Amitriptyline**)

Monoamine Oxidase Inhibitors: (MAOIs)

- Inhibit MAO-A &/or MAO-B in the CNS → Antidepressant efficacy
- Differ by:
 - The type of inhibition (i.e. reversible or irreversible)
 - The severity of adverse effects
 - The specificity of inhibition (MAO-A or -B)
- Indications
 - Second-line treatment for Depression & Anxiety disorders (Panic Disorder, Social Phobia & Post Traumatic Stress Disorder)
- **Hydrazines** (e.g. *Phenelzine*, *Isocarboxazid*) are more sedating
- **Tranlycypromine** is more activating
- **Selegiline**
 - Selective inhibitor of MAO-B
 - Currently approved only for treatment of Parkinson's disease
- Adverse effects
 - Sedation, Weight Gain, Orthostatic Hypotension, Sexual Dysfunction & Liver Toxicity (with Hydrazine MAOIs)
 - *** **Hypertensive crisis**: Occur with ingestion of **Tyramine-rich foods** (i.e. Red Wines, old Cheese, Nuts, Pickles) or with the use of other medications (i.e. Nasal Decongestants, Anti-asthmatics & Amphetamines)

Other, Newer Antidepressants

- **Trazodone** (Desyrel)
 - Cause severe **Sedation** (used in Rx insomnia)
 - Minimal Anticholinergic effects
- **Nefazodone** (Serzone)
 - **Sedation** similar to Trazodone
 - Less sexual dysfunction than **SSRIs** or **Trazodone**
- **Bupropion** (Wellbutrin "Zyban")
 - Works on Dopamine
 - Used mostly in older patients
 - Used for Smoking cessation
 - Similar mechanism as **Naltrexone** for Rx of Alcoholics
 - Minimal Hypotension, Cardiac effects & Sexual dysfunction
 - More likelihood of Seizures
- **Venlafaxine** (Effexor)
 - Profile similar to **SSRIs**
- **Mirtazapine** (Remeron)
 - Profile similar to **TCA**s (cause severe **Sedation**)
 - More rapid onset of antidepressant effect than with **SSRIs**

MOOD-STABILIZING (ANTI-CONVULSIVE) MEDICATIONS

- Mostly used Mood Stabilizers: *Lithium*, *Divalproex* & *Carbamazepine*
- Other Mood Stabilizers: *Lamotrigine*, *Gabapentin*, *Topiramate* & others

Lithium

- Indications
 - First-line medication for Treatment & Prophylaxis of mood episodes
 - Bipolar & Schizoaffective Disorders
 - Adjunctive treatment of major depressive disorder
 - May augment responsiveness to Antidepressants in some patients
- Side Effects
 - Dose-related: **Tremor**, Gastrointestinal Distress & Headache
 - Acne & Weight Gain: Interfere with patient compliance
 - Cardiac Conduction (↑ **QRS**): ECG changes usually benign
 - Hypothyroidism: 5% of patients develop thyroid problems (check **TSH**)
 - Leukocytosis: Usually occurs and seems to be benign
 - *** Nephrotoxicity: Polyuria & Polydipsia (**Diabetes Insipidus**)
 - Teratogenicity: Associated with cardiac abnormalities (check **Pregnancy Test**)
- Toxicity Management
 - Keep plasma levels < 1.5 mEq per liter
 - Dehydration & Hyponatremia predispose to *Lithium* toxicity
 - Divided doses or Slow-Release preparations minimize dose-related side effects
 - *Lithium* toxicity requires Urgent Kidney Dialysis

Divalproex

- Treatment of choice for rapid-cycling bipolar disorder, or when lithium can't be used
- Time course of treatment response is similar to lithium
- Side effects: Sedation, Cognitive Impairment, Tremor, GI distress & Hepatotoxicity **
- Teratogenicity: Associated with **Spina Bifida**

Carbamazepine

- Second-line choice for treatment of bipolar disorder when *Lithium* & *Divalproex* are ineffective or contraindicated
- Side effects: **Agranulocytosis** (like *Clozapine*), Hematologic & Hepatotoxicity

ANXIOLYTIC (ANTI-ANXIETY) MEDICATIONS

- Includes
 - *Benzodiazepines*, *Bupropion* (Wellbutrin) & *Antidepressants* (*SSRIs* & *TCAs*)
- Indications
 - **Adjustment Disorder with Anxious Mood**
 - *Benzodiazepines* with supportive Psychotherapy
 - **Panic Disorder**
 - *Alprazolam*, *SSRIs*, *Imipramine* & *Clonazepam*: ↓ frequency & intensity
 - **Generalized Anxiety Disorder**
 - *Venlafaxine*, other *SSRIs* & *Bupropion*: ↓ overall anxiety
 - **Obsessive Compulsive Disorder**
 - *SSRIs* & *Clomipramine*: ↓ obsession thinking
 - **Social Phobia**
 - *SSRIs* & *Bupropion*: ↓ fear associated with social situations

