

# MENTAL HEALTH & PSYCHIATRY

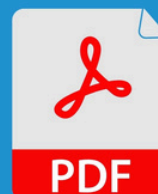
TAILORED FOR MEDICAL STUDENTS, USMLE, PLAB, PA & NURSING



4th EDITION



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● 120 PAGES



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**HUMAN EMOTIONS**

**Emotion:**

- **Why does it Exist?**

o **Critical To Survival:**

- § Both the ability to Experience Emotion and to Recognise Other's Emotions
- § Gut Reactions
- § Recognising Danger, Friend/Foe
- § Vital to Decision Making
- § Important role in learning

- **Theories of Emotion:**

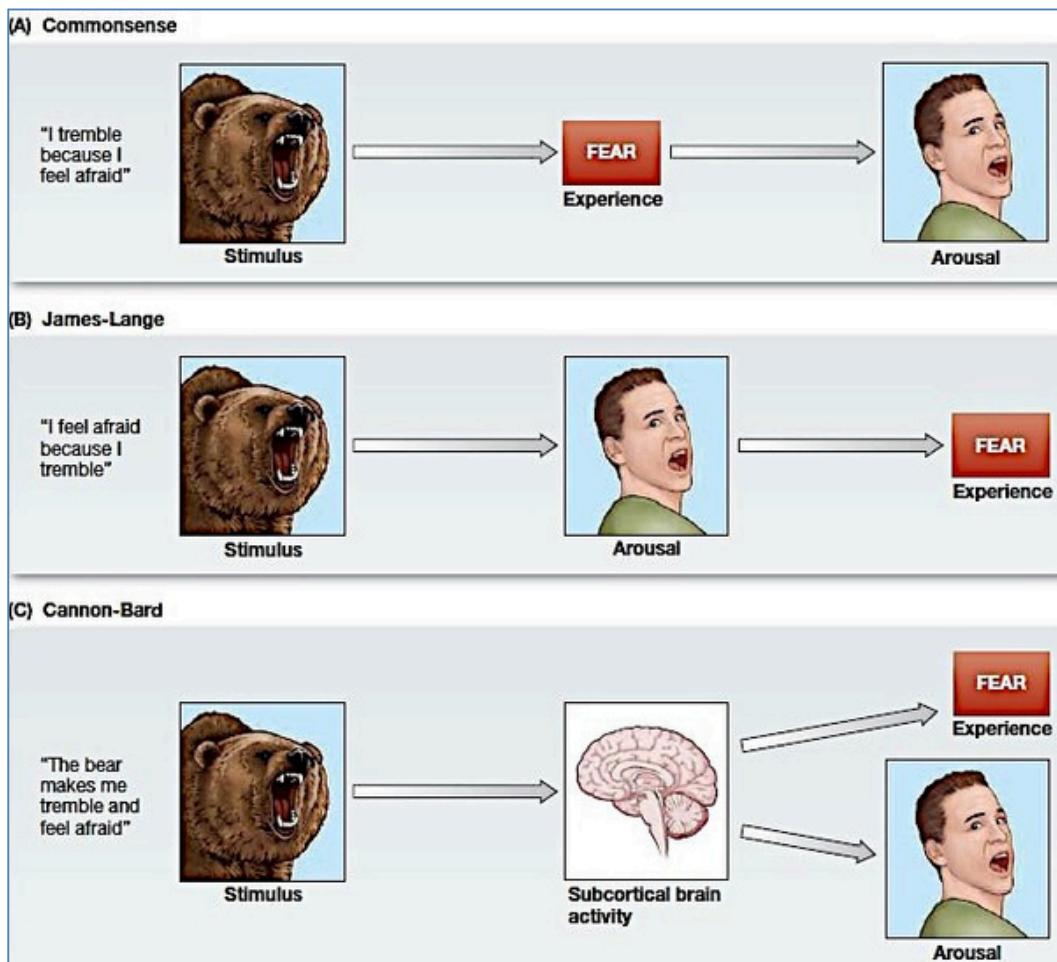
o A link exists between Physiological Responses to Stimuli & Effect of Emotion, but which comes first?

§ **Cannon-Bard Theory:**

- § Conscious Awareness of Emotion comes first, then the Visceral Reactions

**James-Lange Theory:**

- Visceral Reactions comes first, then the Conscious Emotional Experience follows

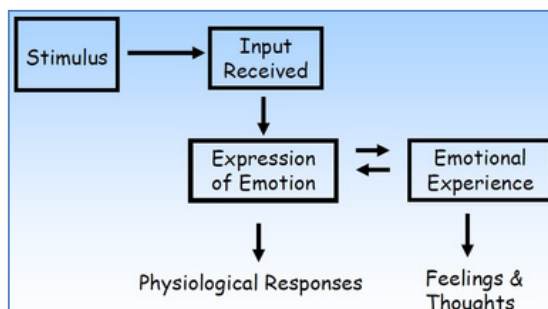


[https://www.brainkart.com/article/The-Many-Facets-of-Emotion\\_29432/](https://www.brainkart.com/article/The-Many-Facets-of-Emotion_29432/)

o **Currently, the most Plausible Theory:**

- § Visceral Reaction (Physiological Responses) comes first, causing the Emotional Experience (Feelings & Thoughts)

However, the Emotional Experience can Influence and/or Perpetuate the Visceral Response



### 3 Phases/Components/Types of Emotion:

#### - 1: Primary Emotions:

- o "What is Felt 1st" – The 1st Instantaneous Emotion - (Usually the Simplest/Primitive Emotions)
- o Generally independent of culture (Universal)
  - § Joy
  - § Sadness
  - § Fear
  - § Anger
  - § Surprise

#### - 2: Secondary Emotions:

- o "What is Felt 2nd" – What the Primary Emotion Leads to – (Slightly more Complex Emotion)
- o Generally a Combination of Primary Emotions + Context
  - § Affection/Love
  - § Lust
  - § Contentment
  - § Disgust    Envy
  - § Guilt
  - §

#### - 3: Tertiary Emotions:

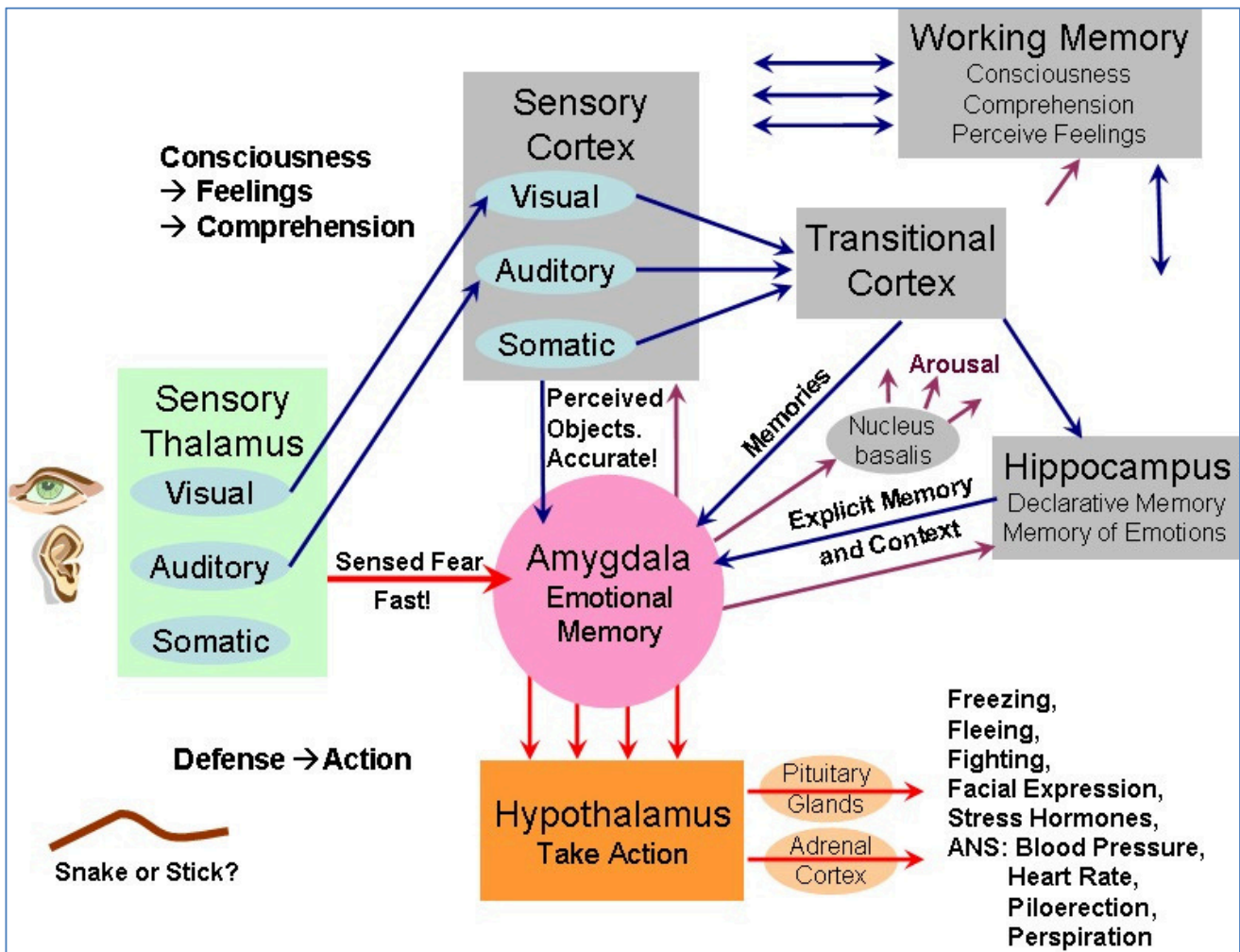
- o An Aggregate of Primary and/or Secondary Emotions – (The most Complex Emotions)
- o Generally the result of a Decision, taking into account Many Factors
  - § Satisfaction
  - § Hope
  - § Frustration
  - § Gloom
  - § Contempt

*A mixture of any two primary emotions may be called a dyad.*

| [often felt]<br>PRIMARY DYADS        | [sometimes felt]<br>SECONDARY DYADS | [seldom felt]<br>TERTIARY DYADS     | OPPOSITES                                  |
|--------------------------------------|-------------------------------------|-------------------------------------|--|
| joy + trust<br>love                  | joy + fear<br>guilt                 | joy + surprise<br>delight           | joy + sadness<br><i>conflict</i>           |
| trust + fear<br>submission           | trust + surprise<br>curiosity       | trust + sadness<br>sentimentality   | trust + disgust<br><i>conflict</i>         |
| fear + surprise<br>alarm             | fear + sadness<br>despair           | fear + disgust<br>shame             | fear + anger<br><i>conflict</i>            |
| surprise + sadness<br>disappointment | surprise + disgust<br>?             | surprise + anger<br>outrage         | surprise + anticipation<br><i>conflict</i> |
| sadness + disgust<br>remorse         | sadness + anger<br>envy             | sadness + anticipation<br>pessimism |  |
| disgust + anger<br>contempt          | disgust + anticipation<br>cynism    | disgust + joy<br>morbidness         |  |
| anger + anticipation<br>aggression   | anger + joy<br>pride                | anger + trust<br>dominance          |  |
| anticipation + joy<br>optimism       | anticipation + trust<br>fatalism    | anticipation + fear<br>anxiety      |  |

**Consciousness & Emotion:**

- Emotional Experience is thought to underpin Consciousness (IE: Ability to “feel” is being “truly alive”)
- **Consciousness:**
  - o **Core Consciousness:**
    - o § Sense of ‘Here & Now’. “Feeling”
  - o **Extended Consciousness:**
    - o § Ability to Recall Past Experiences, Learn & Plan for the Future
- **Emotions affect the way we respond to stimuli:**
  - o People with ‘Alexithymia’ can’t feel emotions. They experience:
    - o § Difficulty linking a Stimuli to an Experience
    - o § Serious Difficulty with Decision-Making
    - o § Difficulty Understanding Emotions
    - o § Difficulty Describing Emotions
    - o § Minimal Imagination
    - o § Feeling ‘cold’/‘aloof’
- **Rational Brain Vs Emotional Brain:**
  - o Higher Cognitive Processing & Decision-Making relies on Co-Operation of the “Rational Brain” & the “Emotional Brain”
  - o Anatomically, the “Emotional Brain” is favoured (Higher number & organisation of Synaptic Connections)
  - o Relative Contributions of both “Rational” & “Emotional” Brains depend heavily on Context
    - o § Eg: Triage – Letting someone die to save another’s life
      - Saving the one that can be saved is consistent with the “Rational Brain”
      - However, letting someone die goes against the “Emotional Brain”



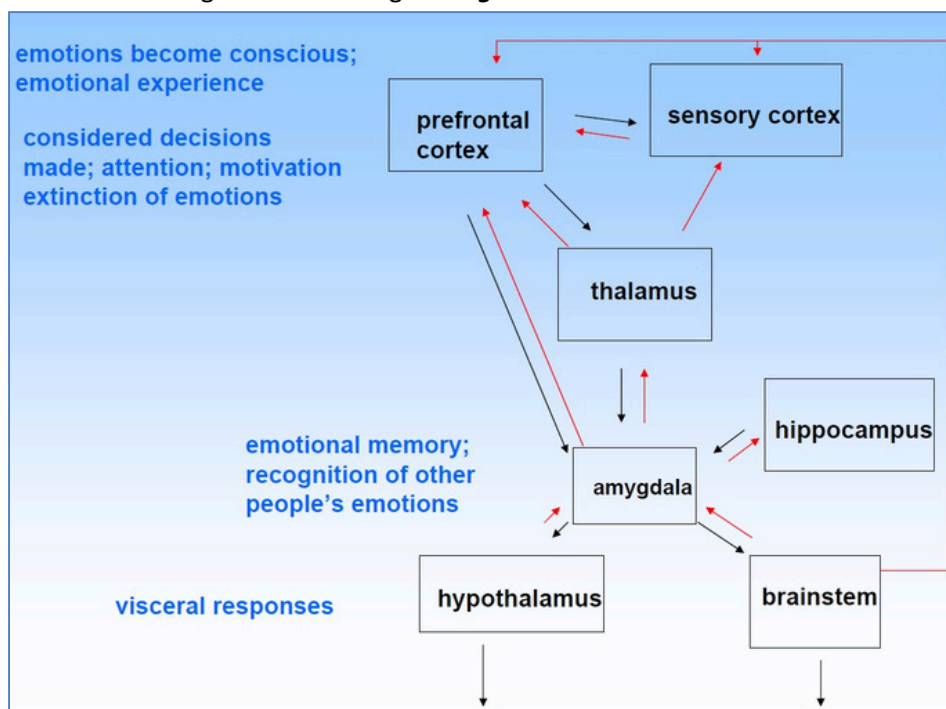
**Positive Vs Negative Emotion:**

- Emotions are theoretically divided into Positive or Negative depending on general affect response

| Kind of emotion              | Positive emotions                        | Negative emotions                           |
|------------------------------|--|---|
| Related to object properties | <i>Interest, curiosity, enthusiasm</i>   | <i>Indifference, habituation, boredom</i>   |
|                              | <i>Attraction, desire, admiration</i>    | <i>Aversion, disgust, revulsion</i>         |
|                              | <i>Surprise, amusement</i>               | <i>Alarm, panic</i>                         |
| Future appraisal             | <i>Hope, excitement</i>                  | <i>Fear, anxiety, dread</i>                 |
| Event-related                | <i>Gratitude, thankfulness</i>           | <i>Anger, rage</i>                          |
|                              | <i>Joy, elation, triumph, jubilation</i> | <i>Sorrow, grief</i>                        |
|                              | <i>Patience</i>                          | <i>Frustration, restlessness</i>            |
|                              | <i>Contentment</i>                       | <i>Discontentment, disappointment</i>       |
| Self-appraisal               | <i>Humility, modesty</i>                 | <i>Pride, arrogance</i>                     |
| Social                       | Charity                                  | Avarice, greed, miserliness, envy, jealousy |
|                              | Sympathy                                 | Cruelty                                     |
| Cathected                    | <i>Love</i>                              | <i>Hate</i>                                 |

**Brain Regions Involved in Recognition, Induction & Regulation of Emotions:**

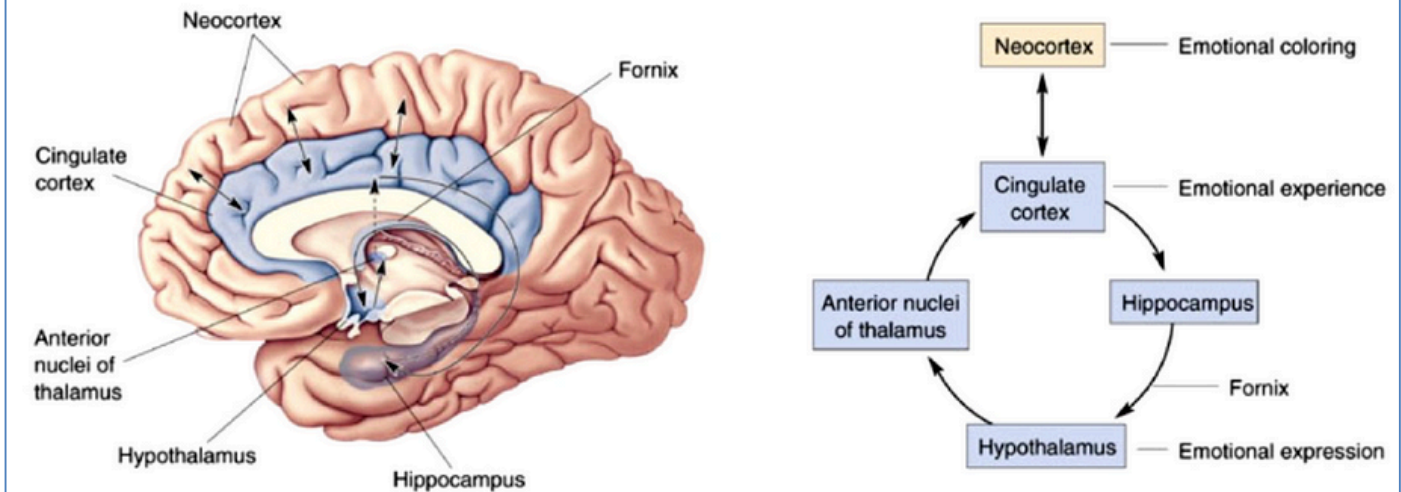
- **Thalamus:**
  - o Funnels Sensory info to Amygdala, and the Cerebral & Cingulate Cortices
  - o Important in Fact-Based (*Explicit*) Memory
- **Cingulate Gyrus:**
  - o Regulates Attention
  - o Emotional 'Colouring'
- **Ventromedial Prefrontal Cortex:**
  - o Conscious *Recognition of Emotions*
- **Cerebral Hemispheres:**
  - o R-Brain → More Associated with Negative Emotions
  - o L-Brain → More Associated with Positive Emotions
- **Sensory Cortices & Association Areas:**
  - o Recognition of Stimuli
  - o Sensory Cortices: (Visual, Auditory, Olfactory, Gustatory, Tactile)
  - o Sensory Association Areas: (Novel Vs Familiar)
- **Insula:**
  - o Involved with Recognition & Feeling of *Disgust*



## The Papez Circuit:

- o 1: **Thalamus** relays Sensory Input to Cingulate Cortex
- o 2: **Cingulate Cortex** - gives you the Emotional Experience
  - also relays to the **Neocortex**, which gives Context/Colouring to the Emotion
  - also relays to the **Hippocampus** →
- o 3: **Hippocampus** Relays to the Hypothalamus – Causes the Emotional Expression (Visceral Response)

The Papez circuit. Papez believed that the experience of emotion was determined by activity in the cingulate cortex and, less directly, other cortical areas. Emotional expression was thought to be governed by the hypothalamus. The cingulate cortex projects to the hippocampus, and the hippocampus projects to the hypothalamus by way of the bundle of axons called the fornix. Hypothalamic effects reach the cortex via a relay in the anterior thalamic nuclei.



Source: Unattributable

## The Limbic System:

### - **\*\*\*Amygdala\*\*\*:**

- o #1 Structure involved in Emotion → The “Heart” of the Limbic System
- o “The Fight/Flight Centre”
- o Linked to all but 8 areas of the Cortex → ∴ Thought to be #1 integrator of Cognitive & Emotional Info
- o **Afferents (Receives Input From...):**
  - § **Brainstem** – inputs associated with Physical States (BP/HR/etc)
  - § **Hypothalamus** - inputs associated with Physical States (BP/HR/etc)
  - § **Thalamus** – Sensory Info
  - § **Hippocampus** – inputs associated with Explicit Memory
  - § **Cortex** – Sensory Inputs & Decisions related to Perceived Threats
- o **Efferents (Sends Output to...):**
  - § **Brainstem** – influences Visceral Fear-Driven, Fight/Flight Responses
  - § **Hypothalamus** – Influence on Memory & Aggression
  - § **Thalamus** – Influences processing of new sensory info
  - § **Hippocampus** – Fear is an important driver for learning & memory
  - § **Pre-Frontal Cortex** – Fear is important in Decision Making & Cognition
- o **Regulates:**
  - § Fear & Aggression
  - § Vigilance & Attention
  - § Recognition of Emotion (in Self & Others)
  - § Emotional Contribution to Memory (Emotional Implicit Memory)

### - **Hypothalamus:**

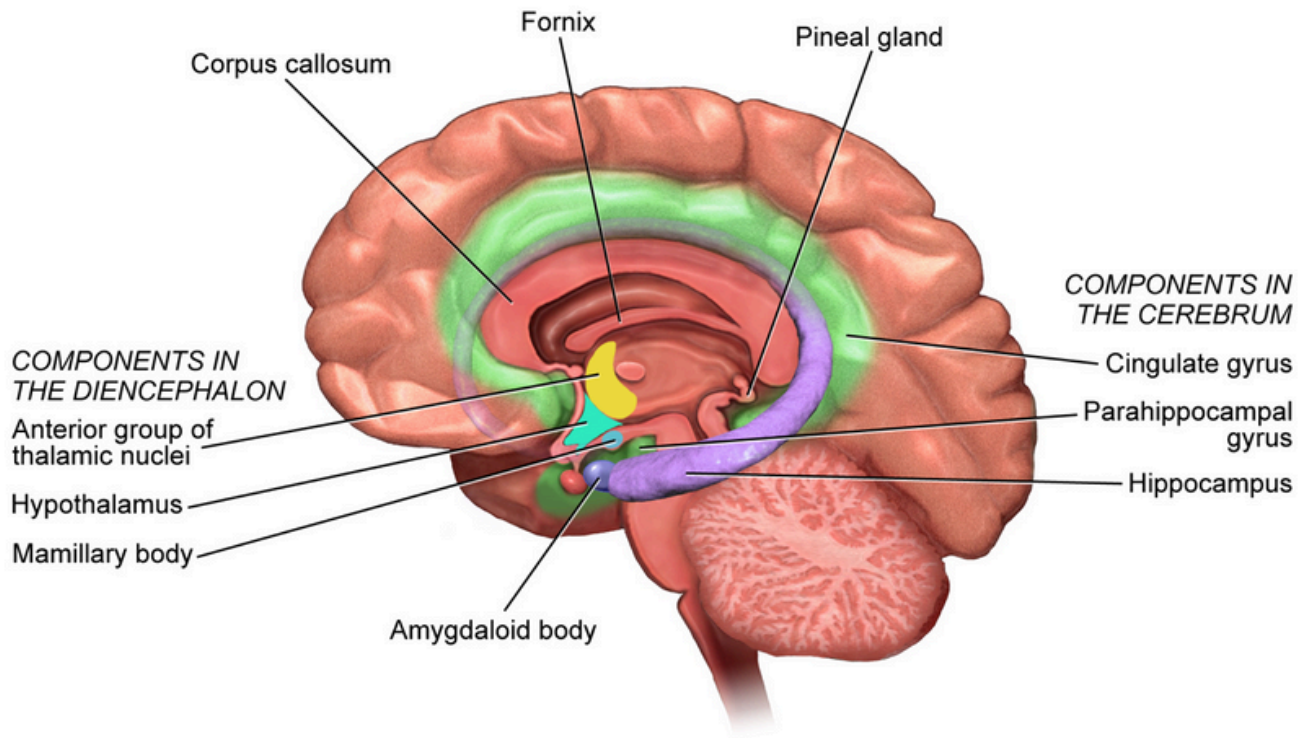
- o **Visceral Responses** to Emotion
- o **Aggression**
- o **Sex Drive**

### - **Brain Stem:**

- o **Visceral Responses** to Emotion



# The Limbic System



Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). via Wikimedia Commons

- **\*Noradrenaline: (A Target for Antidepressants):**

- o **Activated By:**
- o § Novel, Unexpected Stimuli
- o **Released By:**
  - § **Locus Coeruleus** (A Nucleus In the Pons involved with physiological responses to stress & panic)
- o **Regulates:**
  - § Mood/Arousal
  - § Anxiety
  - § Pain
  - § Sleep/Wake Cycles
  - § Motor Activity

- **\*Serotonin: (A Target for Antidepressants):**

- o **Activated By:**
- o § General activity/arousal
- o **Released By:**
  - § Raphe Nuclei (A group of Nuclei In the brainstem)
- o **Regulates:**
  - § Mood
  - § Emotions
  - § Sleep/Wake Cycles
  - § Dominance/Aggression
  - § Anxiety

- **\*Dopamine:**

- o **Activated By:**
- o § Pleasurable Activities
- o **Released By:**
  - § Ventral Tegmental Area (VTA)
  - § Substantia Nigra
- o **Regulates:**
  - § *Somehow* plays a role in Regulation of Perception of Emotion
  - § Involved in Reward Centre

- **Glutamate & GABA:**

- o Reduces Anxiety

- **Acetylcholine:**

- o **Released By:**
- o § Basal & Septal Nuclei of Meynert
- o **Regulates:**
  - § Cognitive Processing
  - § Arousal & Attention

## Primary Emotional Circuits:

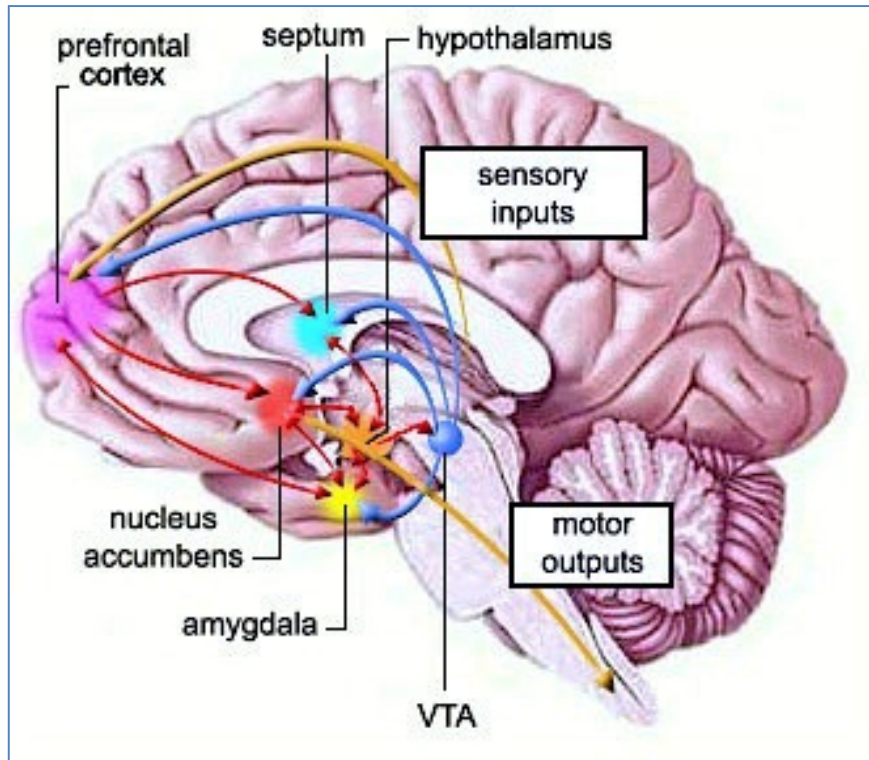
### - Pleasure & Reward: The 'Reward Circuit':

#### o Brain Structures Involved:

- § *\*Ventral Tegmental Area (VTA)*
- § *\*Nucleus Accumbens*
- § Pre-Frontal Cortex
- § Amygdala
- § Thalamus

#### o Neurotransmitters Involved:

- § *\*Dopamine* - VTA & Nucleus Accumbens



[https://thebrain.mcgill.ca/flash/a/a\\_03/a\\_03\\_cr/a\\_03\\_cr\\_que/a\\_03\\_cr\\_que.html](https://thebrain.mcgill.ca/flash/a/a_03/a_03_cr/a_03_cr_que/a_03_cr_que.html)

- **The 'Fear Circuit':**

o **Brain Structures Involved:**

§ **Thalamus** →

- § • Amygdala

**Thalamus** →

- Primary Sensory Cortex
- Association Cortices

o **Long & Short Pathways:**

§ **Long:**

- Info processed by higher brain centres & Hippocampus
- Results in a more complex response

§ **Short:** Info sent straight to Amygdala

- Results in a basic response (Recoil from stimulus/Freeze)
- **Advantage** = No cortical processing means quicker reaction times → ↑ Survival
- 

o **Process of Fear:**

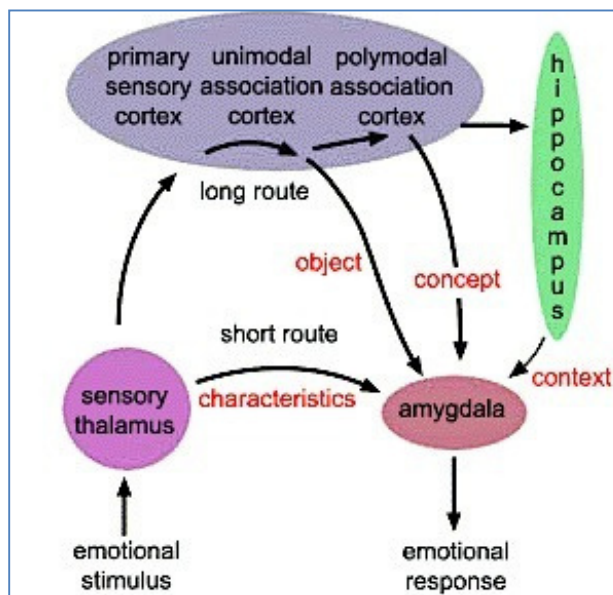
§ 1: Sensory Info enters brain → Thalamus

§ 2: Thalamus Sends info to Amygdala (Via Long/Short Route)

§ 3: Amygdala activates Visceral Responses through Hypothalamus

§ 4: Amygdala Activates Ventromedial Pre-Frontal Cortex (Allows conscious recognition of the Emotion)

5: Visual Cortex also inform Prefrontal Cortex about the Threat



[https://thebrain.mcgill.ca/flash/a/a\\_04/a\\_04\\_cr/a\\_04\\_cr\\_peu/a\\_04\\_cr\\_peu.html](https://thebrain.mcgill.ca/flash/a/a_04/a_04_cr/a_04_cr_peu/a_04_cr_peu.html)

- **Anger/Aggression Circuit:**

o **Affective Aggression Vs Predatory Aggression:**

§ Predatory aggression is related to feeding behaviour & isn't accompanied by sympathetic physiological response with which affective aggression is associated

o **Associated Structures:**

§ Cerebral Cortex

§ **Amygdala**

§ **Hypothalamus**

§ Periaqueductal Grey-Matter (PAG)

§ Ventral Tegmental Area (VTA)

§ IE: "Aggression is controlled by a neural pathway from the Amygdala through the Hypothalamus, PAG & VTA"

o **Neurotransmitter:**

§ Serotonin

o **Possible Hormonal Link:**

§ Adenosine

## PERSONALITY THEORIES

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**What is Personality?**

- “Qualities of an individual that are shown in their way of behaving in a wide variety of circumstances
- IE: A mental picture of someone’s mind that allows us to predict the way they behave

**Personality Theories:**

- **Trait Theory:**

o **Synopsis:**

- § People can be described in terms of enduring *underlying qualities*
- § These qualities are thought to be:
  - Independent
  - Stable
  - Have a Neurological & Biological Basis

o **“State” Vs “Trait”:**

- § State = How you are right now
- § Trait = How you tend to be over your whole life

o **Traits include:**

|             |            |           |
|-------------|------------|-----------|
| Moody       | Sociable   | Reserved  |
| Rigid       | Easygoing  | Careful   |
| Pessimistic | Aggressive | Peaceful  |
| Passive     | Optimistic | Reliable  |
| Thoughtful  | Anxious    | Impulsive |

§ **Hans Eysenk’s Version:**

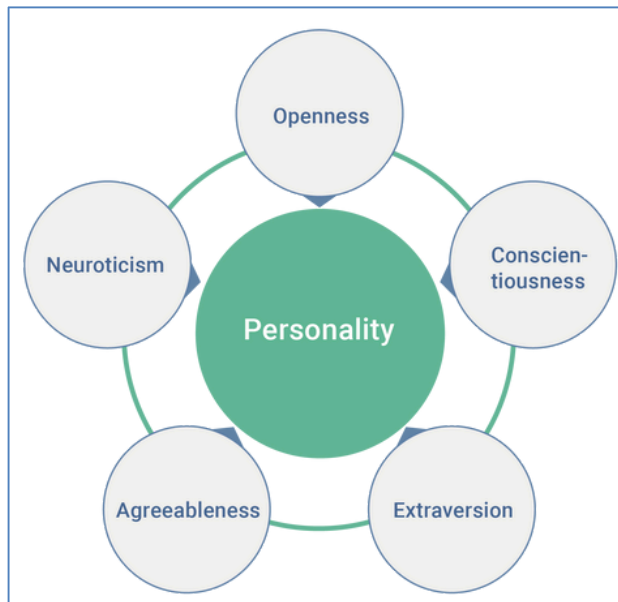
- Introversion Vs Extraversion
- Neurotic Vs Emotionally Stable
- Psychotic Vs Impulse Control

§ **The “5 Factor Theory”:**

- Neuroticism (Worried, Highly Strung)
- Extraversion (Sociable, Affectionate)
- Openness (Independent, Creative)
- Agreeableness (Good-Natured, Trusting)
- Conscientiousness (Reliable, Organised)

o **How is it Measured?**

- § Self-Report Questionnaires – Identify stable, enduring personality traits
  - Objective
  - Lots of Yes/No Questions about Feelings & Behaviour



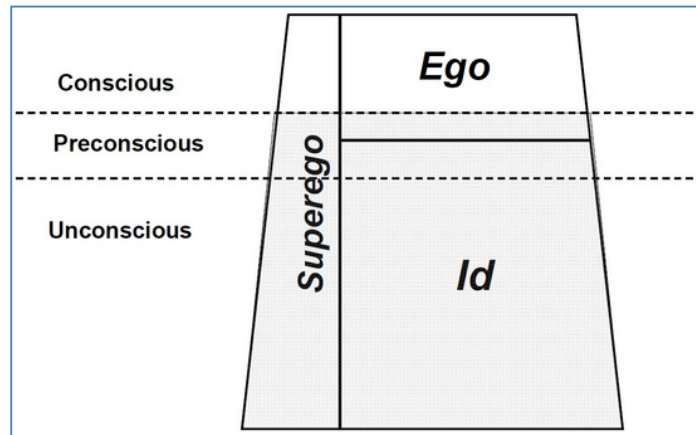
## - Psychoanalytic & Developmental Theories:

### o Synopsis:

§ Personality is a compromise between **Instinctive Biological Urges** Vs **Social Prohibitions**

§ Consists of the **3 Freudian** aspects:

- The “Id” (“It”) Desire
- The “Ego” (“I/me”) Choice
- The “Superego” (“Over me”) Reality/Morality



§ Consists of the **5 Stages of Desire** (or 'Libido'):

- Oral Stage
- Anal Stage
- Phallic Stage
- Latency
- Genital Stage

**Note: Personality Problems** result from failure to resolve conflicts between 'Desire' & 'External Constraints'

§ Involves the concept of **Defences**: (Keeping intolerable fears/desires out of consciousness)

- Denial
- Repression
- Projection
- Rationalisation
- Etc

§ Involves the concept of **Unconscious Re-Enactment**:

- One's thoughts/feelings about **Past Relationships** (Eg: With parents) get re-enacted in **Present-Day Relationships** (Eg: With partners)

§ Involves the **Bowlby & Attachment Theory**:

- “The primary instinct isn't sexual, rather the desire for **closeness, comfort & protection**”
- “Personality can be traced back to the **Mother-Child Relationship**”
- “Your childhood attachment influences the way you conduct relationships as an adult”

### o **How is it Measured?**

§ Aim: To Identify Unconscious Wishes, Fears & Defences:

- Detailed Biographical History
- Projective Tests
- Dreams
- Transference (Feelings from early childhood relationships are “transferred” to present day relationships)

- **Social-Learning Theory:**

o **Synopsis:**

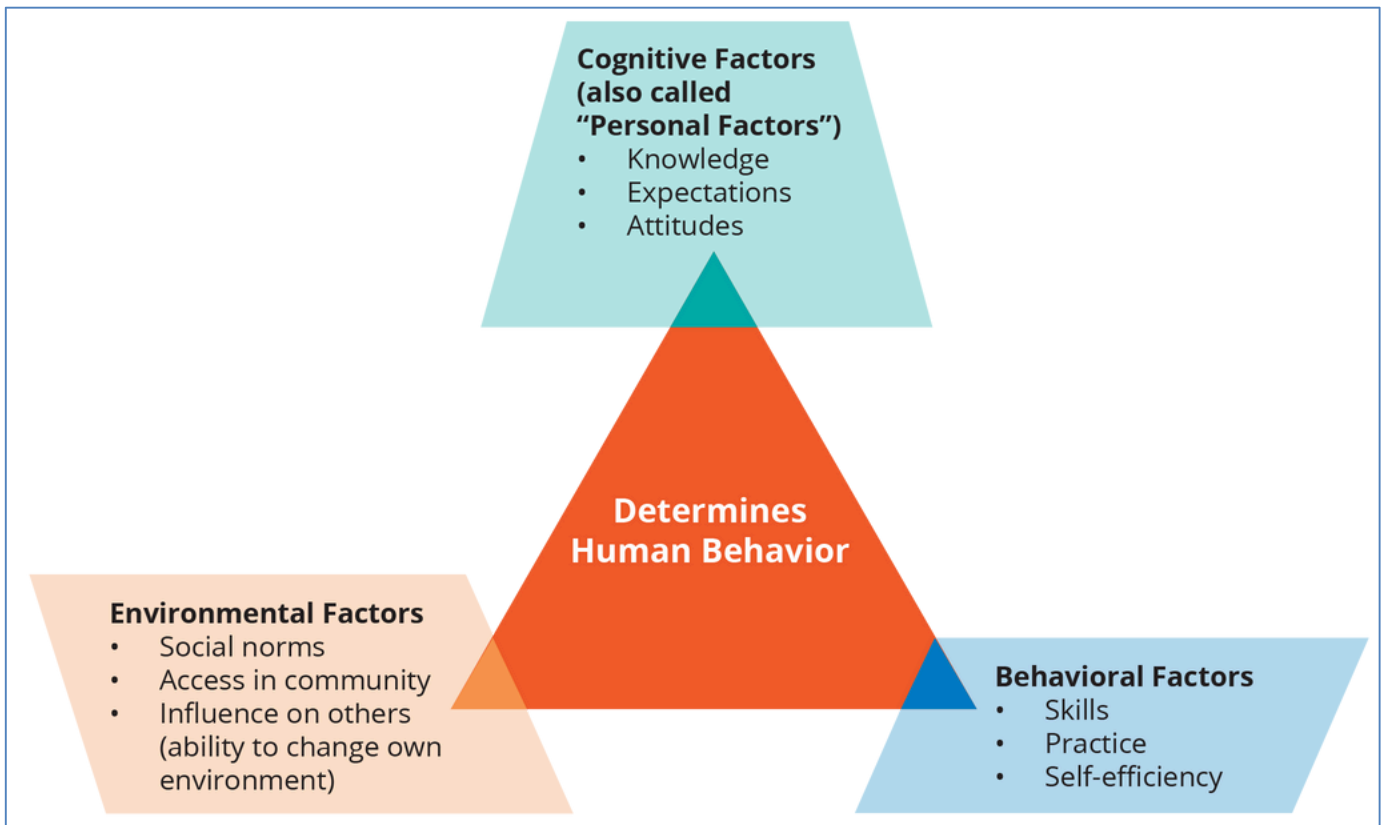
- § Behaviour is driven by:
  - **Reward & Punishment**
  - **Beliefs & Expectations**
- § We learn from Direct & Indirect Experience (observing others)
  - Observational Learning
  - Social Rewards for Behaviour
  - Self-Efficacy – Comes from experiences of success & social reinforcement
- § Encompasses the '**Locus of Control**' theory:
  - Internal Locus – you are responsible for your feelings/actions/destiny
  - External Locus – the actions of others are the reason for your feelings/actions/etc

o **Where Beliefs & Expectations Come From:**

- § Experience (Reward & Punishment)
- § How people have treated us (Past & Present)
- § Social Role (Race/Class/Gender/Stigma)

o **How is it Measured?**

- § Clinical Interview - Subject is asked to clarify his/her:
  - Beliefs
  - Behaviour Patterns
  - Expectations about themselves



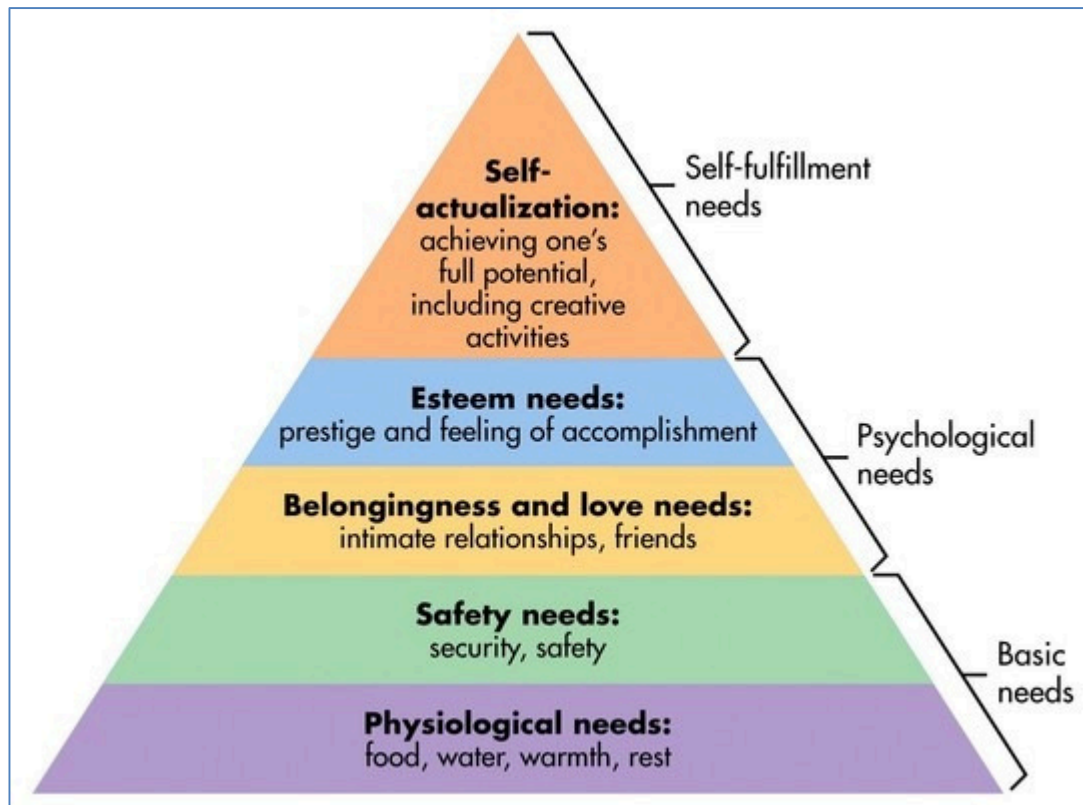


- **Humanistic Theory:**

o **Synopsis:**

- § Concerned with:
  - Present & Future (Not Past)
  - The Person's Motivation
  - The Person's Potential (Not their deficits/flaws)
  - The Person's Individuality (Uniqueness)
- § "Everyone has the capacity to fulfil their own potential"
- § Concerned with **The Hierarchy of Needs:**
  - Note: one can only achieve the 'Self Actualisation Need' (IE: Fulfilment) after they meet the first 4 needs

o **Aim:** to understand a person's experience & self-concept



o **How is it Measured?**

- § **How: Clinical Interview:**
  - Person's self-description
  - Observation of Non-verbal Communication
  - Empathy

**THINKING & LANGUAGE**

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**Communication:**

- **What is it?**
  - o The exchange of ideas between 2 or more people
  - o Involves *Transmission* and *Response/Feedback*
  - o Encompasses Verbal & Non-Verbal elements
  - o Note: Communication doesn't necessarily require speech or language (think how babies communicate)
- **Importance of Communication:**
  - o Share Thoughts/Feelings
  - o Express Identity
  - o Build Relationships
  - o Conduct Business
  - o Teach & Learn
- **Aspects of Communication:**
  - o **Language (Expressive & Receptive)**
  - o **Speech**
  - o **Voice**
  - o **Fluency**

**Language:**

- **What is it?**
  - o The *Coding* of meaning into an arbitrary system of symbols, words, sentences & texts in order to Communicate (Convey ideas & feelings)
- **4 Components of Language:**
  - o **Form:**
    - § **1: Phonology** (The sounds used to make words)
      - 'Phoneme' – Consonant/Vowel SOUNDS that carry meaning (F,M,C – Fan, Man, Can)
    - § **2: Morphology** (Proper use of prefixes/suffixes/plural/tense – past, present & future)
      - 'Free Morphemes' – Stand alone as a word (Eg: Ball, run, yellow, was, the)
      - 'Bound Morphemes' – grammatical units attached to words (Eg: Ing, ed, ly, s, ation)
    - § **3: Syntax** (Proper Word Order – Noun→Verb→Object→Adverb)
  - o **Content:** (Meaning – Linguistic representation of objects/ideas/feelings/etc)
    - § **4: Semantics**
- **Note: Morphology + Syntax = Grammar**

**Speech:**

- **What is it?:**
  - o The way the sounds of the words are produced
- **3 Components of Speech:**
  - o **1: Phonemes** – Consonant/Vowel SOUNDS that carry meaning (F,M,C – Fan, Man, Can)
  - o **2: Syllables** - Groups of phonemes with core Vowel SOUNDS (ba-by; mu-ffin; en-vel-ope)
  - o **3: Prosody** - Rhythm of spoken language (Pitch, stress, intonation, intensity & duration of sounds)
- **Fluency:**
  - o The 'flow' of speech (Rate/Timing/Rhythm)

**Voice:**

- **What is it?:**
  - o Production of Sound using:
    - § The Respiratory System (Moving air)
    - § The Larynx (Vibration)
    - § The Vocal Tract (resonance)
- **Voice Characteristics:**
  - o Pitch
  - o Loudness
  - o Quality, Tone

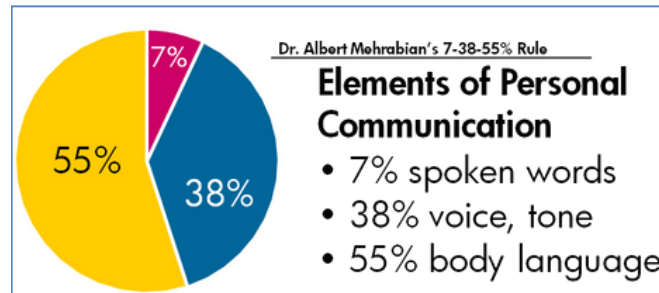
- **Verbal Vs Non-Verbal:**

o **Verbal/Written:**

- § Pragmatics (Refers to language *use* rather than structure)
  - Context, Conversational Rules/Conventions, Cultural Rules/Conventions, Politeness, Bluntness, Literal or Non-literal
- § Language
- § Speech
- § Voice
- § Fluency

o **Non-Verbal:**

- § Body language
- § Facial expression
- § Gestures
- § Intonation (Pitch, Tone, Stress, Timing, Rhythm, Volume)



**Process of Communication:**

- **Speech:**

- o Linguistic Encoding – Encode meaning into words/sentences
- o Translation of Linguistic Code into a Motor Plan → Sequenced & Coordinated movement of:
  - § Respiratory Muscles (For Airflow through larynx)
  - § Laryngeal Muscles (Phonation & Voice)
  - § Tongue, Lips, Palate & Jaw (Articulation)

- **Hearing & Comprehension:**

- o Transduction of Sound Waves into Electrical Impulses & Interpretation of Meaning by the Brain

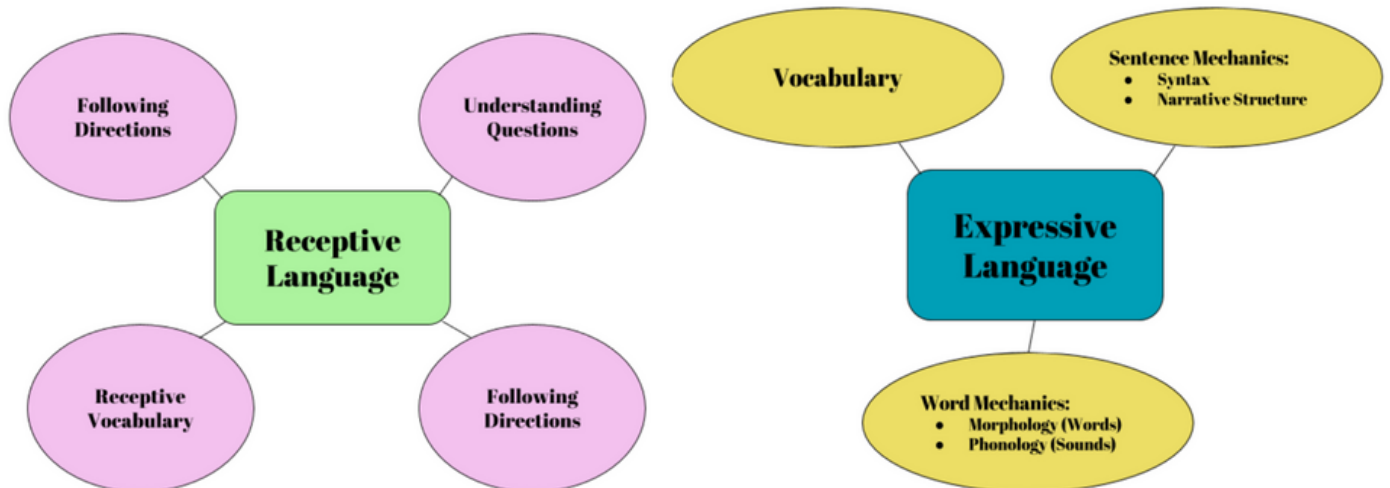
**Language:**

o **Receptive Language:**

- o § Understanding & Comprehension of Language we hear (or Read)

**Expressive Language:**

- § The *Production* of language (Usually Spoken; Sometimes Written)



## Stages in Development of Communication Skills in Children:

- **Infants (6-12 months):**
  - o **Speech Development:**
    - § Babbling (repetition of syllables – No Meaning)
  - o **Language Development:**
    - § Understand 3-50 words/phrases
  
- **Toddlers (1-2 yrs):**
  - o **Speech Development:**
    - § First Words
    - § Develop a Vocab of up to 200 words
  - o **Language Development:**
    - § Understand 50-300 words
    - § Use of Words to Communicate Needs
    - § Request Information (Expressive Language) & Answer Questions (Receptive Language)
  
- **Toddler (2-3yrs):**
  - o **Speech Development:**
    - § Develop a Vocab of up to 1000 words
    - § Master the 'Early 8' Speech Sounds: (M, P, B, W, D, N, Y, H)
  - o **Language Development:**
    - § Understand Directions
    - § Listens to stories
    - § Understand Specific Questions (Who/what/where/why)
    - § Maintain & Extend Conversations
  
- **Early Childhood (3-5yrs):**
  - o **Speech Development:**
    - § Develop a Vocab of over 2000 words
    - § Master the 'Middle 8' speech sounds: (ng, k, g, t, f, v, ch, j)
  - o **Language Development:**
    - § Understand up to 10,000 words
    - § Develop Complex Sentence Structure
    - § Learn Polite forms of Language Use (Pragmatics)
  
- **Primary School Years (5-12yrs):**
  - o **Speech Development:**
    - § Vocab becomes more abstract
    - § Master the 'Late 8' speech sounds: (sh, zh, s, z, l, r)
    - § Master Multisyllabic words (Eg: Hospital, spaghetti)
    - § Master Consonant Clusters (Eg: Skr)
    - § Speech should be Error-Free by 8 yrs
  - o **Language Development:**
    - § Understand more complex & abstract forms of language:  
IE: Stories, Explanations, Jokes, Riddles, Instructing
  
- **High School Years (13-18 yrs):**
  - o **Speech Development:**
    - § Vocab exceeds 10,000 words
  - o **Language Development:**
    - § Understand even more Complex & Abstract forms of language:
    - § IE: Argumentation, Persuasion, Debate, Satire (irony, sarcasm & ridicule)
    - § Able to use complex, literate language for Academic Writing