- **Benzodiazepines**
 - Bind to specific CNS receptors that modulate **GABA** transmission
 - Most widely used for Rx of Anxiety, Insomnia & for the Rx of elderly patients
 - *** Used for prevention of **Alcohol Withdraw**
 - *** First choice for **Emergency Rx of Acute Anxiety & Severe Mania**
 - *** **Alprazolam (Xanax)** is the First choice for **Panic Attack**
 - *** **Chlordiazepoxide (Librium)** is used for prevention of **Alcohol Withdraw**
 - **Benzodiazepines** that don't interact with **P450** ***
 - **Lorazepam (Ativan), Oxazepam & Temazepam**
 - Clinical Guidelines
 - Avoid abrupt changes in benzodiazepine dosage
 - Use lower dosages for the elderly
 - Can be lethal if mixed with **Alcohol** or other **Sedative-Hypnotics**
 - Consider dependency potential
 - Adverse Effects
 - Sedation, Disinhibition & Abuse
 - Impairment of Cognitive & Motor Performance
 - Tolerance & withdrawal
 - Possible Teratogenicity

- **Buspirone (Buspar)**
 - Effective in the treatment of Generalized Anxiety Disorder & Social Phobia
 - Lag time of about **1 week** before clinical response
 - **No additive effect** with **Alcohol** or **Sedative-Hypnotics**
 - No withdrawal syndrome
 - No sedation or cognitive impairment
 - Headache may occur

ELECTROCONVULSIVE THERAPY (ECT)

- The most effective treatment for Depression, but the least used
- Used also for treatment of Schizophrenia
- Induction of Seizures is needed for the effectiveness of **ECT**
- Indications
 - Patients, who are **extremely suicidal**
 - Patients, who have not responded to **ADs** or **Mood Stabilizers**
 - Patients with contraindications to using Medication
 - Depressive Patients who have responded well to **ECT** in the past
- Side Effects
 - Transient memory disturbance
 - During the use of **ECT** & gradually resolves after stopping treatment
 - Complications of associated anesthesia that may induce paralysis
 - Transiently ↑ increased intracranial pressure (**ICP**)
- Contraindications
 - No absolute Contraindications
 - Relative Contraindications: Presence of space-occupying intracranial lesions

Pain Management

- **Pain:** Discriminative component (Spatial & Temporal) & Affective/Hedonic component (feeling)
- **Nociceptors:** Slowly-conducting, small diameter fibers (free nerve endings)
 - *A delta fibers* (finely myelinated) – Acute painful mechanical stimuli
 - *C fibers* (unmyelinated) – Heat & Chronic tissue damage (inflammation sensitizes nociceptors to innocuous touch)
- **Afferent fiber NTs**
 - Glutamate (rapid onset A delta fibers)
 - Substance P (long duration C fibers)
- **Afferent Inhibition**
 - Nociceptive transmission inhibited by somatosensory afferent inputs
 - Mediated by inhibitory interneurons (GABA, Gly)
- **Trigeminal Tractotomy**
 - Used to relieve facial pain
 - May result in chronic pain syndrome because lose pain ***inhibition*** along with pain ***activation***
- **Lesion of medial/intralaminar Thalamic nuclei**
 - Reduce quality of pain w/o interference of discriminative somesthetic function
 - Palliate cancer
- **Descending Control**
 - Somatosensory Cortex controls sensitization (immediate feedback)
 - 1000x more fibers than ascending pathway
- **Headache**
 - Chemical activation of nociceptors in perivascular space of meninges (dura)
- **Referred Pain**
 - Convergence of *Visceral & Somatic* afferent onto dorsal horn neurons
- **Insensitivity to Pain**
 - Abnormally high pain threshold
 - Unmyelinated → no sweating
- **Central Pain States**
 - CNS lesion (descending pathway) → long-lasting Contralateral pain with ***increased*** Pain/Temp threshold in affected area
- **Adrenergic Potentiating Drugs**
 - ↑ Descending pathway to ↓ Nociceptive transmission in spinal dorsal horn
 - Independent of *Opiate* system
- **Opiate Narcotics**
 - Suppress discriminative (Nociceptive transmission in spinal or medullary dorsal horn) **AND** modulate affective (limbic)
- **Morphine Effects**
 - Reinforces Self-Administration
 - Analgesia, sedation, respiratory depression & subjective effects
 - Single-dose CNS depression
- **Morphine Sedation**
 - ↓↓ Most Behaviors
 - ↓↓ Muscle Tone
 - ↑↑ Dozing
 - Waning attentiveness
 - Mental clouding
 - Can progress to depression & coma