## Common Origins/Causes of Communication Defects:

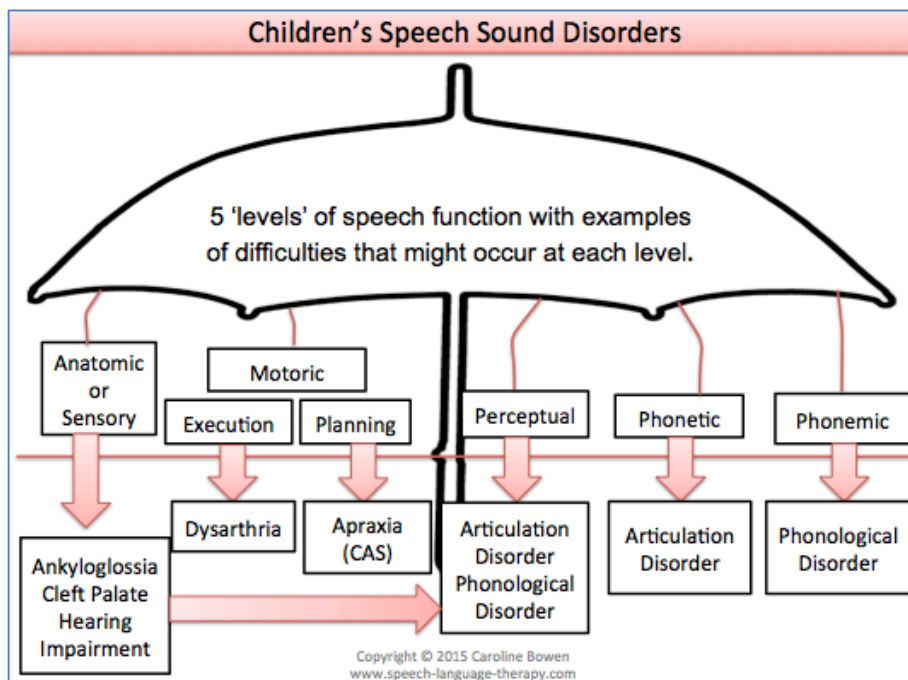
- **Acquired:**
  - o **Due to:**
    - § Hearing Impairment
    - § Head injury
    - § Meningitis
- **Congenital:**
  - o **Due to:**
    - § Cleft Lip/Palate
    - § Craniofacial Abnormalities
    - § Syndromes (Eg: Down's)
    - § Intellectual Disability
- **Developmental:**
  - o **Due to:**
    - § Parental Neglect
    - § Social Deprivation

## Types of Communication Deficits:

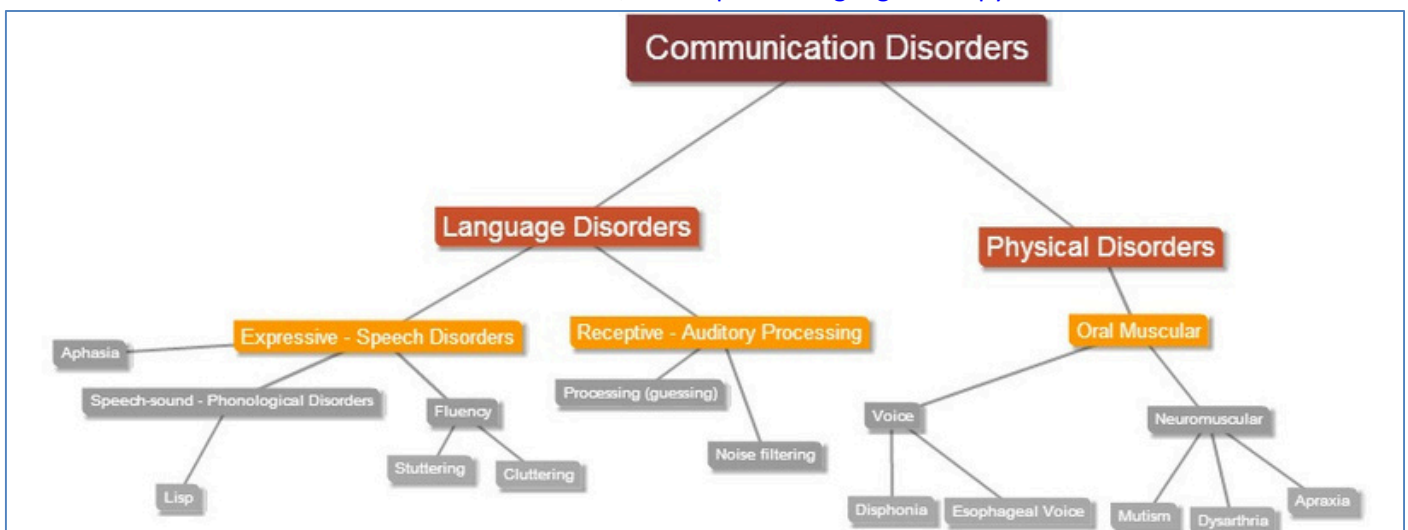
- **Receptive Language Delay:**
  - o Poor understanding of words/questions/comments
  - o Can't follow simple instructions
  - o Can't comprehend a conversation/joke/story
  - o Rely on context, rather than what is said
- **Expressive Language Impairments:**
  - o Limited Vocab or Word-Finding Difficulties
  - o Omission of Grammatical Morphemes (Eg: "He swimming beach" – missing 'is', 'at' & 'the')
  - o Confused Word Order
  - o Difficulty conversing
  - o Difficulty constructing a text (story/essay/explanation/arguments) (Oral/Written)
- **Pragmatic Impairments:**
  - o Mismatch between context & what is being communicated (Eg: A stranger tells you all about his personal problems while waiting for the bus)
  - o Problems with Conversation Management (Eg: Irrelevant to the topic, ignore questions, interrupt)
  - o Problems with Non-Verbal Communication (Eg: Eye contact; Poor interpretation of facial expression)
- **Speech Impairments:**
  - o Difficulty producing a sound (Vowel/Consonant) accurately
    - § Eg: 'th' for 's'/'z'
    - § Eg: 'w' for 'r'
  - o Imprecise speech (Slurred, Disrupted Rhythm, Effortful)
  - o Omission of Syllables (Eg: 'puter' for 'Computer')
- **Voice Impairments:**
  - o Quality Issues (Hoarseness/breathiness)
  - o No Voice
  - o Pitch too high/low
  - o Pitch Breaks (Eg: 'Blowouts')
- **Fluency Impairments:**
  - o Non-Fluency (Hesitations, unusual rhythm/intonation, slow)
  - o Stuttering:
    - § Repetitions
    - § Prolongations
    - § Blocks

## Red Flags in Speech & Language Development:

- **Speech Impairment:**
  - o Omission of sounds from beginning/middle of words @ >2yrs
  - o Unusual sounds @ >2yrs
  - o Unintelligible (impossible to understand) even to family members @ >3yrs
  - o Any speech errors @ >5yrs
- **Language Impairment:**
  - o **Early Years:**
    - § Not attending to sounds @ >4mths
    - § Not responding to naming of familiar objects @ >18mths
    - § Not Speaking by 2yrs
    - § No simple sentences by 2.5yrs
  - o **Preschool:**
    - § Persistent poor grammar @ <4yrs
    - § Not listening to/comprehending simple picture-book stories @ <4yrs
    - § Poor social skills/behaviour problems @ <4yrs
  - o **School Age:**
    - § Can't provide explanations @ <5yrs
    - § Unable to stay on topic
    - § Learning difficulties at school
    - § Poor social skills/behaviour problems

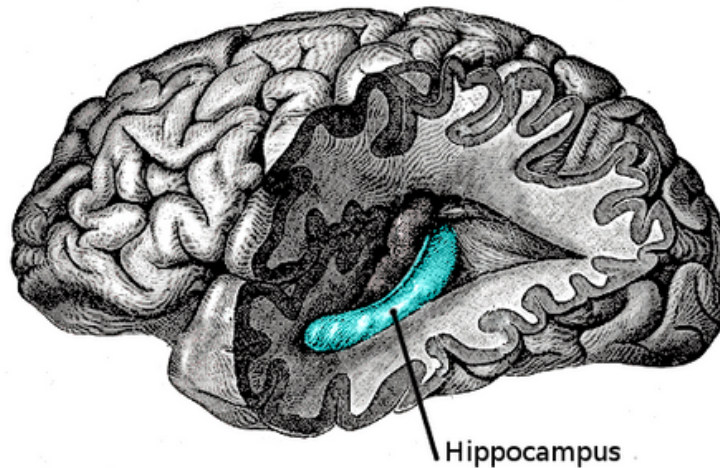


Source: Caroline Bowen; [www.speech-language-therapy.com](http://www.speech-language-therapy.com)



**NEUROBIOLOGY OF MEMORY**





**Process of Memory Creation:**

**1. External Stimuli:**

- a. Sensory input bombards the brain & is sent to Cerebral Cortex

**2. Temporary Storage (Cerebral Cortex):**

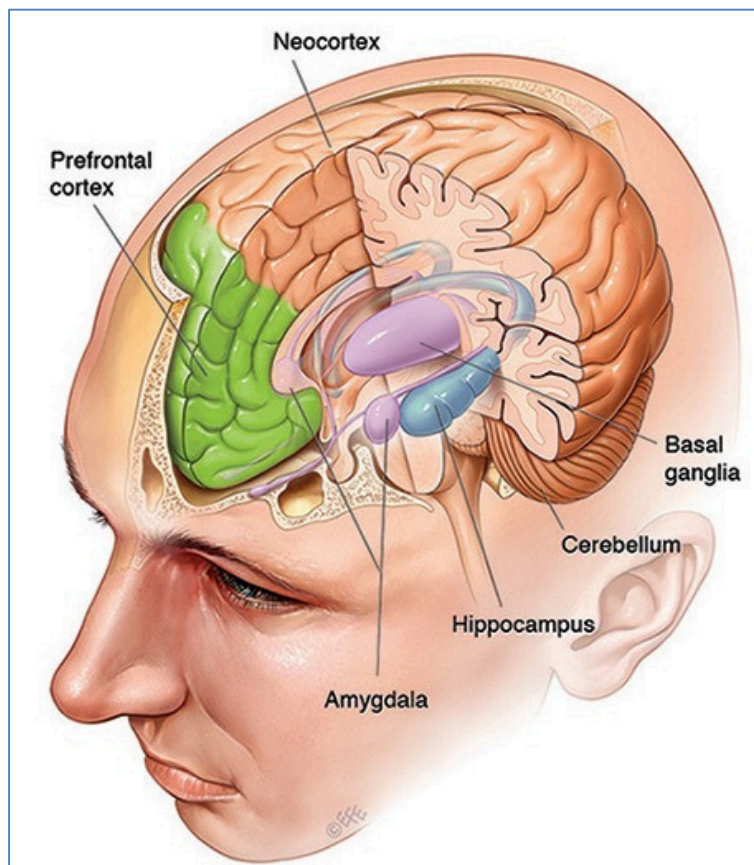
- a. Sorts & Evaluates the Information
- b. Depending which inputs you focus on, determines what info is sent to Short Term Memory
  - i. Input not focussed on is Forgotten

**3. Short Term Memory:**

- a. In Medial Temporal Lobe (Hippocampus, Amygdala & Surrounding Cortical Areas)
- b. Excitement/Rehearsal/Association/Emotion → Transfer to Long Term Memory
  - i. Input not subjected to the above is Forgotten

**4. Long Term Memory:**

- a. Requires: ACh – for Declarative; or Dopamine – for Non-Declarative
  - i. Declarative – Stored in ≈ Prefrontal Cortex
  - ii. Non-Declarative – Stored in ≈ Premotor Cortex



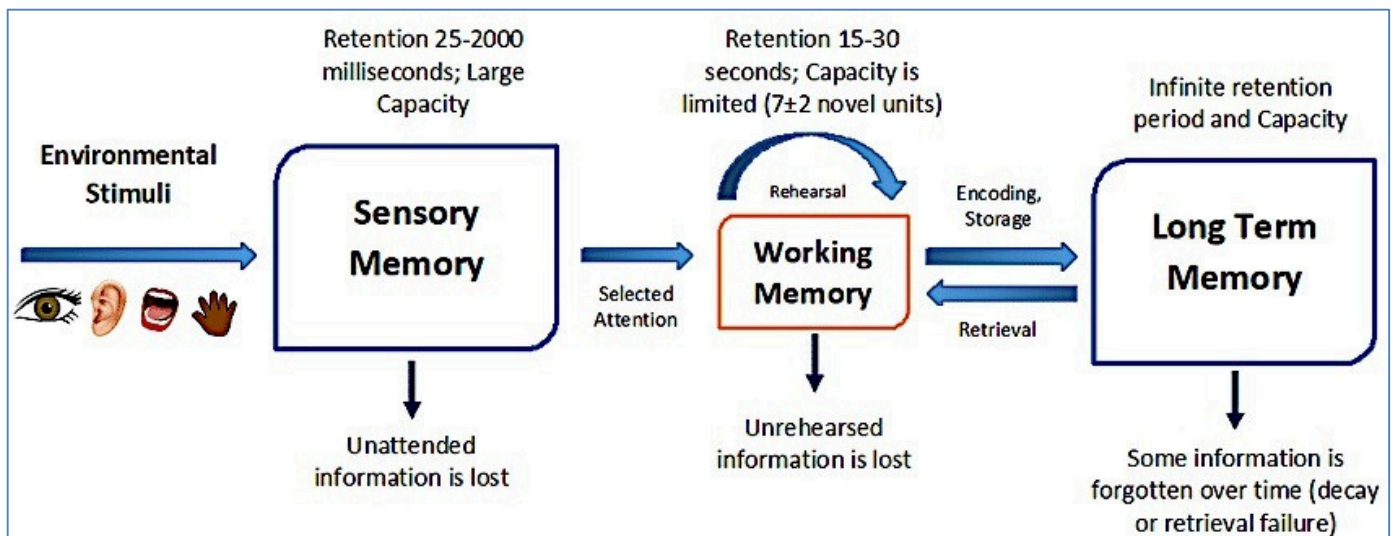
*The parts of the brain involved in memory (Illustration by Levent Efe); <https://qbi.uq.edu.au/brain-basics/memory/where-are-memories-stored>*

## Sensory Memory:

- **Iconic (Visual) Memory:**
  - o Visual signal held briefly in memory
  - o <0.5 sec
    - § Eg: Blurring of fast moving objects into 1 object – Fan Blade
- **Echoic (Aural) Memory:**
  - o Auditory signal held briefly in memory
  - o ~3 sec
    - § Eg: Listening to a lecturer & writing down what they're saying
- **Haptic (Tactile) Memory:**
  - o Tactile signals held briefly in memory
  - o ~10 sec
    - § Eg: Feeling the bumps on the 'F' & 'J' keys while typing

## Working Memory:

- Note: Often Grouped with STM
- **Temporary Retention, Integration (With other brain areas) & Manipulation of Sensory Info... TO FACILITATE A RESPONSE**
  - o Eg: Crossing the Road:
    - § 1: Look Left – Remember position of cars
    - § 2: Look Right
    - § 3: Look Left Again – Compare position of cars to the initial look → Is it safe to cross??
- **Associated with Prefrontal Cortex:**
  - o Closely tied to STM
- **Neurotransmitter:**
  - o Dopamine



Noushad, Babu & Khurshid, Faraz. (2019). Facilitating student learning: An instructional design perspective for health professions educators. 8. 69-74: 10.15171/rdme.2019.014:

## Short-Term Memory (STM) / (Working Memory):

- **Based in Hippocampus**
  - o However, small links are established with Cortex (Visual/Auditory/Olfactory/Gustatory)
  - o These Links are made by Changes to Neuron Signalling that don't require protein synthesis (Quicker)
- **Lasts Seconds → Several Hours MAX** (AKA: "Crammers" Memory)
  - o IE: Changes to Neurons are **Transient** (Temporary)
- **Limited to ≈7-8 "Chunks" of Info**
- **Amnesia ≈ Damage to Connection between STM & LTM**

### Properties:

- o Is Conscious
- o Is Active
- o Has a Limited Capacity (≈7 'element' limit)
- o Is Short-Lived (≈9-12 Seconds unless rehearsed)

- **3 Components:**

o **1: Phonological Loop:**

- § Holds Verbal Material
- § Involves Left Parietal Lobe
- § 'Chunking' allows more to be packed into each 'Element'
- § Info is Short-Lived (Surface-learned) unless **Rehearsed**:
  - Maintenance Rehearsal
  - Elaborative Rehearsal
  - Integrated with previous info
  - Previous info is Accommodated
- § Rehearsal transfers info from Surface to **Deep Learning**
- § Info Stored here is Disrupted by Verbal Activity (Eg: Speaking)

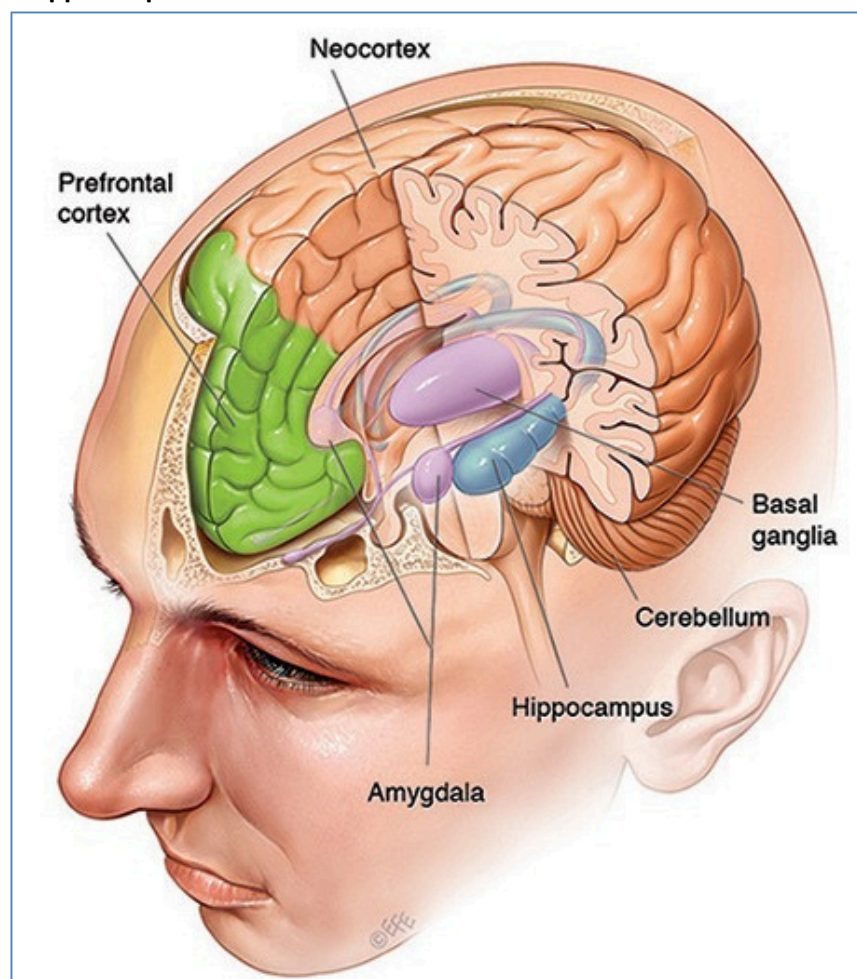
o **2: Visuospatial Sketchpad:**

- § Holds Spatial Information (Usually conveyed by Vision)
- § The 'Mind's Eye'
- § Involves Right Parietal Lobe
- § Info Stored here is Disrupted by Spatial Activity (Eg: Pointing)

o **3: Central Executive:**

- § The 'Boss' of the Phonological Loop & Visuospatial Sketchpad
- § The 'Core' of the Working Memory System
- § Involves the Frontal Lobes of the Brain
  - Frontal Lobe Damage → 'Dysexecutive Syndrome' – loss of the ability to Plan, Make Decisions & Solve Problems
  - Eg: Cook who could remember recipes & cooking techniques but couldn't prepare a meal

**Note: Hippocampus sits in the Medial walls of the 'Horns' of the Lateral Ventricle**



The parts of the brain involved in memory (Illustration by Levent Efe); <https://qbi.uq.edu.au/brain-basics/memory/where-are-memories-stored>

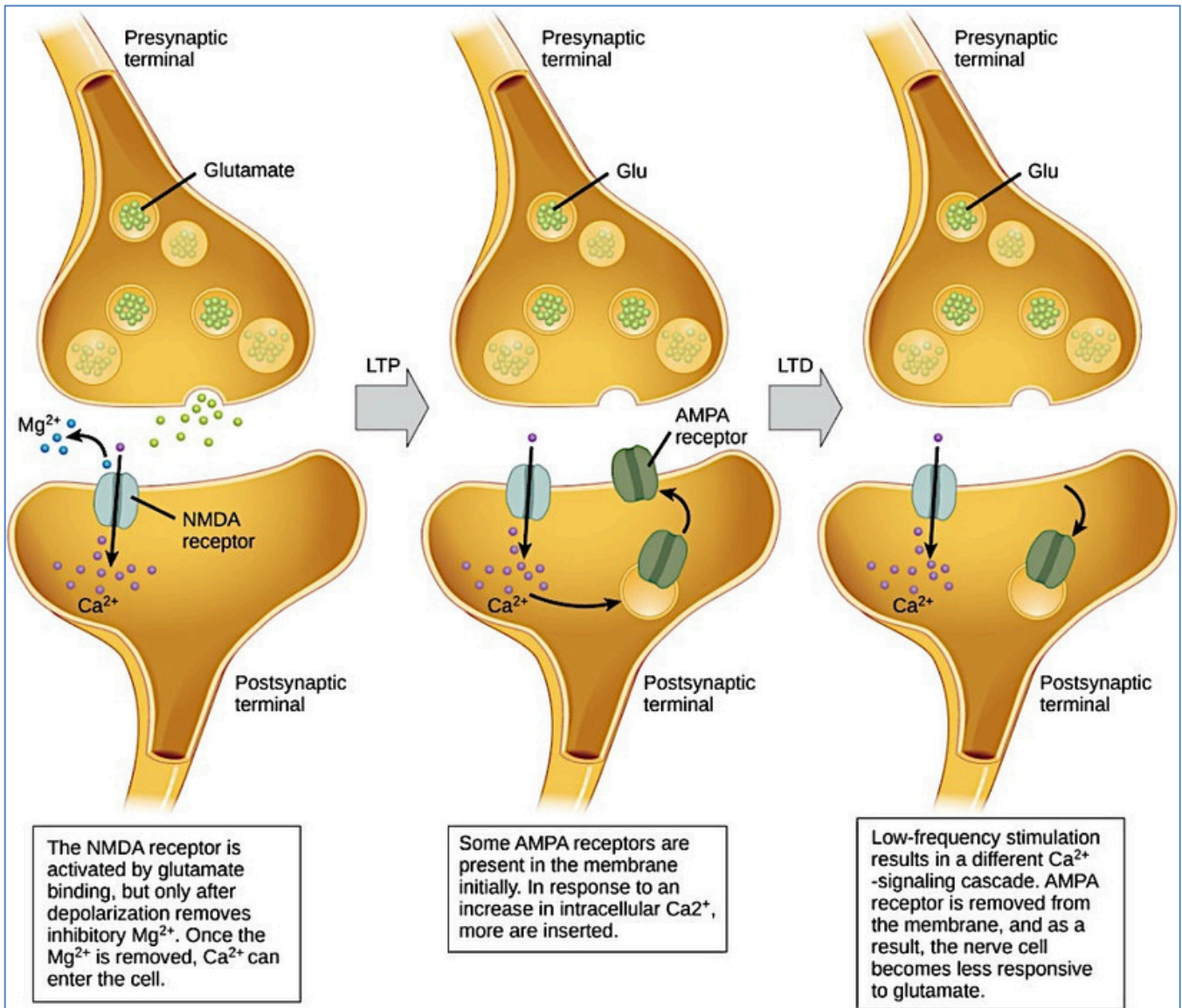
## Long Term Memory:

- **Entry into LTM depends on the Level of Processing:**
    - o Info from Working Memory that has been 'Encoded'/'Rehearsed'/'Integrated'/'Accommodated' enters Long-Term Memory
    - o Info becomes organised & therefore easier to retrieve
    - o Understanding = Systematic Arrangement of Knowledge
  - **Consolidation (Creating Long-Term Memories):**
    - o Requires Structural Changes @ the Synapse
    - o Takes Time – (Hence why concussion victims can't remember events directly preceding the incident because those memories were still being 'formed')
  - **LTM's Stored In:**
    - o \*Hippocampus
    - o Para-Hippocampal Regions & Amygdala (Medial Temporal Lobe)
    - o Thalamus + Hypothalamus
    - o Areas of Cerebral Cortex
  - **'Primacy Effect':** Words at the start of a list are recalled better than those in the middle
    - Words are transferred to Long-Term Memory
  - **'Recency Effect':** Words at the end of a list are recalled better than those in the middle
    - Words are held in Working-Memory
- Requires Remodelling the Neuron/Synapse via **“Long Term Potentiation”** & **“Long Term Depression”**

## Long-Term Potentiation (LTP):

- **Definition:** “A Long-Lasting Post-Synaptic Depolarisation, induced through Repetitive Stimulation & Summation of Excitatory Post-Synaptic Potentials”
  - o Simply – “A Persistent Increase in Synaptic Strength”
- **Calcium, The #1 Mediator of LTP:**
  - o NMDA-mediated Ca<sup>+</sup> Influx → Activation of **Enzymes** that cause:
    - § ↑Neurotransmitter Release
    - § Or Changes in Post-Synaptic Receptors
- **The #1 Neurotransmitter:**
  - o **Glutamate** → binds to **NMDA** and/or **AMPA** Receptors
    - § **NMDA Receptors:**
      - Act as **Coincidence Detectors** (Simultaneous Signals)
      - IE: Detects coupling of occurrences
      - Is essentially a Ligand(Glutamate)-Gated Ca<sup>+</sup> Channel
      - Has a Voltage-Dependant Mg<sup>+</sup>-Block → Acts as a Voltage-Gate
      - Therefore, NMDA Receptor is Ligand & Voltage-Gated
    - § **AMPA Receptors:**
      - Is a Ligand-Gated Na<sup>+</sup> Channel
      - When Glutamate Binds → Channel Opens → Depolarisation → AP
      - Action Potential 'Kicks' out the Mg<sup>+</sup> Block on the NMDA Receptor
- **3 Phases of LTP:**
  - o **1: Induction** - (Synaptic *Plasticity*)
    - § **Alleviating of the NMDA-Receptor's Mg<sup>+</sup> Block**
      - This may be done by:
        - o AMPA-Receptor mediated Action Potential
        - o Metabotropic-Receptor linked to Ion-Channel → AP
  - o **2: Expression** - (Synaptic *Augmentation*)
    - § **NMDA-Mediated Ca<sup>+</sup> Influx** → Activation of Enzymes that:
      - 1: Modify Proteins in Post-Synaptic Terminal or ↑in Pre-Synaptic Neurotransmitter Release → Strengthens response to subsequent Stimuli
      - 2: Activation of Genes in Post-Synaptic Neuron's Nucleus → Synthesis of Synaptic Proteins → ↑Synaptic Strength

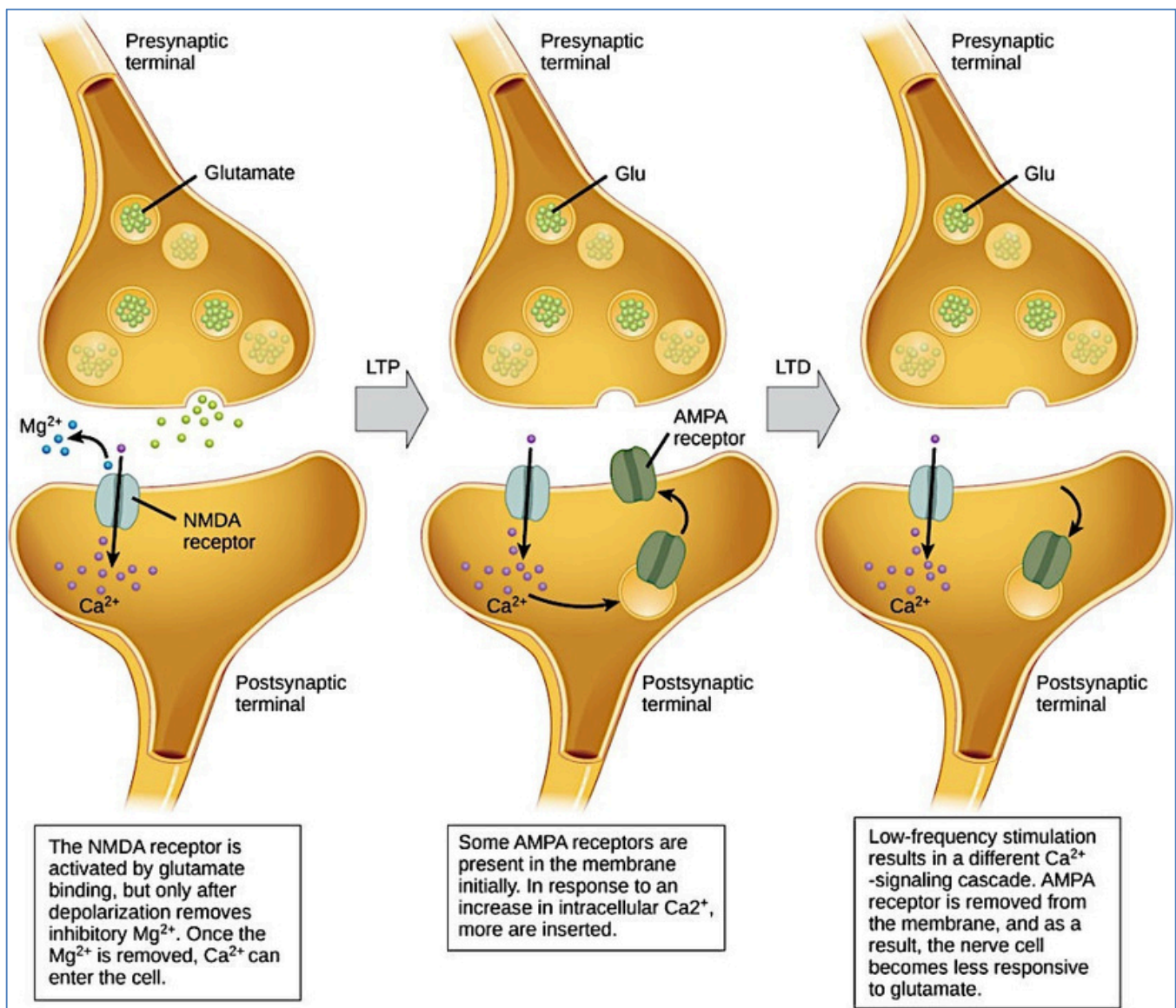
- **3: Maintenance - (Long Term Loss/Continuation of LTP)**
  - § **Rise in mRNA Levels** → Augmented Synthesis of Proteins linked to Memory
    - This ↑ in Protein Synthesis is regulated by a (+)Transcription Factor: “cAMP Response Element Binding” protein (CREB)
    - This perpetual ↑Protein-Synthesis → Long-Lasting ↑Synaptic Strength that is believed to underlie memory



OpenStax. Located at: <http://cnx.org/contents/185cbf87-c72e-48f5-b51e-f14f21b5eabd@10.8>. License: CC BY: Attribution. License Terms: Access for free at <https://openstax.org/books/biology-2e/pages/1-introduction>

## Long Term Depression (LTD):

- **Definition:** "The Weakening of a Neuronal Synapse that lasts from hours-days"
- **Calcium, The #1 Mediator of LTP:**
  - o NMDA-mediated  $\text{Ca}^{2+}$  Influx  $\rightarrow$  Activation of **Phosphatases** that cause:
    - § De-phosphorylation of AMPA-Receptors
      - $\rightarrow$  In Hippocampus  $\rightarrow$  AMPA Dephosphorylation  $\rightarrow$   $\downarrow$ Amplitude of Post-Synaptic Potential to the Normal Level (Prior to LTP)
      - $\rightarrow$  Can also remove receptors from post-synaptic membrane & place them in reserve
- **Results From:**
  - o Strong Synaptic Stimulation (Cerebellum)...Or
  - o Persistent Weak Synaptic Stimulation (Hippocampus)
- **Function in:**
  - o **Overall:**
    - § Plays a role in modulating impact of formed memories to prevent overload
  - o **Hippocampus:**
    - § Thought to return LTP'd synapses back to a normal level so they will be available to store new information
  - o **Cerebellum:**
    - § Thought to promote Motor Learning



OpenStax. Located at: <http://cnx.org/contents/185cbf87-c72e-48f5-b51e-f14f21b5eabd@10.8>. License: CC BY: Attribution. License Terms: Access for free at <https://openstax.org/books/biology-2e/pages/1-introduction>

## 2 Types of Long-Term Memory:

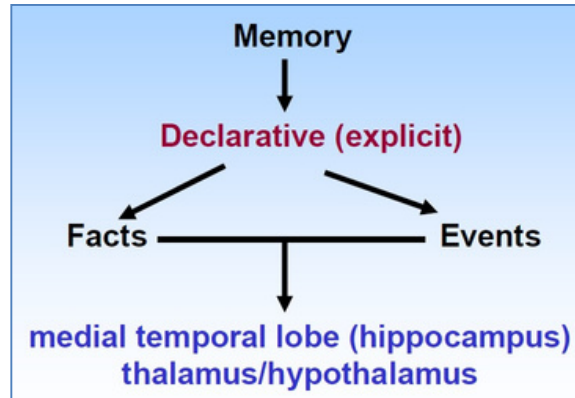
### - 1: Declarative (EXPLICIT):

#### o Brain Regions:

- § Hippocampus
- § Para-Hippocampal Regions (Medial Temporal Lobe)
- § Areas of Cerebral Cortex
- § Thalamus + Hypothalamus

#### o Learning "WHAT":

- § Facts/Words/Ideas/Concepts/Events



### - 2: Non-Declarative (IMPLICIT):

#### o Learning "HOW": - How to do things/How to recognise things

#### § Procedural:

- Walking
- Driving a car
- Doing Algebra
- How to get Home

#### § Priming (Anticipation): - IE: The use of a trigger to pull out a memory

- Ache in gut if you get a letter from Tax Office – Due to Previous Association
- Reaction to seeing your Partner

#### § Classically-Conditioned:

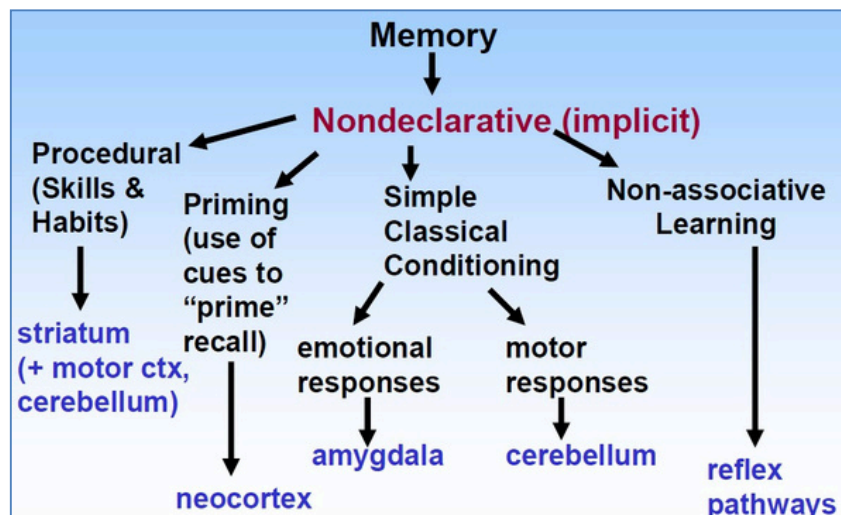
#### • Emotional:

- o Eg: Fear when seeing a Shark
- o Eg: Ringing Bell → Dog Salivates

#### • Motor

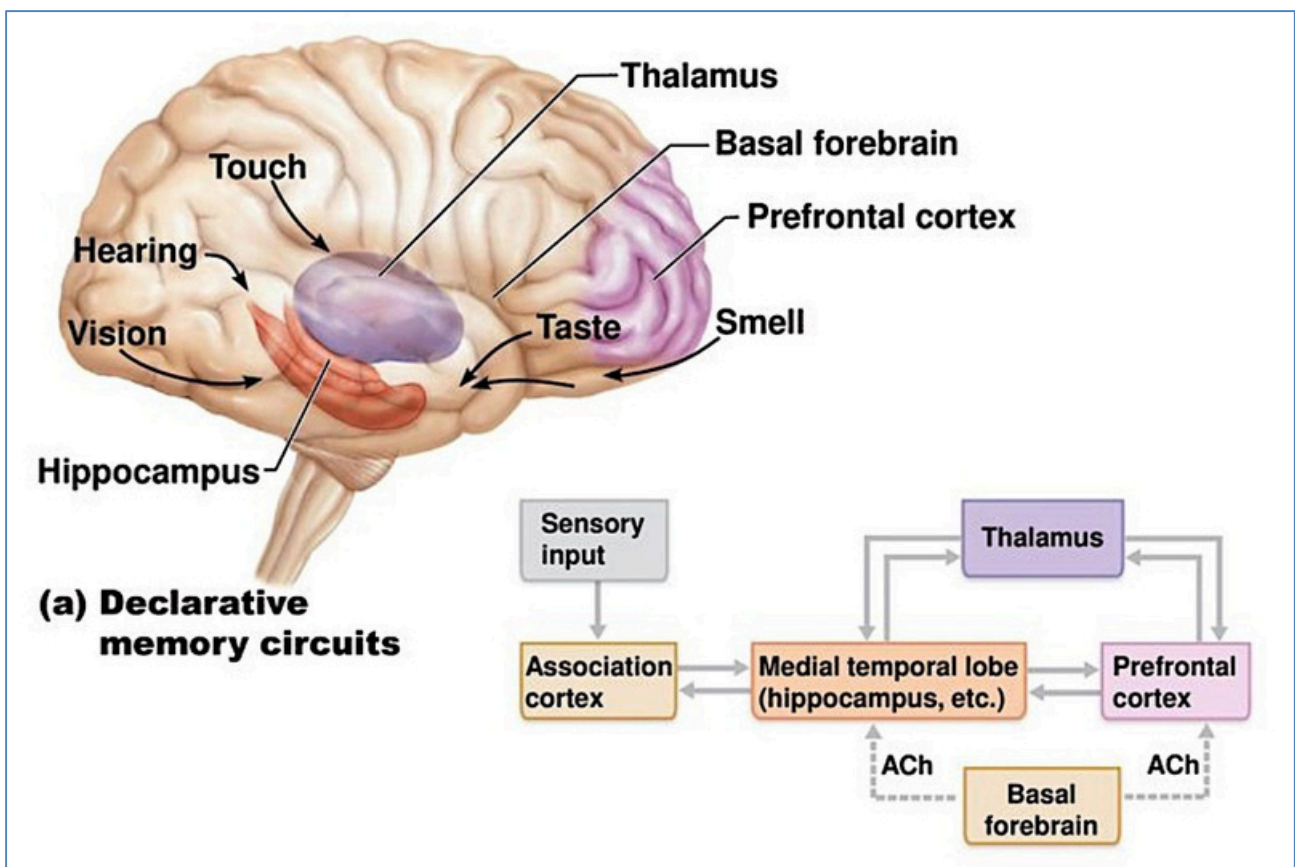
#### § Non-Associative:

- Isolated events not linked to anything



**Circuit of Declarative Memory:**

1. Outside Stimuli:
  - a. Afferent Sensory Info → Sensory Nerves → Spinal Cord → Medulla → Brain (Somatosensory Cortex)
2. Somato-Sensory Cortex:
  - a. Sensory Info is Sorted & Evaluated
  - b. Whatever is the main focus of your attention is Prioritised → Sent to Short-Term Memory In Medial Temporal Lobe (Hippocampus, Amygdala & Surrounding Cortical Areas)
3. Medial Temporal Lobe Areas:
  - a. Role: Memory Consolidation & Retrieval Via Communication with Thalamus & Prefrontal Cortex
  - b. Basal Forebrain:
    - i. Primes the Medial-Temporal Lobe & Prefrontal Cortex with **Acetylcholine** → **Triggers LTP in Hippocampus**
    - ii. → Enables **Long-Term Memory Formation**  
(Note: Loss of ACh input in Alzheimer's → ↓Memory Formation & Retrieval)
4. Feedback to Association Cortices:
  - a. Facilitates **Retrieval of Memories**

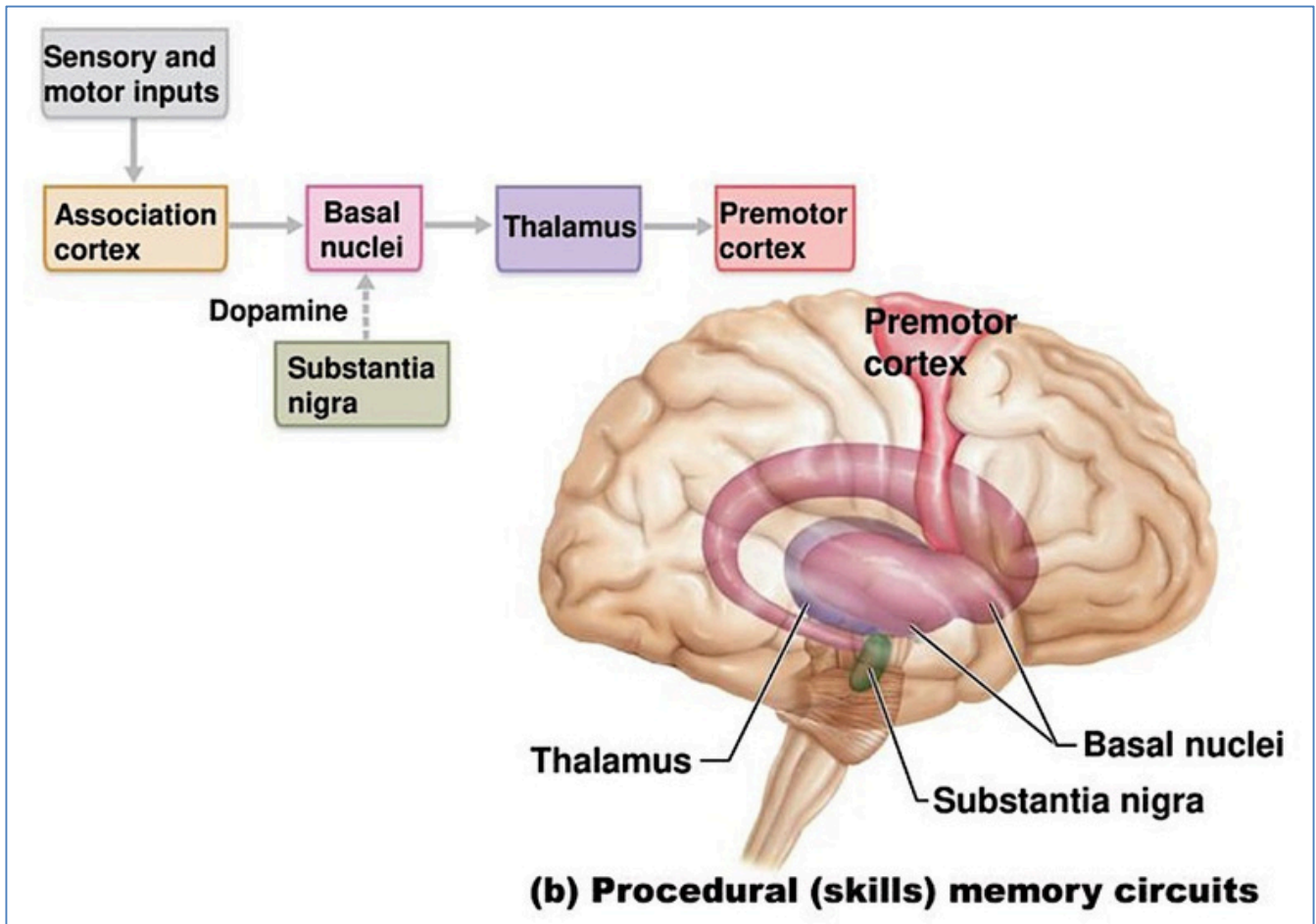


Published by Cecily Houston: <https://slideplayer.com/slide/13703013/>



## Circuit of Non-Declarative (Procedural) Memory:

1. **Sensory & Motor Input:**
  - a. Afferent Sensory-Motor Info → Spinal Cord → Medulla → Brain (Association Cortices)
2. **Association Cortices:**
  - a. (Somatosensory/Visual/Auditory/etc)
  - b. Relay Sensory-Motor Inputs to the Basal Nuclei
3. **Basal Nuclei:**
  - a. Relays Sensory-Motor Inputs through the Thalamus to the Premotor Cortex
  - b. **Substantia-Nigra:**
    - i. Releases **Dopamine** onto Basal Nuclei → primes this circuit  
(Note: Loss of Dopamine Input – IE: Parkinson's – Interferes with Procedural Memory)
4. **Premotor Cortex:**
  - a. Plans & Organises learned Actions



Published by Cecily Houston: <https://slideplayer.com/slide/13703013/>

## Common Memory Disorders:

### - Alzheimer's:

#### o **What?:**

- § Progressive memory loss ("Mild Cognitive Impairment"), Dementia & overwhelming
- § Retrograde & Anterograde Amnesia
- § No real diagnostic tests

#### o **Genetic Aetiology:** (Autosomal Dominant)

- § Amyloid Precursor-Protein Gene
- § Presenilin 1 Gene
- § Presenilin 2 Gene

#### o **Symptoms Due To:**

- § Loss of ACh Innervation onto Prefrontal Cortex & Medial-Temporal Lobe (hippocampus) by Basal Forebrain

#### o **Affects:**

- § Basal Forebrain Cholinergic System (IE: Loss of ACh innervation)
- § Striatum (Caudate & Putamen) – Part of Basal Ganglia
- § Thalamus
- § Cerebellum

#### o **Inability to:**

- § Define simple words
- § Understand use of common items
- § Comprehend numbers

- **IE: A Loss in Declarative Memory**

#### o **Emotional Disturbances:**

- § Confusion
- § Agitation
- § Delusion
- § Paranoia

### - Amnesia:

o Typically Declarative Memory Loss (Therefore Hippocampal Damage)

o Commonly caused by Temporal Lobe Damage (Hippocampus and/or Thalamus)

- § **Note: L-Hippocampus** = Language
- § **R-Hippocampus** = Spatial Memory

#### o Anterograde:

- § - Inability to form new memories from time of Injury/Damage **Onwards**
- § Non-Declarative Memory is Unaffected

#### o Retrograde:

- § - Inability to recall memories from time of Injury/Damage **Backwards**

### - Korsakoff:

o Anterograde & Retrograde Amnesia

o Caused by severe Thiamine Deficiency (Alcoholics & severe Malnutrition)

o → Loss of connection between Temporal Lobes (Hippocampus) & Frontal Cortex

### - Seven 'Sins of Memory' – (Types of Memory Deficits):

o **1: Transience** – Memory 'Fade'

o **2: Absent-Mindedness** – Brushing teeth when already brushed them

o **3: Blocking** – When a memory is on the 'Tip of the tongue'

o **4: Misattribution** – Where you Misremember where you saw/heard something, or even if

o **5: Suggestibility** - Where someone suggests that you saw/heard something (when you didn't) and you 'remember' seeing/hearing it

o **6: Bias (Negative Bias)** - Tend to recall only the Negative Things

o **7: Persistence** - Remember a *Single Failure* rather than multiple successes (Eg: Post Exam Briefings)

o **8: Confabulation** - When you elaborate on a memory

1. Similarities (conceptualisation)

"In what way are they alike?"

A banana and an orange (If incorrect, provide answer as fruit but do not prompt for others)

A table and a chair

A tulip, a rose, and a daisy

Score: Only category responses (fruit, furniture, flowers) are considered correct

Three correct: 3, Two correct: 2, One correct: 1, None correct: 0

2. Lexical fluency (mental flexibility)

"Say as many words as you can beginning with the letter 'S', any words except surnames or proper nouns". (The time allowed is 60 seconds).

Score: Word repetitions or variations (shoe, shoemaker), surnames, or proper nouns are not counted

More than nine words: 3, Six to nine words: 2, Three to five words: 1, Less than three words: 0

3. Motor Series (programming)

"Look carefully at what I'm doing".

(Perform alone three times with left hand, the series

"fist-edge-palm". " Now with your right hand do the same, first with me, then alone."

(Perform the series three times with the patient) "Now do it on your own".

Score: Patient performs six correct consecutive series alone: 3

Patient performs at least three correct consecutive series alone: 2

Patient fails alone, but performs three correct consecutive series with the examiner: 1

Patient cannot perform three consecutive series, even with the examiner: 0

4. Conflicting Instructions (sensitivity to interference)

"Tap twice when I tap once"(Demonstrate with a series of three trials: 1-1-1).

"Tap once when I tap twice"(Demonstrate with a series of three trials: 2-2-2).

(Perform the following series: 1-1-2-1-2-2-2-1-1-2).

Score: No error: 3, One or two errors: 2, More than two errors: 1, Patient taps like the examiner at

least four consecutive times: 0

5. Go-No Go (inhibitory control)

"Tap once when I tap once"(Demonstrate a series of three trials: 1-1-1).

"Do not tap when I tap twice"(Demonstrate a series of three trials: 2-2-2).

(Perform the following series: 1-1-2-1-2-2-2-1-1-2).

Score: No error: 3, One or two errors: 2, More than two errors: 1, Patient taps like the examiner at

least four consecutive times: 0

6. Prehension behaviour (environmental autonomy)

(Place the patient's hand palm up on his/her knees. Without saying anything or looking at the patient, bring your hands close to the patient's hands and touch the palms of both the patient's hands, to see if he/she will spontaneously take them. If the patient takes your hands, try again after asking him/her) "Now, do not take my hand".

Score: Patient does not take the examiner's hands: 3

Patient hesitates and asks what he/she has to do: 2

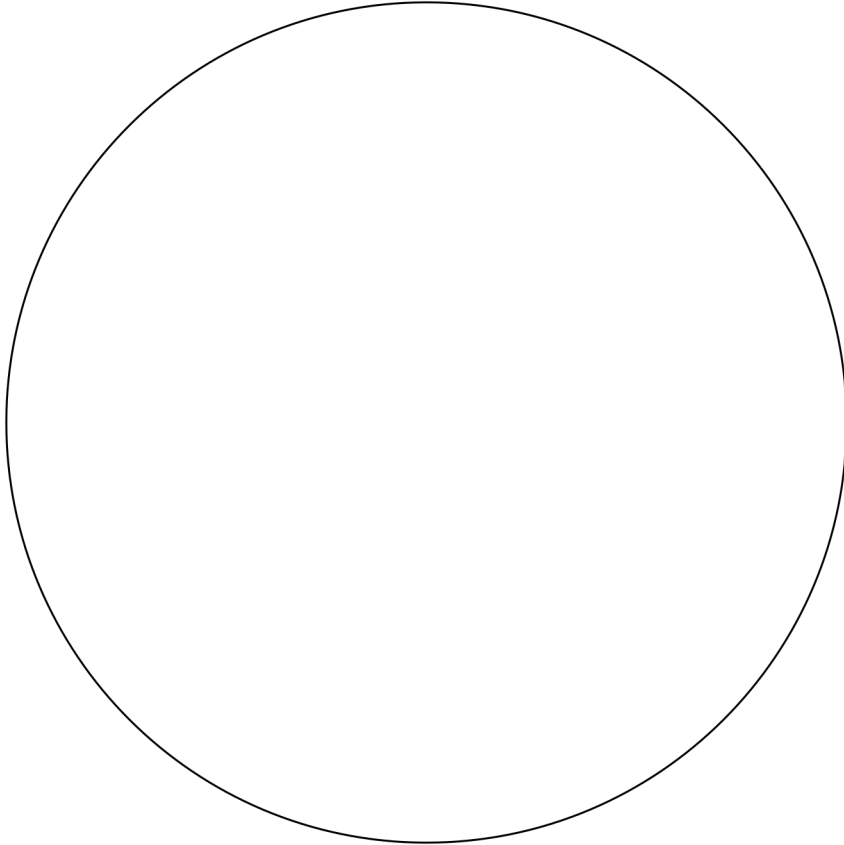
Patient takes the hands without hesitation: 1

Patient takes the examiner's hands even after told not to do so: 0

Cut off for normal performance = 15

Total Score

“Draw in the numbers of a clock face below”.  
“Now draw in the hands that show the time as ‘ten past eleven’.”