- **Morphine Tolerance**
 - Cross-Tolerance among Narcotics
 - Tolerance develops to CNS depressant effects (Analgesia), but not constipation or miosis
 - Tolerance augmented by ↑ frequency or ↑ dose
 - Origin may be metabolic, cellular or learned
- **Morphine Dependence**
 - Cross-dependence among narcotics
 - Abstinence syndrome may be relieved by any narcotic
- **Abstinence Syndrome**
 - Begins 6 hrs after last morphine dose w/ cold-like illness
 - **Sx:** Restlessness, distress, loss of appetite, rhinorrhea, lacrimation, perspiration, abdominal cramps, insomnia, dilated pupils, nausea/vomiting, diarrhea, spasms of leg flexors, ↑ body temp, ↑ HR, ↑ BP;
 - Peak severity 36-48 hrs after last dose (of morphine)
 - 2-Week recovery
 - Long-term desensitized (retractive morphine abstinence)
 - Short-acting narcotics, peak severity sooner than morphine (later for long-acting narcotics)
 - Induced by Antagonists
- **Opioid Receptors**
 - Pertussis-toxin sensitive G-proteins (Gi)
 - Inhibit Adenylyl cyclase
 - Activate K-channels; suppress voltage-gated Ca-channels → hyperpolarization blocks NT release & Pain Transmission
- **Morphine Detoxification**
 - Glucuronidation (or N-Demethylation)
 - Duration = 4-6 hrs
 - Antagonist: *Naloxone*

Rec	Opioids	Effects
M	B-Endorphin, Morphine	Analgesia, Respiratory depression, Lose muscle tone, Miosis, Vertigo, Nausea/Vomiting, Constipation, ADH release, Truncal rigidity, Convulsions, Cough suppression, Orthostatic Hypotension, Biliary colic (↑ smooth m.)
D	Enkephalin	Analgesia, Epileptogenesis, Behavioral effects
k	Dynorphin, Nalorphine	Analgesia, <i>Dysphoria, Hallucinations</i> , Diuresis, Miosis, Sedation

Psychiatric Interventions ***

SUICIDE

- **Suicide Assessment**
 - **Ideation**: Have you thought about Suicide?
 - **Intent**: Are you serious about Suicide?
 - **Plan**: Do you have any plan?
- **Clinical Presentations**
 - Recent Suicide Attempt
 - Complaints of Suicidal Thoughts
 - Admission of Suicidal Thoughts upon questioning
 - Demonstration of possible Suicidal Behavior
- **Risk Factors for Suicidal Behavior**
 - More common in **Elderly White Males**
 - Social Isolation & Low job satisfaction
 - History of suicide threats & attempts
 - Perceived hopelessness (**Demoralization**)
 - Presence of Psychiatric illness/Drug abuse
 - Chronic physical illness
- **Emergency Assessment**
 - Detain until the emergency evaluation is completed
 - Take all suicide threats seriously
 - Question about suicide
 - Get information from third parties
 - **DO NOT** identify with the patient
 - Emergency Rx decisions are based on **Clinical Presentation & Risk Factors**

COMBATIVE BEHAVIOR

- **Emergency Assessment**
 - Determine the reason for Combativeness
 - General anger
 - Anger at a specific person
 - An attempt to frighten or manipulate
 - Determine stressors
 - Lessen stress if possible
 - Determine Psychopathology
 - Delay physical examination of combative patients
- **Emergency Management**
 - Set clear limits
 - Warn others: Give clear warnings to others at the time of disposition
 - Use appropriate equipment & trained personnel
 - Search for concealed weapons
 - Use **Antipsychotics** &/or **Benzodiazepines** to control agitation
 - Establish some rapport

Legal Issues

INFORMED CONSENT

- The Three Components
 - **Information:** Risks, benefits & alternatives
 - **Voluntariness:** Non-coerced
 - **Competency:** Understanding & Judgment
- Exceptions
 - **Emergencies:** Minutes to hours
 - **Waiver of Patient's Right:** If patient is competent to do so
 - **Therapeutic Privilege:** Information would be harmful to patient

INVOLUNTARY TREATMENT

- Psychiatric
 - Psychiatric Hospitalization
 - Suicidal, Homicidal & Gravely disabled
 - Grave Disability
 - Inability to provide &/or obtain food, clothing or shelter
 - Medication, Seclusion & Physical Restraint
 - Psychiatric Emergencies
 - Judicial Order
- Medical
 - Informed consent must almost always be obtained, even for lifesaving Rx
 - Emergency medical treatment
 - Administered if patient is unconscious or severely cognitively impaired
 - Non-Emergency medical treatment
 - Requires judicial order

CONFIDENTIALITY

- Implicit in Clinician-Patient relationship
- Special protection: HIV status, substance-abuse history
- Can ethically be breached in certain circumstances
- Patient must be informed when confidentiality has been breached
- **Appropriate Breaches**
 - Essential information during emergency
 - Patient Request
 - Discussion among designated treatment personnel
 - Judicial Subpoena
 - State-Mandated Reporting
 - Abuse
 - **Duty to Warn & Protect (*Tarasoff*)**