#### Scoring

- 10: normal drawing, number and hands in approximately correct positions, hour hand distinctly different from minute hand.
- 9: Slight errors in placement of hands, or one missing number on clock face.
- 8: More noticeable errors in placement of hour and minute hand (off by one number), number spacing showing gaps.
- 7: Placement of hands significantly off course (more than one number), very inappropriate spacing of numbers (eg, all on one side).
- 6: Inappropriate use of clock hands (digital display or circling of numbers despite repeated instructions), crowding of numbers at one end of the clock, or reversal of numbers.
- 5: Perseverative or otherwise inappropriate arrangement of numbers (eg, numbers indicated by dots), hands may be represented but do not clearly point to a number.
- 4: Numbers absent, written outside of clock or in distorted sequence, integrity of clock face is missing, hands not clearly represented or drawn outside of clock.
- 3: Numbers and clock face no longer connected in the drawing, hands not recognisably present.
- 2: Drawing reveals some evidence of instructions received but representation of clock is only vague, inappropriate spatial arrangement of numbers.
- 1: Irrelevant, uninterpretable figure or no attempt.

8 – 10: Normal  
1 – 7: Abnormal

## HUMAN DEVELOPMENT

---

Stages of the Lifespan:

| Phase       | Approx age          | Highlights  |
|-------------|---------------------|---|
| Prenatal    | Conception to birth | Rapid development of both nervous system and body   |
| Infancy     | Birth to 2years     | Motor development, attachment to primary carer  |
| Childhood   | 2-13 years          | Increasing ability to think logically and reason abstractly, refinement of motor skills, peer influences  |
| Adolescence | 13-20 years         | Thinking and reasoning becomes more adult like, identity crisis, continued peer influences                |
| Adulthood   | 20-65 years         | Love, marriage, career, stability and then decrease in physical abilities                                 |
| Old Age     | 65 years to death   | Reflection on one's life work and accomplishments, physical health deteriorates, prepare for death, death |

(Major Developments in) Piaget's 4 Stages of Cognitive Development:

- **(0-2yrs) Sensorimotor:**
  - o Object 'Permanence' (IE: Hide something from them & they won't forget about it)
  - o Deferred Imitation (Where they start to imitate 'seen' movements & activities)
  - o Basic Symbolic Thinking (Using words to represent objects)
- **(2-7yrs) Preoperational:**
  - o Rapid Development of Language
  - o Starting to classify & categorise objects
  - o Egocentric (IE: "The World Revolves Around Me!")
- **(7-11 yrs) Concrete Operational:**
  - o More logical reasoning
  - o Symbolic Thought (IE: If A>B & B>C, therefore A>C)
  - o Understand classification & categorisation
- **(11yrs +) Formal Operational:**
  - o Beginning of Abstract & Scientific Thinking
  - o Problem Solving (Cause/Effect & Hypothesising)

Erikson's 8 Stages of Psychosocial Development:

| Life Stage       | Outcomes  |
|------------------|---|
| Birth-1yr        | Trust vs Mistrust: <i>babies learn <u>either</u> to trust others for basic needs <u>or</u> lack confidence in the care of others</i>                  |
| 1-3 yrs          | Autonomy vs Shame & Doubt: children learn <u>either</u> to be self-sufficient (.e.g feeding, walking, talking) <u>or</u> to doubt their own abilities |
| 3-6yrs           | Initiative vs. Guilt: <b>children want to undertake adult activities, overstep limits and feel guilty</b>   |
| 7-11yrs          | Industry vs. inferiority: <i>children learn to be competent and productive <u>or</u> feel inferior and unable to do things well</i>                   |
| Adolescence      | Identity vs. role confusion: <b>Adolescents figure out who they are <u>or</u> are confused about what roles to play</b>                               |
| Yng Adulthood    | Intimacy vs. Isolation: <i>seek companionship/love with another <u>or</u> become isolated to avoid rejection</i>                                      |
| Middle Adulthood | Generativity vs. Stagnation: <i>contribute to next generation <u>or</u> become stagnant/inactive</i>  |
| Older Adulthood  | Integrity vs. Despair: <b>make sense out of life as a meaningful whole <u>or</u> despair about goals never achieved</b>                               |

**Factors Affecting a Foetus's Health:**

- **Biological:**
  - o Maternal nutrition, age
  - o Genetic abnormalities
  - o Exposure to infection
  - o Congenital malformation
- **Psychological:**
  - o Maternal **Stress & Anxiety** → a risk factor for mental-health issues in the child
- **Social:**
  - o Support for parents
  - o Finance

**INFANCY**

**Major Milestones for Infant Development from age 0-2yrs:**

- **Motor:**
  - o **At Birth:**
    - § The 'Moro' Reflex (Startle Reflex when dropped)
    - § Palmar Grasp Reflex
    - § Sucking Reflex
  - o **From Birth → ≈ 2yrs:**

| Age        | Milestones in Motor Development                               |
|------------|---|
| 2 months   | Lifts head up   |
| 2.5 months | Rolls over  |
| 3 months   | Sits propped up   |
| 6 months   | Sits without support  |
| 6.5 months | Stands holding on   |
| 9 months   | Walks holding on  |
| 10 months  | Stands momentarily  |
| 11 months  | Stands alone  |
| 12 months  | Walks alone   |
| 14 months  | Walks backwards   |
| 20 months  | Walks up steps, can kick balls, adept at independent movement |

**Note:** The above are influenced by many factors (Eg: Siblings, Environment, Full-Term vs Premature)

- **Perceptual:**

| Age               | milestones in perceptual development   |
|-------------------|--|
| From birth        | Indicate taste preference by facial expressions and selective eating behaviours  |
| Hours after birth | Can discriminate sound and visual stimuli, follow a light, capacity for visual fixation  |
| 10 days           | Respond to mother's smell (versus non-mother)  |
| 4 months          | Fully accommodated vision; visual fixation is increased when presented with complex pattern (especially if resembles human face) |
| 6 months          | Majority of infants will not cross over in a visual cliff experiment (ability to perceive 3-D space develops early)              |
| 2 years           | Preference for natural face arrangements   |



- **Emotional Development:**
  - o **0-6 Months:**
    - § Smiling (12-16 weeks)
    - § Laughter
    - § Happier when around familiar people
  - o **7-12 Months:**
    - § Anger & Fear increase
    - § Ability to detect others' emotional expressions
    - § Rely on others' reactions to understand uncertain situation
  - o **12-24 Months:**
    - § Self-conscious emotions appear
    - § Empathic responding appears
  
- **Cognitive Development:**
  - o **2 Processes Help Children Adapt to their Environment:**
    - § **Assimilation:** New information is modified to fit existing mental rules/representations
    - § **Accommodation:** Old mental rules/representations are changed/replaced by new experiences
  
- **Common Clinical Issues:**
  - o **Growth delay:**
    - § Due to Poor Nutrition/Neglect
  - o **Developmental Delay:**
    - § Social
    - § Cognitive
  - o **Abuse:** Sexual
    - § Physical
    - § Emotional
    - § Verbal
    - §

## CHILDHOOD

- **Emotional Development:**
  - o **3-6yrs:**
    - § Increased Emotional Expressiveness
    - § Emotional Conformation despite conflicting emotions
    - § Increased Understanding of others' Feelings
  - o **7-11Yrs:**
    - § Engage in Emotional Self-Regulation
    - § Awareness that people can experience more than one emotion at a time
    - § Empathic Responding increases
  
- **Common Clinical Issues:**
  - o **Biological:**
    - § Cancer
    - § Asthma
  - o **Psychological:**
    - § Bullying
    - § Eating Disorders
  - o **Social:** School-phobia
    - § Separation anxiety
    - §

**Major Milestones for Adolescence**

- **Physical:**
  - o Physical & Sexual Maturation
  - o Reach ultimate height
  - o Develop increased muscle size & pubic hair
  - o Reproductive system capable of reproduction
- **Social:**
  - o Transition from dependency to independence
  - o Desire to seek out new experiences
  - o Begin to define their roles & assert them
  - o General happiness & self-confidence

**Common Clinical Issues:**

- Depression
- Anxiety
- Substance abuse
- Eating disorders
- Risk taking

**ADULTHOOD & OLDER AGE**

**Major Life Events:**

- Marriage & Family
- Work
- Death

**Physical:**

- Strength peaks around 25-30yrs, then declines
- Slow decline in sensory systems

**Psychological:**

- Gradual reduction in cognitive abilities (Flexible thinking/learning new events)
- **Crystallised Knowledge** (IE: Facts & general knowledge) tends not to decline
- However, **Fluid Knowledge** (IE: Abstract reasoning) tends to decline

**Common Clinical Issues:**

- Depression
- Anxiety
- Stress
- Chronic Health Disorders (obesity/diabetes/CVD/arthritis)
- Cancer
- Degenerative Disease



### Grief and Loss

- ◆ Shock
- ◆ Denial
- ◆ Bargaining
- ◆ Loneliness
- ◆ Depression
- ◆ Despair
- ◆ Longing
- ◆ Guilt
- ◆ Anger
- ◆ Unexpected Feelings
- ◆ Acceptance

These stages can occur in any order.

### Impact of Separation & Divorce on Children:

- **0-5 Years:**
  - o Have trouble sleeping
  - o Being clingy and withdrawing
  - o Wetting pants when usually toilet-trained
- **5-8 Years:**
  - o Being reluctant and distressed to leave the other parent
  - o Behaving badly by being abnormally angry
  - o Asking lots of questions and appearing anxious
- **8-12 Years:**
  - o Being angry or bossy with you
  - o Missing the other parent intensely
  - o Being judgemental about who is the bad parent
  - o Stomach aches all the time to be off school
  - o Frequent lying
  - o Stealing
  - o Trying to run away
- **12-16 Years:**
  - o Lack of concentration in school
  - o Blaming parents for separation
  - o Increased acting out
  - o Withdrawing from the family

## PSYCHOLOGY OF PAIN

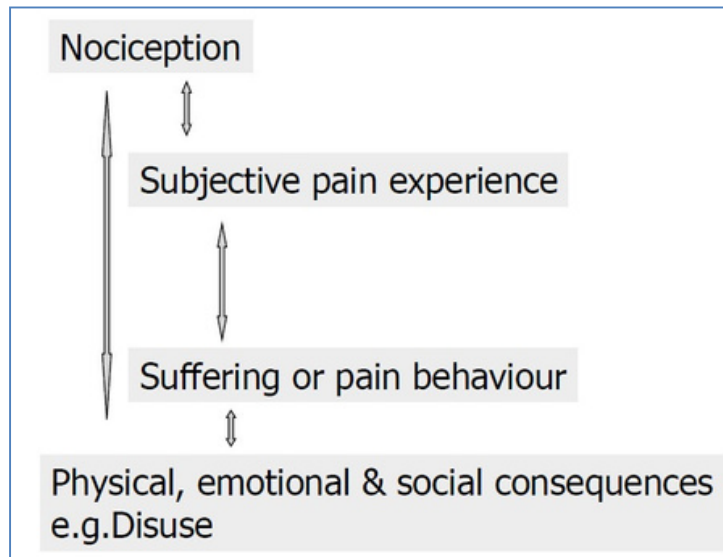
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**Pain:**

- **What is it?**

- o An unpleasant **Sensory & Emotional** experience associated with nociception (Tissue Damage)
- o It is **Subjective & Personal**
- o The *Experience of pain* is Influenced by –
  - § Biological Factors
  - § Psychological Factors
  - § Social/Cultural Circumstances
- o The #1 Reason People Seek Medical Help
- o Unrelieved pain is unhealthy, & can interfere with:
  - § Ability to heal & fight disease
  - § Mood/Sense of Well-Being
  - § Appetite
  - § Mobility
  - § Sleep
  - § Cognition
  - § Behaviour
  - § Overall Quality of Life

- **The Cycle of Pain:**



- **Biological Factors Influencing Pain Experience:**

- o Tissue Damage
- o Associated Injury or Health
- o Fatigue
- o Presence of Analgesia

- **Psychological Factors Influencing Pain Experience:**

- o Pain 'Threshold'
- o Circumstance
  - § Eg: You hurt yourself performing & don't realise because other things are on your mind
  - § Eg: Kid hurts himself...
    - If mum is around, he cries
    - If mum isn't around, he shrugs it off
- o Potential Consequences of *the Reaction* to pain
  - § Eg: Bravery under fire

- **Cultural Factors Influencing Pain Experience:**

- o Endurance may signify *Strength & Worthiness*
  - § Eg: 'Spartan' upbringing
- o Religion – The belief that god will take away your pain
- o Gender

### **Psychogenic 'Pain Disorder':**

- Pain of Clinical Severity
- Pain causes Impairment
- Role for Psychological Factors

### **Forms of Chronic Pain Syndromes:**

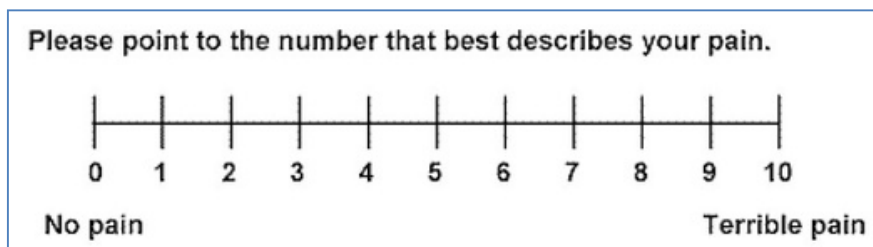
- Chronic Low Back Pain
- Recurrent Abdominal Pain
- Recurrent Headaches
- Non-Specific Musculoskeletal (Myalgic) Pain

### **Associated Psychological Syndromes:**

- Depression
- Anxiety
- Analgesic Dependence

### **Assessment:**

- **Behavioural Interview:**
  - o Q: How does the patient spend their time?
  - o Q: Which activities have Increased/Decreased/Ceased since the onset of pain?
- **Assessment Instruments:**
  - o The "McGill Pain Questionnaire"
  - o Self-Report measures of Pain Perception (Eg: 1-10 pain scale)
  - o Self-Report Mood Scales
  - o Self-Reported functional disability
  - o Self-Monitored Behavioural Observations
  - o Psychiatric Interview
  - o Direct observation of Behaviour



### **Treatment of Chronic Pain Patients:**

- **Psychological Principles:**
  - o Communicate your concern
  - o Tolerate negative responses to therapy
  - o Be Patient
  - o Stress the relevance of the therapy
  - o Make some form of physical contact
- **Treating the Pain *Itself*:**
  - o **Somatic:**
    - § Medication
    - § Physiotherapy
    - § Surgery
  - o **Psychological:**
    - § Cognitive & Behavioural Strategies:
      - Eg: Relaxation
      - Hypnosis
      - Distraction
      - Contingency Management (Patients are rewarded (or, less often, punished) for their behaviour)
    - § Relieve Depression &/or anxiety
    - § Psychotherapies

## GRIEF & LOSS

---

**Grief:**

- Determined by Culture, Age, Gender, Physical & mental Health
- Everyone Grieves differently

**Dimensions & Manifestations of Grief:**

- **Physical:**

- o Pains
- o Sleep disturbances + Weight-Loss/Gain
- o Stomach aches/headaches
- o Extreme fatigue

- o Chest pains
- o Breathlessness

- **Emotional:**

- o Self-blame, Guilt
- o Sadness, Numbness
- o Loneliness, Yearning
- o Numbness, Crying
- o Anxiety

- o Apathy
- o Some people report that loss has been a long time coming – Eg: Terminal Illness)

- **Cognitive:**

- o Nightmares/dreams
- o Memory loss
- o Decreased attention span
- o Mental blocking/confusion
- o Wishing for the event

- **Behavioural:**

- o Regressive/Aggressive
- o Withdrawal
- o Over activity
- o Self-destructive behaviours
- o Obsessive Activity

- **Spiritual:**

- o Utilization of spiritual beliefs
- o Abandonment of spiritual beliefs

**Secondary Sources of Loss/Stress:**

- **Financial problems**
- **Legal issues**
- **Single parent**
- **Loss of role (I've been a husband for 10yrs. Who am I now?)**



## Models of Understanding Grief:

- (Attempt to explain the complex process experienced after significant loss & change)
- Eg: Sigmund Freud
- **Currently: "The Dual Process Model (DPM):**
  - o Acknowledges importance of Grief Work
  - o - **A Stressor-Specific Model of Coping that focuses on 2 Types of Stressors:**
    - § 1: Loss Orientation
    - § 2: Restoration Orientation

| <b>Loss Orientated (Early Phase)</b>    | <b>Restoration Oriented (Late Phase)</b> |
|---|--|
| Grief work                              | Attending to Life Changes                |
| Intrusion of Grief                      | Doing New Things                         |
| Denial/Avoidance of Restoration Changes | Distraction from Grief                   |

## Adjustment:

- Adjustment to loss is a natural & normal process
- Generally, people rely on Informal Resources for Support (Family, Friends, Colleagues, etc)
- Generally, they do Not require Formal Supports (Counselling & Medication)

## Resilience:

- The most Common Trajectory
- Multiple Pathways to resilient outcome
  - o Some Suffer chronic grief symptoms after the 1st year
  - o Recovery trajectory
  - o Very rare to have no symptoms at all
  - o Doesn't seem to be delayed grief reactions
- Pragmatic Coping:
  - o Resilient people tend to express less negative emotion while discussing loss compared to others
  - o Capacity to minimize the expression of grief-related emotions may help to minimize grief
- Protective Factors:
  - o Large Social Network
  - o Positive Emotion

## When To Seek Support:

- YOU feel you need it
- Note: Just because they're sad, doesn't mean they need a social worker
- Maladaptive coping strategies (Eg: Alcohol/drugs/compulsivity/etc)
- Thoughts of suicide or self-destruction
- Feeling alone/helpless

## What does a Bereaved Person need from you?

- Generally, all you need to do is listen to how much it hurts
- Sometimes, just your presence is enough
- Empathy
- Sometimes pharmacological support can help (Eg: Very short course of Benzodiazepines to aid in sleep/anxiety/hyperarousal)

**STRESS & COPING**

**What is Stress?**

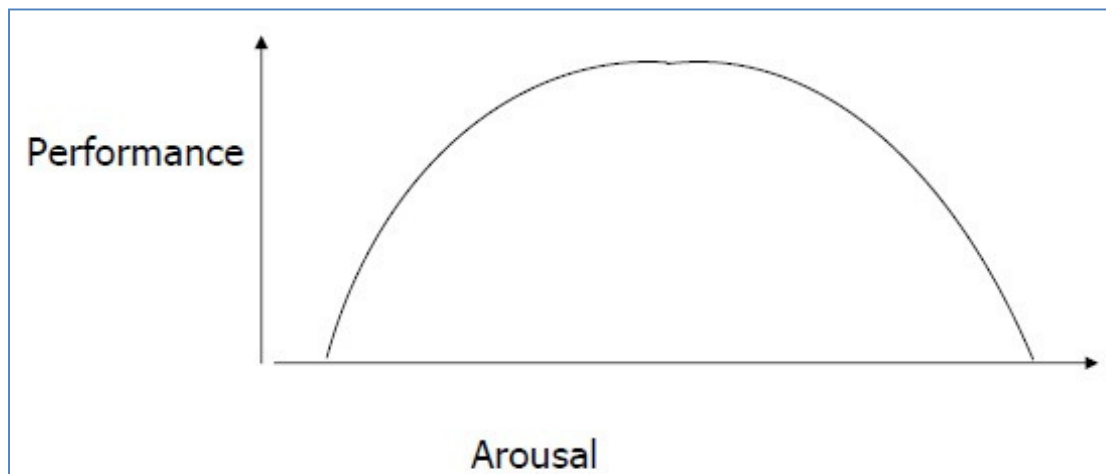
- **Forced Change/Strain/Disequilibrium**
- **Simply** – A gap between demands on you & your resources available to meet them
- **Demands may be:**
  - Biological (Eg: Physical Illness)
    - o Psychological (Eg: Embarrassment/Anxiety)
    - o Social (Eg: Migration)
    - o Cultural (Eg: Culture Shock)
- **3 Possible Responses to Stress:**
  - o **Fight** - take on your opponent
  - o **Flight** - run from your opponent
  - o **Freeze** - don't move and hope you go unnoticed –Can be Maladaptive (Related to Learned Helplessness)

**Fight or Flight Response:**

- **Physiological Changes:**
  - o **↑Adrenaline/Noradrenaline** →
    - § ↑HR
    - § ↑Breathing
    - § ↑O<sub>2</sub>
  - o **↑Cortisol** →
    - § Metabolic changes:
      - Hyperglycaemic Action (Increases Blood [Glucose])
        - o Stimulates Gluconeogenesis (Liver) → Glucose Output by Liver
      - Glucose-Sparing Effect:
        - o Inhibits Glucose Uptake (Muscle & Adipose)
    - Can also stimulates Glycogenesis in Liver (If Blood [Glucose] is high enough)
- **Neurological Changes:**
  - o Heightened arousal

**Yerkes-Dodson Law:**

- “Stress increases level of performance to a certain point, after which it is detrimental to performance”
  - o Note: on this graph, arousal = stress
- IE: There is an optimum level of stress – it allows us to adapt to our environment



**4 Factors Related to Resilience to Stress:**

- **Psychological Coping Strategies:**

o **Adaptive:**

- § Humour
- § Suppression – temporarily avoiding thinking about it – allows you to do the task at hand
- § Sublimation – Channelling your stress into socially acceptable behaviour (boxing bag)

o **Maladaptive:**

- § Repression – Removing the experience from consciousness, while retaining emotion
- § Denial – Refusing to acknowledge the experience
- § Projection – Blaming someone/something else for your conflict
- § Passive Aggression – Unassertively expressing aggression towards others

- **Physical:**

o **Adaptive:**

- § Good Health/Fitness – Helps cope with Fatigue/Pain/Infection/Depression

- **Social**

o **Adaptive:**

- § High Class/Social Status/SES – Eg: Titanic survivors/Hurricanes/Medical Care
- § Support Networks “Affiliation” – Friends/Family/Church (IE: Sharing your problems)

- **Cultural:**

o **Adaptive:**

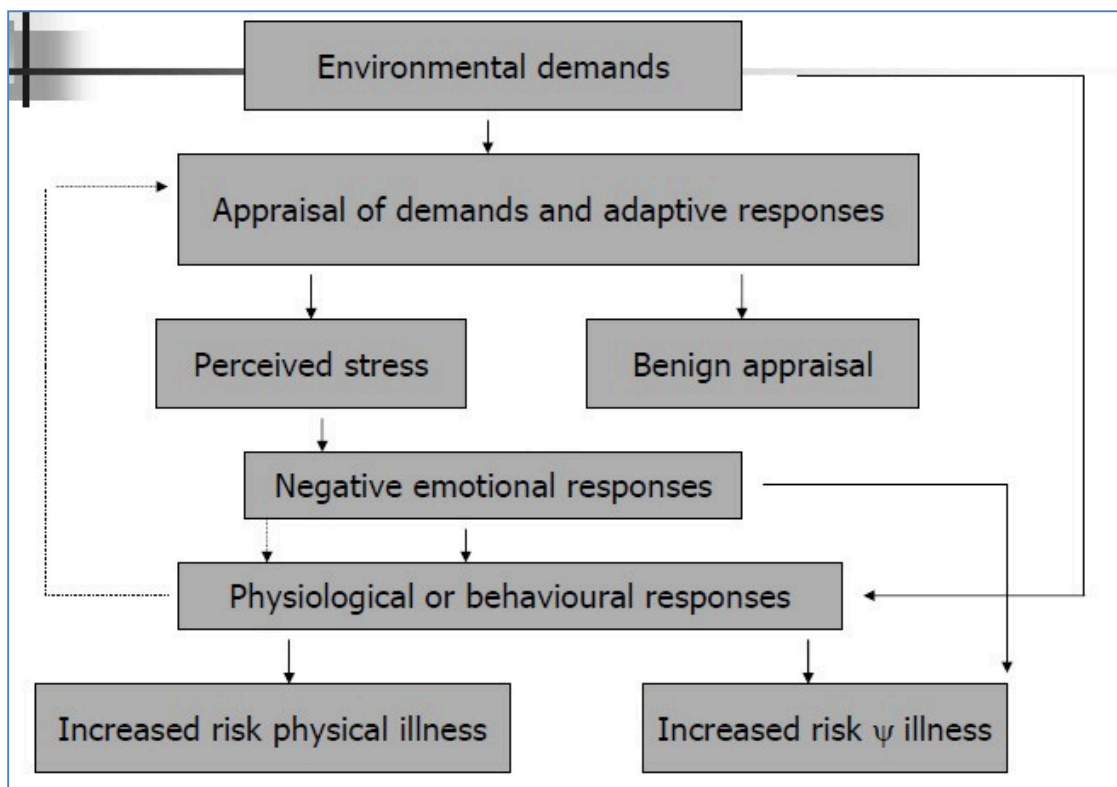
- § Belief Systems – Eg: “It was meant to be” – helps *Acceptance*
- § Inbuilt Support Structures – Eg: Rites of Passage, Funerals, ‘Last Rites’

**\*Dissociation (Aka: “Psychogenic Amnesia”):**

- “The Breakdown of Consciousness, Memory & Perception of Self”

**Taylor’s Model of Stress:**

- **Pathways to Increased Risk of Physical Illness & Psychological Illness:**



## Disorders Associated with Stress:

- **Psychological:**
  - o **Precipitated by Stress:**
    - § PTSD
    - § Dissociative Disorders
      - Psychogenic Amnesia
      - Multiple Personalities
    - § Substance Abuse
  - o **Made Worse By Stress:**
    - § Depression
    - § Major Psychoses (Eg: Schizophrenia)
    - § Addiction Disorders
    - § Eating Disorders
    - § Anxiety Disorders
- **Physical:**
  - o **Precipitated by Stress:**
    - § Vomiting
    - § Pain
    - § Hypertension
    - § Eating Disorders
  - o **Made Worse By Stress:**
    - § Myocardial Infarction
    - § Wound Healing
    - § Gastric Ulcer
    - § Pain

## Stress Management Strategies:

- **4 Cognitive Behavioural strategies for Coping with Stress:**
  - o Relaxation/Slow-Breathing → ↓Physiological Arousal
  - o Reframing (Positive Thinking – the glass is half full, not half empty)
  - o Pleasurable Activities/Distractions – Exercise/Prayer/Music/Driving
  - o Promoting Self-Esteem
- **5 Components of Stress Management Program:**
  - o **Time Management:**
    - § Prioritisation
    - § Scheduling
    - § Execution
  - o **Problem-Solving:**
    - § 1: A good description of the problem must be developed
    - § 2: Possible options for dealing with it
    - § 3: Selection of realistic choices from this list
    - § 4: Rank the selected options based on feasibility
    - § 5: Decide on the one that a) has the best outcome, & b) requires the least resources
  - o **Relaxation:**
    - § Voluntarily releasing tension & reducing arousal:
    - § Eg. Progressive Muscle Relaxation, Slow Breathing, Music
  - o **Behaviour Modification:**
    - § Used to alter problematic patterns of behaviour
      - 1: Recognise problem behaviour
      - 2: Practice good behaviour solo → Show Friend → etc
  - o **Cognitive Therapy:**
    - § Involves identifying & modifying the dysfunctional thoughts that lead to unwanted emotions/behaviours. Eg: Expectations/Perceptions/Attributions/Appraisals
    - § Unhelpful thought patterns must be challenged and replaced with more functional thoughts that allow better coping with life situations
    - § Adopt & implement these new views

## FAMILIES

---

**What is A Family?**

- **Definition:**
  - o "2 or More Persons, One of whom is 15yrs+, related by blood/marriage/adoption/step/fostering, and who usually reside in the same household
  
- **Family Structures:**
  - o Kids in Nuclear Family
  - o Single-Parent
  - o Step/Blended Family
  - o Communal Family
  - o Homosexual couple/family
  - o Etc
  - o **General Distribution in 1st world countries:**
    - § 90% of households = 'Family' Households
    - § 47% of 'Family' Households – Have Children
    - § 90% of 'Family' Households with Children – Have *their own* children
  
- **Roles Within A Family:**
  - o Identified Parent/s
  - o Parentified Child (A Child responsible for Rearing His/Her Siblings)
  - o Black Sheep
  - o Good Child
  - o Distracter
  - o Caretaker (Cinderella)

**Patterns differ by Gender & Marital Status**

- When men marry, they do less
- When women marry, they do more

**Patterns differ by Gender of Child**

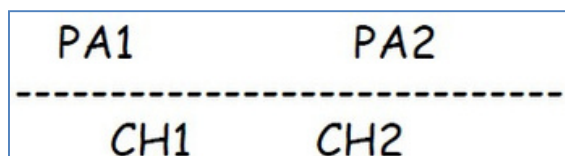
- Men spend more time with sons than daughters
- Families rely on daughters for domestic work

**Patterns differ by Education & Ethnicity**

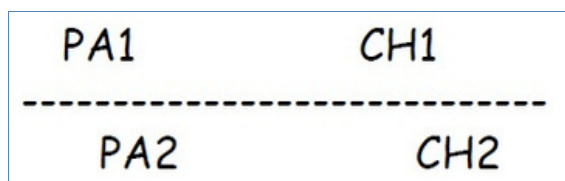
- More education correlated with more sharing
- Mixed patterns by race/ethnicity

- **Family Structure & Hierarchies:**

- o Normal:



- o Family with a Parentified Child:

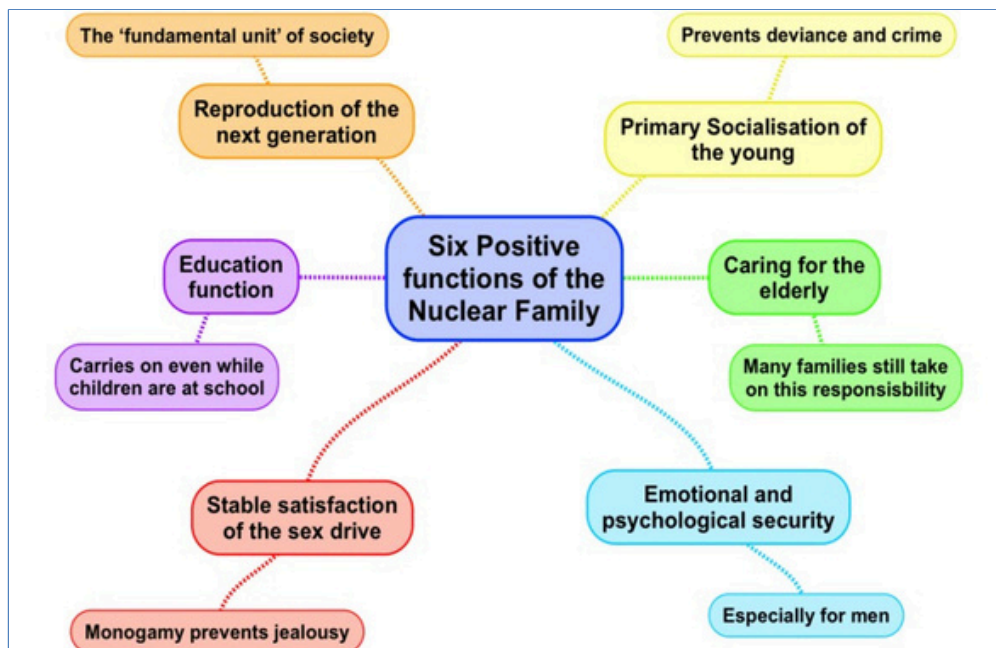


- o No Hierarchies:



## Core Functions of Families:

- **Reproductive - Child Rearing:**
  - o Giving Birth
  - o Feeding
  - o Protection
  - o Socialisation (Setting Social Rules)
  - o Education
- **Love:**
  - o Fulfils the basic human need for Attachment Relationships
  - o Primary Attachment Relationship = Parent-Child
  - o In Adulthood, Attachment becomes sexual = Sexual Partners
    - § (Marriage gives this a moral/legal foundation)
- **Sex:**
  - o Family Determines Who you *Can* & *Can't* have sex with:
    - § Yes: Same Generation, Long-Term Partner
    - § No: Different Generation/Siblings/Cousins/Offspring/Parents/Children
- **An Economic Unit**
  - o Division of Labour:
    - § Income
    - § Childcare
    - § Caring for Ill/Elderly members
    - § Cooking/Cleaning
    - § Home Maintenance
    - § Safety/Protection



## The Life-Cycle of A Family:

- |                           |                         |
|---------------------------|-------------------------|
| ● The child in a family   | ● Birth of siblings     |
| ● Leaving home            |                         |
| ● Courtship and pairing   |                         |
| ● Commitment and marriage | ● Death of grandparents |
| ● Having children         |                         |
|                           | ● Death of parents      |
| ● Children leave home     |                         |
| ● Birth of grandchildren  | ● Death of partner      |

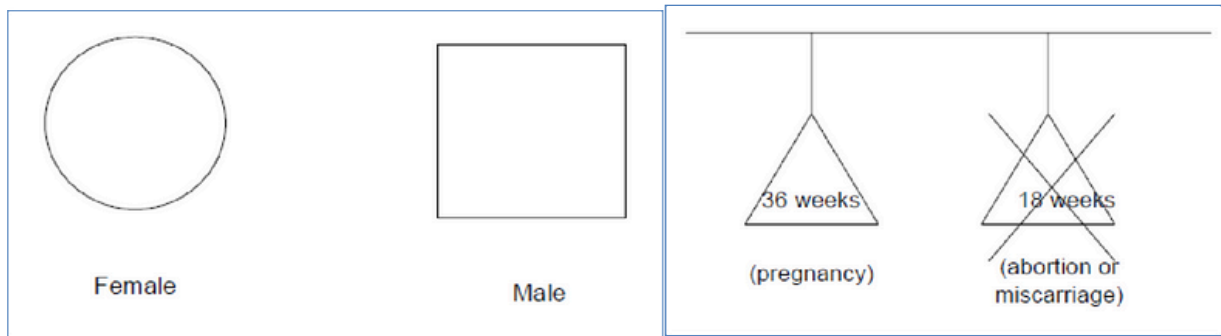


**Genograms: Recording Family Structure/History:**

- Know how to take a family history & record family structure using a genogram
- Similar to Pedigree, but genetics are ignored. Rather Social factors & Medical Conditions

**Key:**

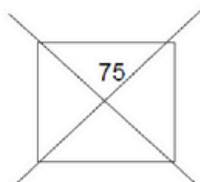
- o Circle = Female
- o Square = Male
- o o Triangle = Pregnant
- o ~~o~~ = Inside shape = Age
- o Clinical Info = Under Name
- o o Cross = Deceased (+ Year)
- o ~~o~~ = Single Patient or Shaded People
- o o ~~o~~ = Dotted Line between People
- o ~~o~~ = Circled Shaded Line between people (+ Year)
- o ~~o~~ = Double-Crossed Line between people (+ Year)
- o Child = Perpendicular Line joining Shape to a 'Relationship Line'
- o Adopted = Dotted Perpendicular Line joining Shape to a 'Relationship Line'



**Genogram – personal details**

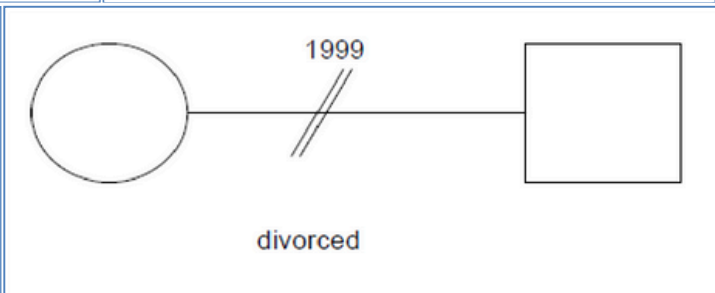
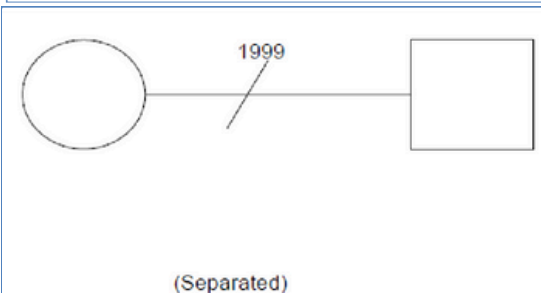
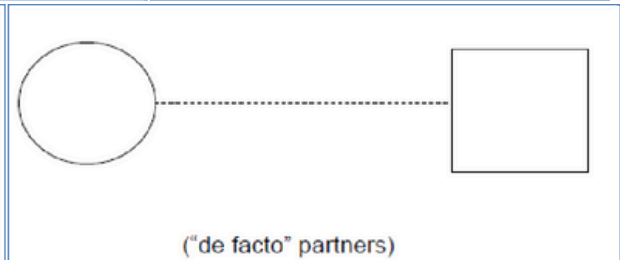
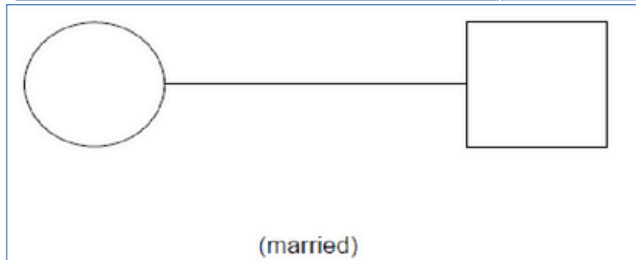
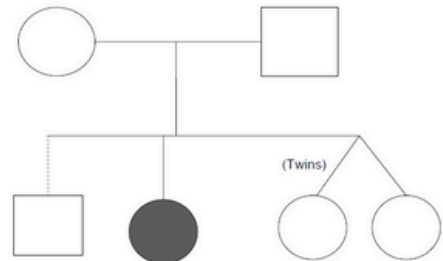


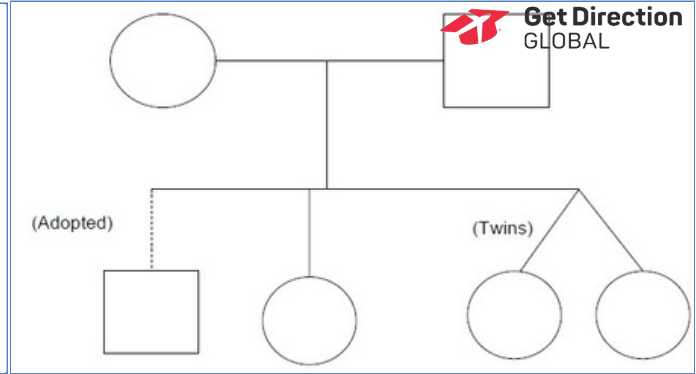
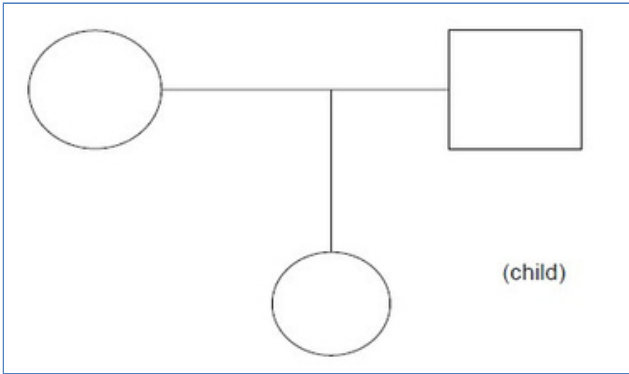
Jane,  
Diabetic



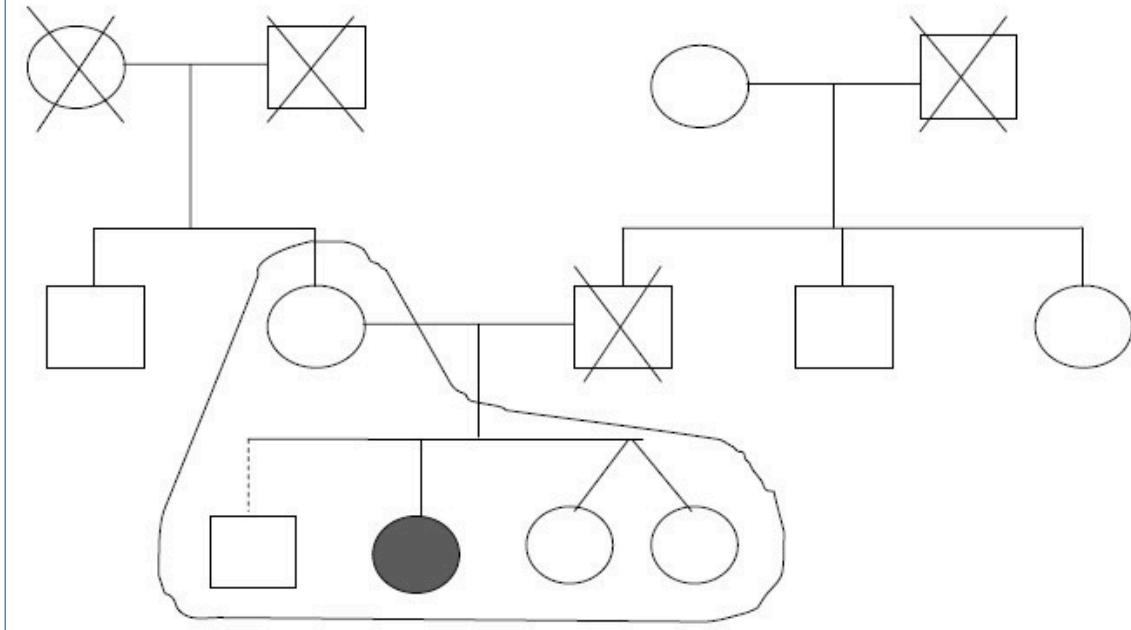
George  
+ 1995  
bowel cancer

**The subject, or index patient**

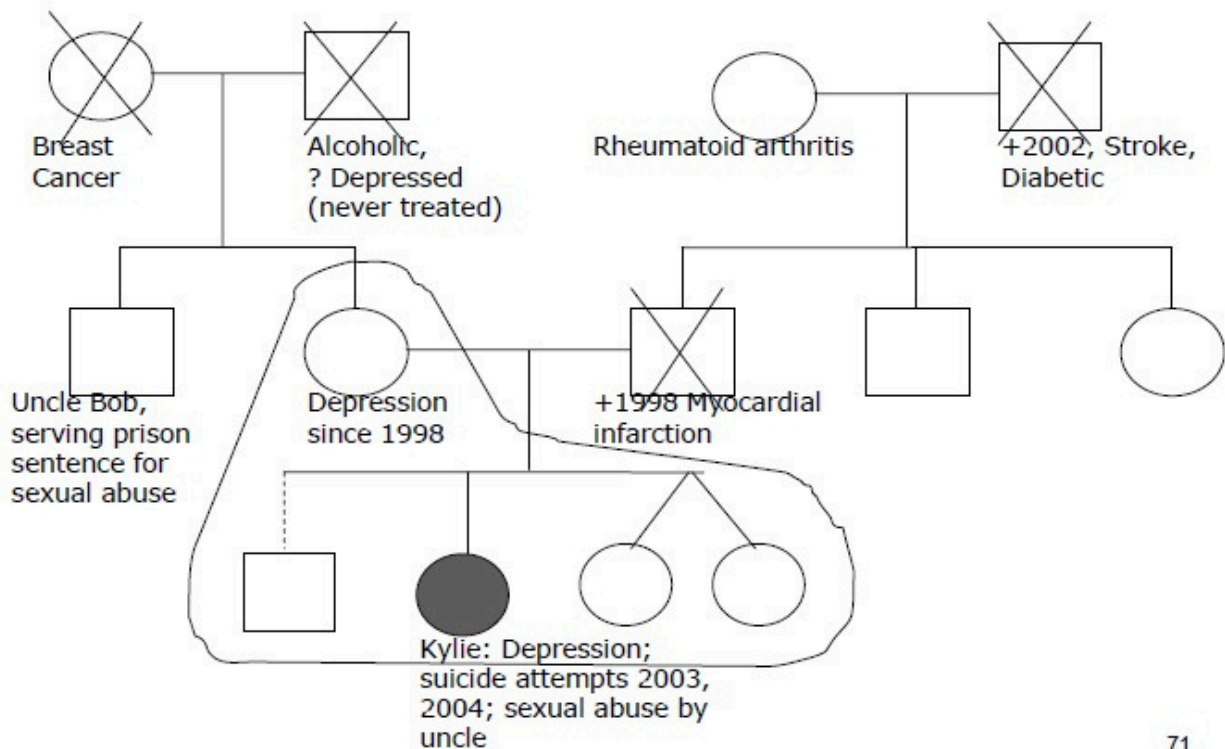




## The household



## Clinically relevant information



## The Family Under Stress:

- **Migration:**
  - o Disruption of kinship systems & Extended Family
- **Economic Stresses:**
  - o The 2-working-parent family
- **Cultural Change:**
  - o Decline of religion in modern society
  - o Loss of indigenous culture
- **Divorce:**
  - o Associated with Poverty & unemployment
  - o Associated with Marrying Young (<20)
  - o Higher SES Favours Marital Stability
  - o No evidence that children are harmed by divorce
  - o **Is a risk factor for Depression/Anxiety/Suicide**
- **Domestic Violence:**
  - o **Clinical Definition:**
    - o § Any violence within a household, including abuse of partners, elders or children
  - o **Prevalence:**
    - § Up to 25% of women will experience domestic violence in their lifetime
  - o **Effects on Victims:**
    - § Physical Injury/Death
    - § Pregnancy Complications
    - § Post-Traumatic Stress Disorder
    - § Depression
    - § Drug/Alcohol use
  - o **Effects on Child Victims:**
    - § Poor School Performance
    - § Violence/Aggression towards peers
    - § Self-Harming Behaviour
    - § Sleep Disturbances
    - § Bedwetting
    - § Anxiety
- **Child Abuse:**
  - o **Effects in Childhood:**
    - § Attachment Problems
    - § Aggression
    - § Self-Harm
    - § Poor Education
  - o **Effects in Adulthood:**
    - § Personality Disorders
    - § Depression / other Mental Illnesses
    - § Drug/Alcohol Abuse
    - § Criminality

## Health Issues in Relation to Family Life:

- **Illness in the Family:**
  - o Cancer
  - o Mental illnesses
  - o Genetic diseases
- **Families, The Sick Role & Caring Behaviour:**
  - o The impact of a child with a chronic severe illness on family life can be severe
    - § Impacts intra-family relationships
    - § Impacts inter-family relationships
    - § Impacts family's economic outlook

## Functional Vs Dysfunctional Families:

- **Functional:**
    - o Each member is encouraged to participate
    - o Family strives to make each member feel loved & valued
    - o Family Members' expectations are realistic & flexible
    - o Handle conflicts well
    - o Family climate founded on trust
  - **Dysfunctional:**
    - o **Exhibit Pseudomutuality & Pseudohostility:**
      - § **Pseudomutuality:**
        - Everyone pretends everything is fine, when it's not
      - § **Pseudohostility:**
        - Mild aggression/slapping/arguing in order to maintain low intimacy (An Avoidance Technique)
    - o **Exhibit 'Marital Schisms':**
      - § The family is in a constant state of disequilibrium through repeated threats of parental separation. Communication consists of defiant and coercive attempts to avoid and mask conflicts. Parents disqualify each other, seek collusions with children thereby excluding the partner.
    - o **Exhibit 'Marital Skew':**

Family equilibrium is achieved through distorted parental relationship. The marriage is not under threat, due to one excessively powerful and dominant parent
    - o **May Tend towards the Extreme Ends of the Enmeshment-Disengagement Continuum:**
      - § At the Enmeshed end – Diffuse Boundaries → 'Over-involvement'
      - § At the Disengaged end – Inappropriately Rigid Boundaries → 'Lack of Involvement'
- Note:** Enmeshment/Disengagement occurs between Adult-Adult/Adult-Child/Child-Child

## Issues with Different Family 'Types':

- **Single-Parent Families:**
  - o Can cause Financial Strain
  - o Parent's Attachment Needs not met
  - o Parent takes on multiple roles
  - o Kid's needs may not be met
- **Blended/Reconstituted Families:**
  - o IE: Parent A & Child + Parent B & Child
  - o Economically Stronger than Single-Parent Families
  - o Stressors/Conflicts result from:
    - § Members' attachment/love needs
    - § Sexual boundaries
    - § Child-rearing Expectations
- **Step Families:**
  - o Child abuse (Sexual/Physical) is prevalent
  - o Issues with Child Disciplining

## INTRODUCTION TO MENTAL HEALTH

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**Common Acronyms:**

- Disorders:
  - o ADHD Attention Deficit Hyperactivity Disorder
  - o CD Conduct Disorder
  - o ASD Autism Spectrum Disorder
  - o ASPD Antisocial Personality Disorder
  - o AN Anorexia Nervosa
  - o BN Bulimia Nervosa
  - o GAD Generalised Anxiety Disorder
  - o MDD Major Depressive Disorder
  - o OCD Obsessive Compulsive Disorder
  - o ODD Oppositional Defiant Disorder
  - o PD Personality Disorder
  - o PTSD Traumatic Stress Disorder
- Clinical:
  - o MSE Mental State Examination
  - o CBT Cognitive Behavioural Therapy
  - o ECT Electroconvulsive Therapy
  - o EPS Extrapyrarnidal Symptoms
- Relevant Chemicals & Drugs:
  - o ETOH Ethanol/Alcohol
  - o DA Dopamine
  - o 5-HT Serotonin
  - o Ach AcetylCholine
  - o MOAI Monoamine Oxidase Inhibitor
  - o SNRI Serotonin and Noradrenaline Reuptake Inhibitors
  - o SSRI Selective Serotonin Reuptake Inhibitor
  - o TCA Tricyclic Antidepressant

**Definitions:**

- Affect:
  - o "The Experience of a Feeling/Emotion that's NOT Related to Bodily Changes"
- Emotion:
  - o "A Mental *And* Physiological reaction to stimuli, experienced as **Affect plus Physiological Changes** in the Body"
- Feelings:
  - o "A partly mental, partly physical response to a person, thing or situation, marked by pleasure, pain, attraction or repulsion"
- Arousal:
  - o "The Visceral (Body's) Response to stimuli; Including Autonomic Nervous System & Neuro-Endocrine Activity"
- Cognition:
  - o "The process of knowing, including both awareness & judgement"
- Behaviour:
  - o "The Active Response to Stimuli (Posture, Facial Expression, Speed, Eye Movement, Vocalisation, etc)"

**History:**

- **Chief Complaint**
  - o Described in patient’s own words
  - o Onset
  - o Duration
  - o Exacerbating Factors
  
- **History of Present Illness**
  - o Reason for seeking help (that day)
  - o Current symptoms (onset, duration and course)
  - o Stressors
  - o Supports (Home, family, friends, financial)
  - o Functional status
  - o Relevant associated symptoms (pertinent positives and negatives)
  
- **Current medication:**
  - o Medications
  - o Dosages
  - o Adherence
  
- **Safety screen:**
  - o A danger to self or others?
  - o Any dependents at home (Eg: children, pets)
  - o Ability to drive safely
  - o Ability to care for self (Eg: eating, hygiene, taking medications)
  
- **Psychiatric Functional Inquiry**
  - o **Mood:**
    - § Eg: depression, mania
  - o **Anxiety:**
    - § Eg: worries, panic attacks, phobias, history of trauma
  - o **Obsessive-compulsive:**
    - § obsessions, compulsions
  - o **Psychosis:**
    - § Eg: hallucinations, delusions
  - o **Risk assessment:**
    - § Eg: suicidal ideation, plan, intent, history of attempts
  - o **Organic:**
    - § Eg: ETOH/drug use or withdrawal, illness, dementia
  
- **Past Psychiatric History**
  - o All previous psychiatric diagnoses
  - o Past treatments (pharmacological and nonpharmacological), and hospitalizations
  - o Past suicide attempts?
  
  - o Past substance use/abuse
  - o Previous problems/encounters with the legal system
  
- **Past Medical/Surgical History**
  - o All medical, surgical and psychosomatic illnesses
  - o Current medications
  - o Allergies

- **Family Psychiatric/Medical History**
  - o **Family members:** including relationships with parents/siblings
  - o **Family psychiatric history:** any past or current psychiatric illnesses, suicide, substance abuse
  
- **Developmental History:**
  - o Complications of pregnancy/delivery
  - o Domestic violence
  - o Maternal substance use and exposures
  - o Family stability
  - o Attachment figures
  - o School performance
  
  - o Peer relationships
  - o Childhood crime
  - o Late childhood drugs/alcohol/legal problems,
  - o History of physical or sexual abuse
  - o Adult Occupations
  - o Psychosexual history (puberty, first sexual encounter, relationships, gender, sexual dysfunction)



- **(Note: Not a series of structured questions; Rather – It is just a momentary Snapshot of mental status)**
- **Appearance:**
  - o posture, gait, grooming, hygiene, manner of dress, body habitus, facial expression, chronological vs apparent age, relaxed or in distress
- **Behaviour:**
  - o psychomotor activity (agitation, retardation), abnormal movements or lack thereof (tremors, akathisia, tardive dyskinesia, paralysis), attention level and eye contact, attitude toward examiner (ability to interact, level of cooperation)
- **Mood:**
  - o subjective emotional state (in patient's own words)
- **Affect: – (Look to see whether their Affect is congruent with Mood)**
  - o objective emotional state inferred from emotional responses to stimuli; described in terms of:
    - § quality (euthymic, depressed, elevated, anxious, irritable)
    - § range (full, restricted, flat, blunted)
    - § stability (fixed, labile)
    - § mood congruence (inferred by comparing the patient's subjective mood with their affect)
    - § appropriateness to thought content
- **Speech:**
  - o rate (Eg: pressured, slowed), rhythm/fluency,
  - o volume, tone, articulation, quantity, spontaneity
- **Thought Form: – Does their thinking make sense?**
  - o coherence (coherent, incoherent)
  - o **stream** (logical, illogical)
    - § **goal-directed:** clearly answers questions in a linear, organized, logical fashion
    - § **circumstantial:** speech that is indirect and delayed in reaching its goal; eventually comes back to the point
    - § **tangential:** speech is oblique or irrelevant; does not come back to the original point
    - § **loosening of associations/derailment:** illogical shifting between topics
    - § **flight of ideas:** quickly skipping from one idea to another where the ideas are marginally connected, usually associated with mania
    - § **word salad:** jumble of words lacking meaning or logical coherence
  - o **perseveration:** repetition of the same verbal or motor response to stimuli
  - o **echolalia:** repetition of phrases or words spoken by someone else
  - o **thought blocking:** sudden cessation of flow of thought and speech
  - o **clang associations:** speech based on sound such as rhyming or punning
  - o **neologism:** use of novel words or of existing words in a novel fashion
- **Thought Content:**
  - o suicidal ideation/homicidal ideation
  - o preoccupations, ruminations: reflections/thoughts at length, not fixed or false
  - o Obsession: recurrent and persistent thought, impulse, or image which is intrusive or inappropriate and unwanted
  - o magical thinking (Eg: superstition, belief that thinking something will make it happen), normal in children and certain cultures
  - o ideas of reference: similar to delusion of reference, but less fixed (the reality of the belief is questioned)
  - o overvalued ideas: unusual/odd beliefs that are not of delusional proportions
  - o first rank symptoms of schizophrenia: thought insertion/withdrawal/broadcasting
  - o delusion: a fixed false belief that is out of keeping with a person's cultural or religious background and is firmly held despite incontrovertible proof to the contrary

- **Perceptions:**
  - o Hallucination: sensory perception in the absence of external stimuli
  - o Auditory (most common), visual, gustatory, olfactory, tactile
  - o Illusion: misperception of a real external stimulus (such as mistaking a coat on a rack as a person)
  - o Depersonalization: change in self-awareness such that the person feels unreal, distant, or detached from his or her body, and/or unable to feel emotion
  - o Derealization: feeling that the world/outer environment is unreal
  
- **Cognition:**
  - o level of consciousness (alert, reduced, obtunded)
  - o orientation: time, place, person
  - o memory: immediate, recent, remote
  - o global evaluation of intellect (below average, average, above average, in keeping with person's education)
  - o intellectual functions: attention, concentration, calculation, abstraction (proverb interpretation, similarities test), language, communication
  - o MMSE/MOCA useful as standard screening assessments of cognition
  
- **Insight: – (Do they realise that something's wrong?)**
  - o patient's ability to realize that he or she has a physical or mental illness and to understand its implications (none, limited, partial, full)
  
- **Judgement:**
  - o patient's ability to understand relationships between facts and draw conclusions that determine one's actions

## COMMON PSYCHIATRIC CONDITIONS

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**Overview of General Classes of Psychiatric Disorders:**

|  |  |
|--|--|
| <p><b>Anxiety Disorders</b><br/>(Respond to certain objects or situations with fear and dread, as well as with physical signs of anxiety or nervousness, such as a rapid heartbeat and sweating - diagnosed if the person's response is not appropriate for the situation, if the person cannot control the response, or if the anxiety interferes with normal functioning)</p>  | <p>Generalised Anxiety Disorder<br/>PTSD (Post Traumatic Stress Disorder)<br/>OCD (Obsessive-Compulsive Disorder)<br/>Panic Disorder<br/>Social Anxiety Disorder<br/>Specific Phobias (</p>  |
| <p><b>Mood Disorders (Affective Disorders)</b><br/>(Persistent feelings of sadness or periods of feeling overly happy, or fluctuations from extreme to extreme)</p>  | <p>Depression<br/>Mania<br/>Bipolar (Manic Depressive)<br/>Schizophrenia (+ Related)</p>   |
| <p><b>Psychotic Disorders</b><br/>distorted awareness and thinking. Two of the most common symptoms of psychotic disorders are hallucinations -- the experience of images or sounds that are not real, such as hearing voices -- and delusions, which are false beliefs that the ill person accepts as true, despite evidence to the contrary.</p>   | <p>Brief Psychotic Disorder<br/>Delusional Disorder<br/>Substance-Induced Psychosis<br/>Paraphrenia</p>  |
| <p><b>Eating Disorders</b></p>   | <p>Anorexia Nervosa<br/>Bulimia Nervosa</p>  |
| <p><b>Impulse Control &amp; Addiction Disorders</b><br/>(unable to resist urges, or impulses, to perform acts that could be harmful to themselves or others, and cause them to ignore responsibilities &amp; relationships.)</p>   | <p>Pyromania (Starting Fires)<br/>Kleptomania (Stealing)<br/>Compulsive Gambling/<br/>Alcohol/Drugs</p>  |
| <p><b>Personality Disorders</b><br/>(extreme and inflexible personality traits that are distressing to the person and/or cause problems in work, school, or social relationships. In addition, the person's patterns of thinking and behaviour significantly differ from the expectations of society and are so rigid that they interfere with the person's normal functioning.)</p>   | <p>Antisocial Personality Disorder<br/>Borderline Personality Disorder<br/>Histrionic Personality Disorder<br/>Narcissistic Personality Disorder<br/>Avoidant Personality Disorder<br/>Paranoid Personality Disorder<br/>Schizoid Personality Disorder</p> |
| <p><b>Adjustment Disorder</b><br/>(when a person develops emotional or behavioural symptoms in response to a stressful event or situation. Adjustment disorder usually begins within three months of the event or situation and ends within six months after the stressor stops or is eliminated.)</p>   | <p>Adjustment Disorder with...</p> <ul style="list-style-type: none"> <li>- Depressed mood</li> <li>- Anxiety</li> <li>- Mixed anxiety/depression</li> <li>- Disturbance of conduct</li> </ul>   |
| <p><b>Dissociative Disorders</b><br/>(severe disturbances or changes in memory, consciousness, identity, and general awareness of themselves and their surroundings. These disorders usually are associated with overwhelming stress, which may be the result of traumatic events, accidents, or disasters that may be experienced or witnessed by the individual.)</p> <p><b>Factitious Disorder:</b><br/>Factitious disorder is a <b>serious mental disorder in which someone deceives others by appearing sick</b>, by purposely getting sick or by self-injury. Factitious disorder also can happen when family members or caregivers falsely present others, such as children, as being ill, injured or impaired.</p> | <p>Dissociative Identity Disorder (AKA: Multiple Personality Disorder/ Split Personality)<br/>Depersonalization Disorder<br/>Dissociative Amnesia</p>  |
| <p></p>  | <p>Imposed on self<br/>Imposed on another</p>  |

**Screening For Suicide:**

- **Must ask EVERY patient**
- "Have you had any thoughts of wanting to harm or kill yourself?"
- **Suicidal Ideation?:**
  - o **Passive Ideation:**
    - § would rather not be alive but has no active plan for suicide
    - § Eg: "I'd rather not wake up" or "I would not mind if a car hit me"
  - o **Active Ideation:**
    - § "I think about killing myself"
- **Risk Assessment:**
  - o **plan:** "Do you have a plan as to how you would end your life?"
  - o **past attempts:** "Do you think you would actually attempt to carry out the plan?" "If not, why not?"
- **Assess Current Ideation:**
  - o **Onset and frequency of thoughts:** "When did this start?" Or "How often do you have these thoughts?"
  - o **Control over suicidal ideation:** "How do you cope when you have these thoughts?" "Could you call someone for help?"
  - o **Intended lethality:** "What do you think would happen if you actually took those pills?"
  - o **Access to means:** "Do you want to end your life?" Or "Do you wish to kill yourself?" "What do you think you would go to?"
  - o **Intention:** "Do you want to end your life?" Or "Do you wish to kill yourself?"
  - o **Time and place:** "Have you picked a date and place? Is it in an isolated location?"
  - o **Provocative factors:** "What makes you feel worse (Eg: Being alone)?"
  - o **Protective factors:** "What keeps you alive (Eg: Friends, family, pets, faith, therapist)?"
  - o **Final arrangements:** "Have you written a suicide note? Made a will? Given away your belongings?"
  - o **Practiced suicide or aborted attempts:** "Have you ever put the gun to your head?" "Held the medications in your hand?" "Stood at the bridge?"
  - o **Ambivalence:** "I wonder if there is a part of you that wants to live, given that you came here for help?"

**Assessment of Suicide Attempt:**

- setting (isolated vs others present/chance of discovery)
- planned vs impulsive attempt, triggers/stressors
- substance use/intoxication
- medical attention (brought in by another person vs brought in by self to ED)
- time lag from suicide attempt to ED arrival
- expectation of lethality, dying
- reaction to survival (guilt/remorse vs disappointment/self-blame)

**Common Clinical Presentation:**

- hopelessness
- anhedonia
- insomnia
- severe anxiety
- impaired concentration
- psychomotor agitation
- panic attacks

## Suicide Risk Factors Mnemonic: 'SADPERSONS':

- Sex (male)
- Age >60 yr old
- Depression
- Previous attempts
- Ethanol abuse
- Rational thinking loss (delusions, hallucinations, hopelessness)
- Suicide in family
- Organized plan
- No spouse (no support systems)
- Serious illness, intractable pain

## Management of Suicidal Patients:

- **High Risk:**
  - o **Who?** Patients with a plan and intention to act on the plan, access to lethal means, recent social stressors, and symptoms suggestive of a psychiatric disorder
  - o Strongly consider hospitalisation
  - o ~~Never have the patient alone~~ Remove the dangerous items from the room
  - o If patient refuses hospitalisation, may require an involuntary treatment order (or equivalent)
- **Lower Risk:**
  - o **Who?** patients who are not actively suicidal, with no plan or access to lethal means
  - o Discuss protective factors
  - o remind them of what they live for
  - o Make a safety plan:
    - § Agreement not harm themselves
    - § avoid alcohol, drugs, and situations that may trigger suicidal thoughts
    - § follow-up with you at a designated time
    - § Contingency planning:
      - contact a health care worker
      - call a crisis line
      - or go to an emergency department if their suicidal feelings return or intensify
- **Associated Depression:**
  - o May require treatment with SSRI/SNRI
  - o May require hospitalization if severe
- **Associated Alcohol Abuse:**
  - o Thiamine if necessary
  - o May require admission for alcohol withdrawal management +/- Benzodiazepine
- **Associated Schizophrenia/Psychosis:**
  - o May require hospitalisation for psychosis management

**Affective Disorders = Disorders in which there is a *Major Disruption of Mood*:**

- **MAJOR DEPRESSION:**
  - o Mental disorder of **SUSTAINED** Depression of Mood, Loneliness, Despair, Insomnia, Appetite Loss, and feelings of Worthlessness, Guilt, & Hopelessness
- **BIPOLAR DISORDER (AKA: Manic-Depressive Disorder):**
  - o Mental disorder characterised by **PERIODS** of abnormally Elevated Mood (Hyperactivity/Talkativeness/Insomnia/↑Libido; and **PERIODS** of Depressed Mood

**Aetiology:**

- Recognised that Pts with Depression have **Lower** levels of NA & 5HT in the CSF
  - o IE: Reinforced that *Deficient* NE & 5HT → Depression
- + Environmental & Social factors

**Current Hypotheses:**

- **\*The Amine (Monoamine) Hypothesis:**
  - o Mood Disorders are due to a **Deficiency (Depression)** or **Surplus (Mania)** of at least one of three monoamine neurotransmitters (**Norepinephrine, Serotonin, or Dopamine**) in their respective pathways (**NE & 5HT are the Relevant ones here**)
  - o (NE/5HT Deficiency → Depression)
    - § ∴ **Anti-Depressant Drugs all act to → Increase NA &/or 5HT Signalling**
  - o (NE/5HT Surplus → Mania)

**\*Antidepressant Drug Groups: (Anti-Depressant Drugs all act to → ↑NA and/or 5HT Signalling)**

- **Tricyclic Antidepressants (TCA's)(3-Ringed Structures); & Tetracyclics (4-Ringed Structures):**
  - o Block BOTH Noradrenaline AND Serotonin (5HT) Reuptake
- **Selective Serotonin Reuptake Inhibitors (SSRI's):**
  - o Block Serotonin (5HT) Reuptake
- **Selective Noradrenaline Reuptake Inhibitors (SNRI's):**
  - o Block Noradrenaline Reuptake
- **Monoamine Oxidase Inhibitors (MAOI's):**
  - o Inhibit Monoamine Oxidase Function:
    - § (IE: ↓Catecholamine Breakdown → Surplus of NE and/or 5HT → Improved Mood)

**\*Bipolar Drugs:**

- **Lithium (Lithium Carbonate):**
  - o Used to stabilise Bipolar Disorder (Manic/Depressive)
    - § - IE: Counteract both Mania & Depression
  - o **Mechanism of Action:**
    - § Increases Serotonin Levels → Counteracts Depression
    - § Decreases Noradrenaline Levels → Counteracts Mania
- **Valproate:**
  - o **Mechanism of Action:**
    - § Enhance GABA's Action → Thought to Stabilise Neurotransmission in this pathway
    - § → Prevents mood swings & Reduces Mania
  - o **Note: Less toxic than Lithium**

**Key Components Of Depression:**

- Depressed mood
- Increased stress/sensitivity
- Psychomotor change
- Anhedonia
- Neurovegetative signs
- Impaired executive learning & cognitive functions

**Risk Factors:**

- **Sex:** F>M, 2:1
- **Family history:** depression, alcohol abuse, suicide attempt or completion
- **Childhood experiences:** loss of parent before age 11, negative home environment (abuse, neglect)
- **Personality:** neuroticism, insecure, dependent, obsessional
- **Recent stressors:** illness, financial, legal, relational, academic
- **Lack of intimate, confiding relationships or social isolation**
- **Low socioeconomic status**

**K10 Scale – Quick Screening Tool:**

- **10 Questions: Over the Past MONTH, How Often did you Feel...**
  - o Tired for no good reason?
  - o Worries?  
Uncontrollably Nervous?  
Hopeless?
  - o Restless/Fidgety?
  - o Uncontrollably Restless/Fidgety?
  - o Depressed?
  - o Uncontrollably Sad?
  - o Everything was an effort?
- **5 Possible Answers Each:**
  - o None – 1pt /A Little – 2pts /Some – 3pts /Most – 4pts /All – 5pts; of the time
- **Score Range 10-50 – Risk of Anxiety/Depressive Disorder:**
  - o 0-15 Low; 16-30 Mod; 30-50 High

**DSM-5 Diagnostic Criteria for MAJOR DEPRESSIVE EPISODES:**

- **A) ≥5 of the following symptoms have been present during the same 2 wk period and represent a change from previous functioning; at least one of the symptoms is either 1) depressed mood or 2) loss of interest or pleasure (anhedonia):**
  - o Depressed mood most of the day, nearly every day, as indicated by either subjective report or observation made by others
  - o Markedly reduced interest or pleasure in all, or almost all, activities most of the day, nearly every day
  - o Significant unintentional weight loss/weight gain, or decrease/increase in appetite nearly every day
  - o Insomnia or hypersomnia nearly every day
  - o Psychomotor agitation or retardation nearly every day
  - o Fatigue or loss of energy nearly every day
  - o Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
  - o Diminished ability to think or concentrate, or indecisiveness, nearly every day
  - o Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide
- **B) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **C) the episode is not attributable to the direct physiological effects of a substance or a GMC**



### **DSM-5 Diagnostic Criteria for MAJOR DEPRESSIVE DISORDER:**

- **A) presence of a Major Depressive Episode (Defined above)**
- **B) the MDE is not better accounted for by schizoaffective disorder and is not superimposed on schizophrenia, schizophreniform disorder, delusional disorder, or psychotic disorder NOS**
- **C) there has never been a manic episode or a hypomanic episode**
  - o **Note:** This exclusion does not apply if all of the manic-like, or hypomanic-like episodes are substance or treatment-induced or are due to the direct physiological effects of another medical condition
  - o **Specifiers:** with anxious distress, mixed features, melancholic features, atypical features, mood-congruent psychotic features, mood-incongruent psychotic features, catatonia, peripartum onset, seasonal pattern
  - o Single vs recurrent is an episode descriptor that carries prognostic significance. Recurrent is classified as the patient having two or more distinct MDE episodes; to be considered separate the patient must have gone 2 consecutive months without meeting criteria

### **DSM-5 Diagnostic Criteria for PERSISTENT DEPRESSIVE DISORDER: (Previously 'Dysthymia'):**

- **A) depressed mood for most of the day, for more days than not, as indicated either by subjective account or observation by others, for  $\geq 2$  yr**
  - o **Note:** in children and adolescents, mood can be irritable and duration must be at least 1 yr
- **B) presence, while depressed, of  $\geq 2$  of the following:**
  - o poor appetite or overeating
  - o insomnia or hypersomnia
  - o low energy or fatigue
  - o low self-esteem
  - o poor concentration or difficulty making decisions
  - o feelings of hopelessness
- **C) during the 2 yr period (1 yr for children or adolescents) of the disturbance, the person has never been without the symptoms in criteria A and B for more than 2 months at a time**
- **D) criteria for a major depressive disorder may be continuously present for 2 yr**
- **E) there has never been a manic episode or a hypomanic episode, and criteria have never been met for cyclothymic disorder**
- **F) the disturbance is not better explained by a persistent schizoaffective disorder, schizophrenia, delusional disorder, or other specified or unspecified schizophrenia spectrum and other psychotic disorder**
- **G) the symptoms are not due to the direct physiological effects of a substance or another medical condition**
- **H) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning**

### **Treatment:**

- **Lifestyle:**
  - o Exercise
  - o Stress reduction
- **Biological:**
  - o SSRIs/SNRI - Eg: Sertraline, escitalopram, venlafaxine, mirtazapine
  - o Other augmenting agents – Eg: Bupropion, Quetiapine, aripiprazole, lithium
  - o ECT (Considered in severe, psychotic or refractory major depressive disorder)
- **Psychological:**
  - o CBT
  - o Family therapy
  - o Group therapy
- **Social:** Vocational rehab
  - o Social skills training
  - o

**General Overview**

- = **Non-psychotic depression occurring within 4-wks following delivery**
- **Typically lasts 2-6mths**
- **If severe, can lead to aversion to baby, suicidal and infanticidal ideation**
- Affects 12-15% of mothers
- <50% recurrence rate

**Presentation:**

- Anxiety/Depression
- Referral from external source (Midwives, community health)
- Inability to cope
- Husband/family member presents with concerns
- Somatic Symptoms
- Issues with children
- Irritability & Tearfulness
- Avoiding personal discussion
- Denial
- Delayed attachment
- Negative feelings to infant

**Risk Factors:**

- Minority groups
- Lower Socio-economic status
- Younger age
- Absence of partner
- Medical complications
- Marital problems
- History of abuse
- Not breast-feeding
- No job to return to
- Problematic births
- Reluctance to seek help

**Protective Factors:**

- Optimism & Self esteem
- Higher education
- Good SES
- Strong relationship with partner

**Screening:**

- **K10 Score** (previously discussed)
- **EPDS - Edinburgh postnatal depression scale** (10qs, 5mins, responses graded)

**Management:**

- **Psychotherapy** (Eg: CBT)
- **Pharmacological** (Eg: SSRI's)
- **If severe/psychotic, consider ECT**

**Effect on Infant:**

- Insecure infant – lack of trust, poor interaction with caregiver
- Attachment issues – discipline, behaviour & aggression problems
- Infant withdrawn, passive
- Slow to reach milestones
- High risk of mental health issues in child

**Other Postpartum Distresses:**

- **Post-partum Anxiety**
- **Postpartum OCD**
- **Postpartum Psychosis (Hallucinations & Delusions)**
- **Baby Blues**

### Bipolar 1 vs Bipolar 2 Disorder:

- **BIPOLAR 1 DISORDER:**
  - o disorder in which at least one manic episode has occurred
  - o if manic symptoms lead to hospitalization, or if there are psychotic symptoms, the diagnosis is BP I
  - o commonly accompanied by at least 1 MDE but not required for diagnosis
  - o time spent in mood episodes: 53% asymptomatic, 32% depressed, 9% cycling/mixed, 6% hypo/manic
- **BIPOLAR 2 DISORDER:**
  - o disorder in which there is at least 1 MDE, 1 hypomanic and no manic episodes
  - o while hypomania is less severe than mania, Bipolar II is not a “milder” form of Bipolar I
  - o time spent in mood episodes: 46% asymptomatic, 50% depressed, 1% cycling/mixed, 2% hypo/manic
  - o Bipolar II is often missed due to the severity and chronicity of depressive episodes and low rates of spontaneous reporting and recognition of hypomanic episodes

### Classification – Based on the most recent mood episode:

- **Manic**
- **Hypomanic**
- **Depressed**

### DSM-5 Criteria for **MANIC EPISODE:**

- **A) a distinct period of abnormally and persistently elevated, expansive, or irritable mood, and abnormally and persistently increased goal-directed activity or energy, lasting  $\geq 1$  wk and present most of the day, nearly every day (or any duration if hospitalization is necessary)**
- **B) during the period of mood disturbance and increased energy or activity,  $\geq 3$  of the following symptoms have persisted (4 if the mood is only irritable) have been present to a significant degree and represent a noticeable change from usual behaviour**
  - o inflated self-esteem or grandiosity
  - o decreased need for sleep (Eg: feels rested after only 3 h of sleep)
  - o more talkative than usual or pressure to keep talking
  - o flight of ideas or subjective experience that thoughts are racing
  - o distractibility (Ie: attention too easily drawn to unimportant or irrelevant external stimuli)
  - o increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation
  - o excessive involvement in pleasurable activities that have a high potential for painful consequences (Eg: engaging in unrestrained shopping sprees, sexual indiscretions, or foolish business investments)
- **C) the mood disturbance is sufficiently severe to cause marked impairment in social/occupational functioning or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features**
- **D) the episode is not attributable to the physiological effects of a substance or another medical condition**
- **Note:** A full manic episode that emerges during antidepressant treatment but persists at a fully syndromal level beyond the physiological effect of that treatment is sufficient evidence for a manic episode, and therefore, a bipolar I diagnosis
- **Note:** Criteria A-D constitute a manic episode. At least one lifetime manic episode is required for the diagnosis of bipolar I disorder

### HYPOMANIC EPISODES:

- Criterion A and B of a manic episode is met, but duration is  $\geq 4$  d
- Episode associated with an uncharacteristic change in functioning that is observable by others but not severe enough to cause marked impairment in social or occupational functioning or to necessitate hospitalization
- Absence of psychotic features (if these are present the episode is, by definition, manic)

## DSM-5 Diagnostic Criteria for **MAJOR DEPRESSIVE EPISODES:**

- **A)  $\geq 5$  of the following symptoms have been present during the same 2 wk period and represent a change from previous functioning; at least one of the symptoms is either 1) depressed mood or 2) loss of interest or pleasure (anhedonia):**
  - o Depressed mood most of the day, nearly every day, as indicated by either subjective report or observation made by others
  - o Markedly reduced interest or pleasure in all, or almost all, activities most of the day, nearly every day
  - o Significant unintentional weight loss/weight gain, or decrease/increase in appetite nearly every day
  - o Insomnia or hypersomnia nearly every day
  - o Psychomotor agitation or retardation nearly every day
  - o Fatigue or loss of energy nearly every day
  - o Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
  - o Diminished ability to think or concentrate, or indecisiveness, nearly every day
  - o Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide
- **B) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **C) the episode is not attributable to the direct physiological effects of a substance or a GMC**

### Treatment:

- **Lifestyle:**
  - o Education regarding illness
  - o ~~Compulsory planning~~ Regular checkups for manic episodes
  - o Regular routine (Sleep/exercise)
- **Biological:**
  - o Eg Lithium, Anticonvulsants (valproate, carbamazepine), antipsychotics
  - o ECT if refractory
  - o **Treating/Preventing Mania:** Lithium, Valproate, Carbamazepine
  - o **Treating Depression:** lithium, lurasidone, quetiapine, lamotrigine, antidepressants (only with mood stabilizer), ECT
  - o **Mixed Episode/Rapid Cycling:** multi-agent therapy, lithium or valproate + SGA (lurasidone, aripiprazole, olanzapine)
- **Psychological:**
  - o Psychotherapy
  - o Family therapy
- **Social:**
  - o Vocational rehab/Leave of absence from school/work
  - o Financial capacity assessment
  - o Avoid drugs/ETOH
  - o Sleep routine

### Prognosis:

- suicide rate ~15% (worse in mixed states)
- Bipolar is chronic with relapses
- can achieve high level of functioning between episodes
- may switch rapidly between depression and mania without any period of euthymia in between
- high recurrence rate for mania – 90% will have a subsequent episode in the next 5 yr
- long term follow-up of BP I – 15% well, 45% well with relapses, 30% partial remission, 10% chronically ill

- **\*Antidepressant Drug Groups:** (Anti-Depressant Drugs all act to → ↑NA and/or 5HT Signalling)

o **Tricyclic Antidepressants (TCA's)(3-Ringed Structures); & Tetracyclics (4-Ringed Structures):**

§ **MOA: Block BOTH Noradrenaline AND Serotonin (5HT) Reuptake**

§ • Intermediate Duration

§ **“Classic” agents = Imipramine & Amitriptyline**

**Adverse Effects:**

- Sedation
- Antimuscarinic Effects – Dry Mouth, Blurred Vision, Constipation, Urinary Retention
- Postural Hypotension
- Toxicity in Overdose
  - o → Convulsions & Arrhythmias; Respiratory Depression & Coma

o **Selective Serotonin Reuptake Inhibitors (SSRI's):**

§ **MOA: Block Serotonin (5HT) Reuptake**

§ • Long Duration

§ **“Classic” agent = Fluoxetine (PROZAC)**

**Adverse Effects:**

- Nausea, Vomiting & Diarrhoea
- Anorexia
- Insomnia
- Loss of libido & anorgasmia

o **Selective Noradrenaline Reuptake Inhibitors (SNRI's):**

§ **MOA: Block Noradrenaline Reuptake**

- (Note: Also act as  $\alpha_2$ -Antagonists)
- Short Duration

§ **“Classic” agent = Mianserin**

§ **Adverse Effects:** (Same as TCAs)

- Sedation
- Antimuscarinic Effects – Dry Mouth, Blurred Vision, Constipation, Urinary Retention
- Postural Hypotension
- Toxicity in Overdose
  - o → Convulsions & Arrhythmias
  - o → Respiratory Depression & Coma

o **Monoamine Oxidase Inhibitors (MAOI's):**

§ **MOA: Inhibit Monoamine Oxidase Function:**

(IE: ↓Catecholamine Breakdown → Surplus of NE and/or 5HT → Improved Mood)  
Very Short Duration

§ **“Classic” agent = Phenylzine**

§ **Adverse Effects:**

- Hypotension (although Counter-Intuitive) – (↑Serotonin appears to displace ↑NA → ‘effectively’ less NA)
- Tremors
- Insomnia
- ↑Appetite → Weight Gain
- Antimuscarinic Effects – Dry Mouth, Blurred Vision, Constipation, Urinary Retention
- Toxicity in Overdose:
  - o Convulsions

§ **Note: Dietary Restriction – Tyramine (fermented/smoked foods, chocolate, avocados):**

- Normally tyramine in foods is broken down before entering the systemic circulation
- - Blocking MAO → ↑Tyramine in Bloodstream → Displaces NA from storage
  - o → ↑↑Catecholamines in blood → Adrenergic Crisis:
    - § →Tachycardia & ↑BP → Heart-attack or Stroke

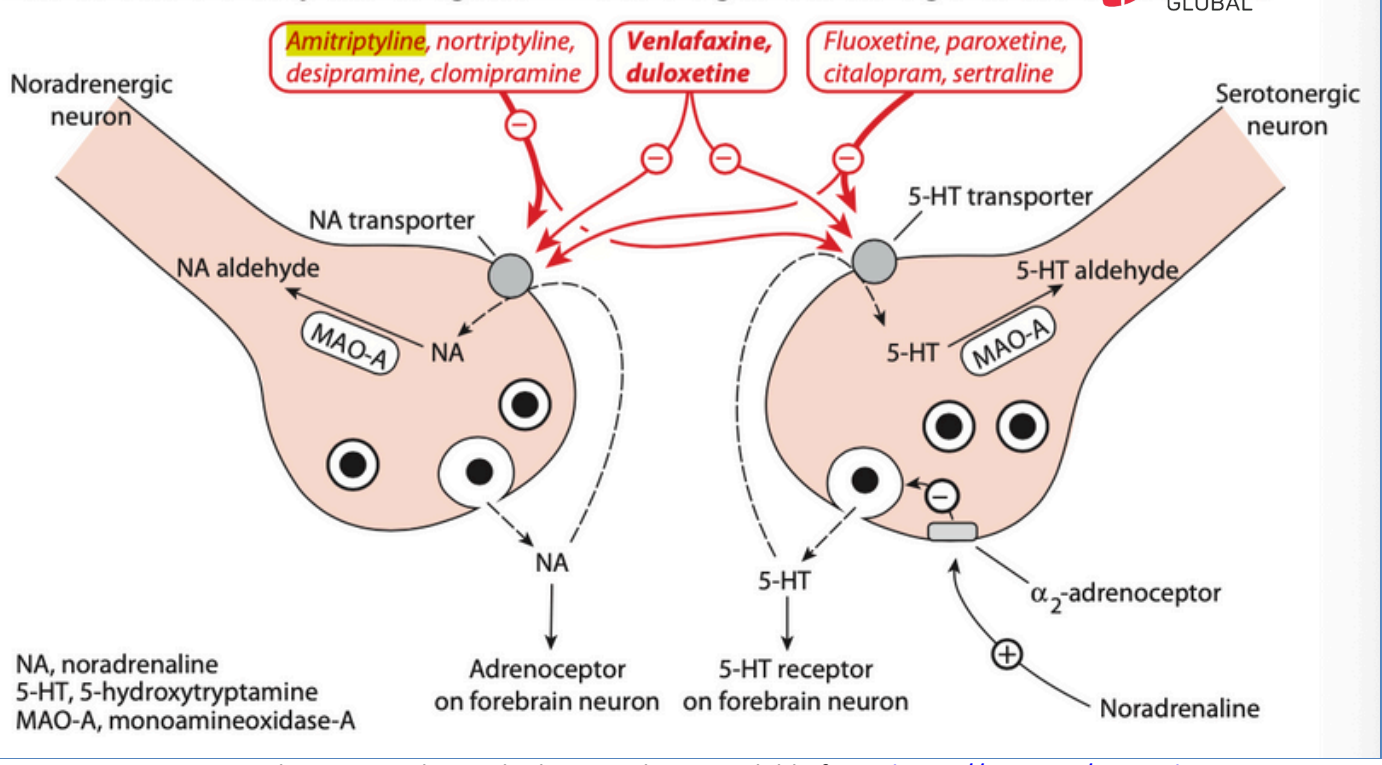


Image credit: Rang, Dale, et al. Pharmacology; available from: <https://amzn.to/3Hr51d0>

- **Note: Serotonin Syndrome – A Potential Side Effect of Serotonergic Agents:**

o Risk Factors = Any Serotonergic Agents:

o § – IE: (TCA's, SSRI's, MAOI's)

– A Neurological Disturbance associated with Excess Serotonin:

| Impaired Cognition   | CNS Alterations  | GI Disturbances                       | Motor Alterations  | Blood Changes   |
|--|--|---------------------------------------|--|---|
| - Agitation<br>- Incoherent Speech<br>- Mild Confusion (Sometimes Delirium)<br>- Coma (Possible) | - Fever<br>- Tachycardia<br>- Diaphoresis (Sweating)<br>- Pupil Dilation<br>- BP Instability | - Nausea<br>- Vomiting<br>- Diarrhoea | - Hyper-Reflexia<br>- Myoclonic Twitching (Sudden Muscular Contraction)<br>- Clonus (rapid repetitive contractions)<br>- Trembling<br>- Ataxia (inability to coordinate movements) | - Leukocytosis<br>- DIC →<br>- Thrombocytopenia<br>- ↑ Muscle Enzymes |

o **Complimentary Medicines:**

§ **St-Jon's Wort:**

- Apparently as effective as Tri-Cyclics for *mild-moderate* depression
- **MOA:**
  - o Animal experiments show a downregulation of beta-adrenergic receptors and an upregulation of serotonin 5-HT(2) receptors in the frontal cortex
- **However – Significant Drug Interactions with Prescription Meds**
- Many take this as a "Mood Supplement" rather than for Major Depression



- **\*Bipolar Drugs:**

o **Lithium (Lithium Carbonate):**

- § Used to stabilise Bipolar Disorder (Manic/Depressive)
- § • – IE: Counteract both Mania & Depression
- § **Note:** Very Narrow Therapeutic Index (Overdose = Very Toxic)

**MOA:**

- Increases Serotonin Levels → Counteracts Depression
- Decreases Noradrenaline Levels → Counteracts Mania
- Alters Na<sup>+</sup> transport across membranes (as Na<sup>+</sup> and Li<sup>+</sup> are univalent ions)
- Blocks Inositol Triphosphate (2nd Messenger Molecules) Signal Cascades

§ **Adverse Effects:**

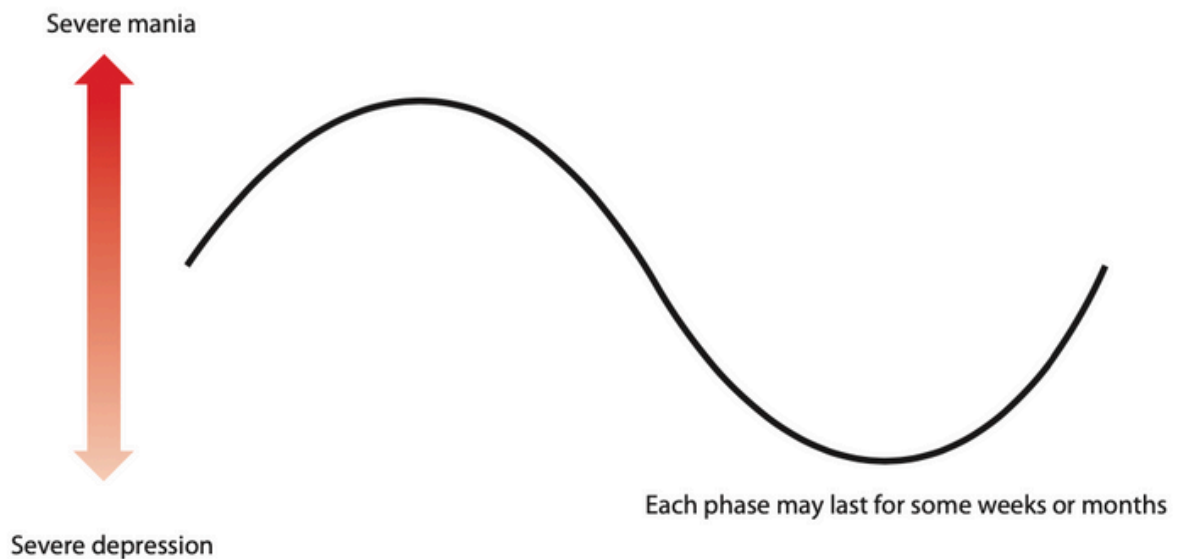
- GI Problems
- Neurological Damage
- Tremor
- Kidney Impairment
- Thyroid Problems

o **Use of Anticonvulsant Drugs:**

- § **MOA:** Enhance GABA's Action → Thought to Stabilise Neurotransmission in this pathway
- → Prevents mood swings & Reduces Mania

**Note:** Less toxic than Lithium

**Bipolar disorder (manic-depressive illness) is characterised by mood changes which swing between mania and depression.**



**Overview of Psychosis:**

- **Psychosis = Cognitive/behavioural disturbance that manifests as either:**
  - o Inability to recognise reality
  - o Or Inability to differentiate between reality and surreal experiences
- **May Consist of:**
  - o **Delusions** = False beliefs based on incorrect inference about external reality that is firmly sustained despite what almost everybody else believes and despite what constitutes incontrovertible and obvious proof or evidence to the contrary
  - o **Or Hallucinations** = sensory experiences that appear real but are created by your mind. They can affect all five of your senses. For example, you might hear a voice that no one else in the room can hear or see an image that isn't real.
- **Differentiation based on Timeframe:**
  - o **Brief Psychotic Disorder** = <1mth
  - o **Schizophreniform Disorder** = 1-6mths
  - o **Schizophrenia** = >6mths

**Differential Diagnoses for Psychosis:**

**Primary Psychotic Disorders:**

- 
- o Eg: Schizophrenia/Schizophreniform/Brief Psychotic disorder
- **Mood Disorders:**
  - o Eg: Depression with psychotic features
  - o Eg: Bipolar disorder (manic or depressive episode with psychotic features)
- **Personality Disorders:**
  - o Eg: Schizotypal, Schizoid
  - o Eg: Borderline, Paranoid, Obsessive-compulsive
- **Other Medical Conditions:**
  - o Eg: Brain tumour
  - o Eg: Head trauma/Stroke
  - o Eg: Dementia/Delirium
  - o Eg: Infection

**General Management of Acute Psychosis:**

- 1: Ensure safety (self/patient/others)
- 2: Reduce sources of external stimuli
- 3: Be non-threatening
- **4: Useful medications:**
  - o Benzodiazepines
  - o Antipsychotics
  - o Oral antipsychotics preferred as pt may refuse PO medications
- 5: May require physical restraints (after necessary legal process is satisfied)
- 6: Avoid antidepressants/stimulants



## SCHIZOPHRENIA:

- A **Group** of Psychosis-Related Disorders
- **Characterised by:**
  - o **Altered Perception** and/or **Content of Thought**
  - o **Delusions** and/or **Hallucinations**
    - § »may involve personality “splitting” (but this is not multiple personality disorder)
- **Patient Presentation:**
  - o Symptoms may be either **‘Positive’** (IE: Distortions), or **‘Negative’** (IE: Diminished Function):

| <u>Positive Symptoms:</u>  | <u>Negative Symptoms:</u>  |
|--|--|
| Hallucinations<br>Delusions<br>Disorganised speech/thought<br>Disorganised & Bizarre Behaviour | Poor fluency of Speech/Thought<br>Poor Drive/Motivation<br>Poor Concentration<br>Blunted Affect (Emotionless)<br>No Concept of Time<br><br>Note: Patient may seem to show <b>Self-Neglect</b><br>– (IE: Forget to take pills/eat/go to toilet) but this is just a manifestation of the above symptoms. |

- **Risk Factors:**
  - o Substance related disorders
  - o Anxiety disorders
  - o Family history
- **PATHOPHYSIOLOGY: TWO Current Hypotheses:**
  - o Note: Both Assume that ***Dopamine is Out of Control***
  - o **\*\*1: Dopamine Hypothesis (Dopamine Theory):**
    - § **Hypothesis = Overactivity of Dopaminergic Pathways**
    - § Either from **↑Dopamine Release; or ↑DA-Receptor Density**
  - o **2: Dysregulation Hypothesis:**
    - § **Hypothesis = An extension of the ‘Dopamine Hypothesis’: Psychosis is due to Improper Activity of the Dopaminergic Pathways AND OTHER Pathways**
    - § **Note: Other Neurotransmitters (aside from Dopamine) implicated in Schizophrenia:**
      - **Serotonin** (Modulation of Dopaminergic Transmission & Cognitive Function)
      - **Glutamate** (Recognised that NMDA-Glutamate-R’s can cause → Psychosis)
      - **GABA** (Loss of GABA “Sensory Gate”)
- **\*DOPAMINE – What does it do in the brain?:**
  - o **Dopamine Receptor Subtypes:**
    - § **D1-like Receptors:** (Now includes D1 & D5)
      - → **Activates Adenylate Cyclase → ↑Signalling**
    - § **\*D2-like Receptors:** (Now includes D2, D3, D4)
      - → **Inhibits Adenylate Cyclase → ↓Signalling**
      - **(The ones implicated in Schizophrenia)**
  - o **Note: Most Neuroleptic Drugs are D2R-Antagonists, but can affect others somewhat**
    - § **D2R’s are most dense in the Mesocortical-Mesolimbic Pathway** – IE: The pathway affected in Schizophrenia
    - § **However, D2R’s are also important in the Basal Ganglia - for Initiation of Movement, & hence D2R-Antagonists may cause ‘Extra-Pyramidal’ (Motor) side effects due to “apparent” Dopamine Depletion → Parkinson-like Symptoms (Side Effect)**

- **DSM-5 Diagnostic Criteria for Schizophrenia:**

o **A) Two or more Core Symptoms for at least 1 month (and at least 1 of them has to be a <sup>+</sup>\*):**

- § \*Delusions
- § \*Hallucinations
- § \*Disorganized speech
- § grossly disorganized or catatonic behaviour
- § negative symptoms (Ie: diminished emotional expression or avolition)

o **B) Decreased level of function:**

- § for a significant portion of time since onset
- § one or more major areas affected (Eg: work, interpersonal relations, self-care) is markedly decreased (or if childhood/adolescent onset, failure to achieve expected level)

o **C) At least 6 mo of continuous signs of the disturbance**

- § Must include at least 1 mo of symptoms (or less if successfully treated) that meet Criterion A (Ie: active-phase symptoms) and may include periods of prodromal or residual symptoms, during which, disturbance may manifest by only negative symptoms or by two or more Criterion A symptoms present in an attenuated form (Eg: odd beliefs, unusual perceptual experiences)

o **D) Rule out schizoaffective disorder and depressive/bipolar disorder with psychotic features because either...**

- § 1) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms,
- § or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness

o **E) Rule out other causes: GMC, substances (Eg: drug of abuse, medication)**

o **F) If history of ASD or childhood communication disorder, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations are also present for at least 1 mo**

- **Management of Schizophrenia:**

o **Somatic:**

- § Antipsychotics (Eg: Haloperidol, risperidone, olanzapine, paliperidone; clozapine if refractory)
- § +/- Mood stabilizers (for aggression/impulsiveness - lithium, valproate, carbamazepine)
- § +/- Anxiolytics
- § +/- ECT

o **Psychosocial:**

- § CBT / Psychotherapy
- § Supportive education (Eg: Basic living skills/social skills training)
- § Social support
- § Job placements
- § Housing & benefits

## ANTIPSYCHOTICS:

- = Any class of drug used to treat psychosis
- **Key Mechanism Of Action:**
  - o All are **D2-Like Receptor Antagonists** → Inhibition of Adenylate Cyclase → ↓ Intracellular Signalling
    - § **Note: Some also block D4-Receptors**
  - o Some block other monoamine receptors (IE: Serotonin)
  - o **REMODELLING** also takes place – Responsible for ‘Lag-Period’
- **Classified by: (a) Whether they trigger Motor Side Effects:**

|   | <u>Typical</u>  | <u>Atypical</u>  |
|---|---|--|
| <b>Motor (“Extrapyramidal”) Side Effects?</b> | Yes<br>(Drugs work non-specifically dopamine pathways – Including Basal Ganglia AKA: “Nigrostriatal Pathway”) | No (or <i>Much Less</i> )<br>(Drugs work specifically on the Mesocortical-Mesolimbic Pathway – Little/no influence on Basal Ganglia, AKA: “Nigrostriatal Pathway”) |
| <b>MOA:</b>                                   | D2-Receptor Antagonists   | Selective as D4-Receptors Antagonists<br>Are also 5HT-Receptor Antagonists<br>(Also D2-Receptor Antagonists)   |
| <b>Examples:</b>                              | <b>Chlorpromazine (THORAZINE)</b><br><b>Haloperidol (HALDOL)</b>  | <b>Clozapine</b><br><b>Sulpiride</b>   |

- **Classified by: (b) Structural Differences:**
  - o **Phenothiazines:**
    - § Chlorpromazine (THORAZINE)
    - § Fluphenazine
    - § Perphenazine
    - § Trifluorperazine
  - o **Heterocyclics:**
    - § Haloperidol
    - § Risperidone
    - § Clozapine
    - § Loxapine
    - § Olanzapine
- **Side Effects – Note: Significant variability between drugs ∴ Treatment is Individualised:**
  - o **Motor (Extrapyramidal) Disturbances:** (From Dopamine Antagonism in Basal Ganglia)
    - § Akathisia – Motor Restlessness
    - § Pseudoparkinsonism (or Parkinson-like symptoms) – rigidity, tremor, dyskinesia
    - § Dystonia – spasms of the face and neck
    - § Tardive dyskinesia – involuntary movements of face (smacking lips, tongue), trunk and limbs
  - o **Endocrine Disturbances:**
    - § Prolactin secretion → Menstrual alterations, Gynecomastia, lactation, loss of libido
      - (Dopamine is Prolactin inhibiting factor ∴ ↓ Dopamine → ↑ Prolactin)
  - o **Antimuscarinic Effects:** (Muscarinic Antagonism)
    - § Dry Mouth/Blurred Vision/Tachycardia/Urinary Retention/Constipation
  - o **Anti-Adrenergic Effects:** (From α1-Adrenergic Antagonism)
    - § Hypotension
  - o **Antihistamine Effects:**
    - § Sedation
    - § Increased Appetite → Weight Gain (Can be severe)
  - o **Hypersensitivity Reactions:**
    - § **Jaundice:** ‘Obstructive Jaundice’
    - § **Rare: Leukopenia & Agranulocytosis:** Low WBCs & No Granulocytes → Potentially Fatal
    - § **Rare: Antipsychotic Malignant Syndrome** (Unknown Cause):
      - hyperthermia and Parkinson-like symptoms (especially muscle rigidity)
- **Adherence – A Significant Problem:**
  - o Paranoid Pts may resist taking drugs due to ‘Lag Period’ of Side Effects
  - o Pts may have No Sense of Time → forget *when* to take meds
  - o Pts may *Enjoy* aspects of their condition (Eg: Creativity, consoling hallucinations etc)
  - o **Note: Long-Term “Depo” (Intradermal Implants) are available in place of Oral Tablets for those with memory problems & paranoia etc**

**General Overview:**

- **Anxiety** = universal human emotion characterised by tension, apprehension, or even terror which serves as an adaptive mechanism to warn about an external threat

**Becomes Pathological when:**

- o Fear is greatly out of proportion to risk/severity of threat
- o Response becomes generalized to other or dissimilar situations
- o Social or occupational functioning is impaired
- o Often comorbid with substance use and depression

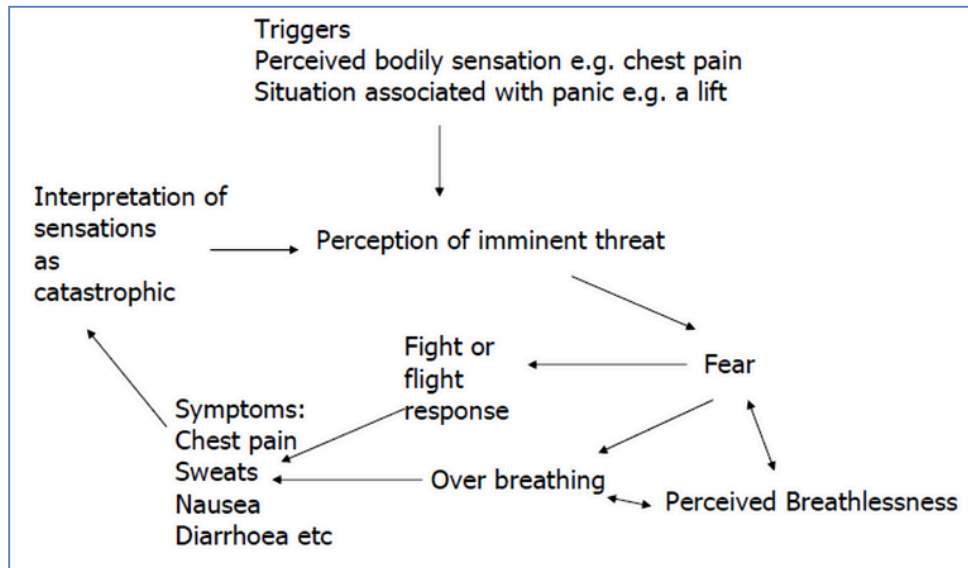
**Pathophysiology:**

- **Symptoms are due to activation of sympathetic nervous system**
- **Physiology:**
  - o Primary brain structure = amygdala (fear conditioning)
  - o Neurotransmitters involved = 5-HT, cholecystokinin, epinephrine, norepinephrine, Dopamine
- **Psychology:**
  - o one's perception of a given situation is distorted which causes one to believe it is threatening in some way
- **Behaviour:**
  - o once feeling threatened, one responds by escaping or facing the situation, thereby causing a disruption in daily functioning

**DSM-5 Criteria for PANIC DISORDER /“PANIC ATTACKS”:**

- **A) recurrent unexpected panic attacks - a panic attack is an abrupt surge of intense fear or intense discomfort that reaches a peak within minutes, and during which time four (or more) of the following symptoms occur:**
  - o Palpitations, pounding heart, or accelerated heart rate
  - o Sweating or shaking
  - o Sensations of shortness of breath or smothering
  - o Feelings of choking
  - o Chest pain or discomfort
  - o Nausea or abdominal distress
  - o Feeling dizzy, unsteady, light-headed, or faint
  - o Chills or hot flashes (numbness or tingling sensations)
  - o Derealization (feelings of unreality) or depersonalization (being detached from oneself)
  - o Fear of losing control or “going crazy”
  - o Fear of dying
- **B) 1 mo (or more) of “anxiety about panic attacks” - at least one of the attacks has been followed by one or both of the following:**
  - o Persistent concern or worry about additional panic attacks or their consequences
  - o A significant maladaptive change in behaviour related to the attacks
- **C) the disturbance is not attributable to the physiological effects of a substance or another medical condition**
- **D) the disturbance is not better explained by another mental disorder**

- **Note:** Many of these symptoms are self-perpetuating → Vicious Circle  
§ = “Cognitive-Behavioural Appraisal” of panic attacks



#### Clinical Presentation:

- **Common Frightening Thoughts Accompanying a Panic Attack:**
  - Losing Control
  - Going Mad
  - Heart Attack
  - Sudden Death
- **4 Medical Conditions that Mimic Panic Attacks:**
  - Arrhythmia
  - Myocardial Ischemia
  - Unstable Angina
  - Thyrotoxicosis
- **4 Steps of Advice to follow during a Panic Attack:**
  - Stay where you are
  - Concentrate on controlling anxiety
  - Slow, Controlled breathing
  - **Cognitive Behavioural Schema for a Panic Attack:**
    - § Tell yourself that it's just a panic attack, not a heart attack etc
    - § Tell yourself that it will soon pass
    - § Identify exaggerated fears that occur during attacks, and challenge them
    - § **Cognitive Reframing:**
      - What is *most likely* causing your chest pain? – Heart Attack/Panic Attack
      - What are the chances of the lift breaking down (other fear/s)?

#### Treatment of Panic Disorder:

- **Pharmacotherapy for Panic Attacks:**
  - Anti-Anxiety Meds – Benzodiazepines (Short course; Low dose)
  - Anti-Depressant Meds – If attacks are frequent or severe, or if Depression is present
    - § Eg: SSRI's - fluoxetine, citalopram, paroxetine, fluvoxamine, sertraline
    - § Eg: SNRI's – venlafaxine
- **Graded Exposure – Combating Fears:**
  - Starting with a very mild trigger of the phobia, (Eg: Thinking of the situation) and then graduating to stronger & stronger triggers of the phobia → Desensitises patient to triggers
  - Relaxation Techniques (Visualisation, slow breathing, paper bag breathing)

#### Prognosis:

- **20-30% refractory**
- **Chronic, but...Majority notice improvement of symptoms with treatment**
- **Relapses triggered by psychosocial stressors**

## DSM-5 Diagnostic Criteria for **AGORAPHOBIA**:

- **A) marked fear or anxiety about two (or more) of the following five situations:**
  - o using public transportation
  - o being outside of the home alone
  - o being in enclosed places
  - o standing in line or being in a crowd
- **B) the individual fears or avoids these situations because of thoughts that escape might be difficult or help might not be available in the event of developing panic-like symptoms or other incapacitating or embarrassing symptoms**
- **C) the agoraphobic situations almost always provoke fear or anxiety**
- **D) the agoraphobic situations are actively avoided, require the presence of a companion, or are endured with intense fear or anxiety**
- **E) the fear or anxiety is out of proportion to the actual danger posed by the agoraphobic situations and to the sociocultural context**
- **F) the fear, anxiety, or avoidance is persistent, typically lasting  $\geq 6$  mo**
- **G) the fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **H) if another medical condition is present, the fear, anxiety, or avoidance is clearly excessive**
- **I) the fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder and are not related exclusively to obsessions, perceived defects or flaws in physical appearance, reminders of traumatic events, or fear of separation** Note: agoraphobia is diagnosed irrespective of the presence of panic disorder. If an individual's presentation meets criteria for panic disorder and agoraphobia, both diagnoses should be assigned

## DSM-5 Diagnostic Criteria for **GENERALIZED ANXIETY DISORDER**

- **A) excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 mo, about a number of events or activities (such as work or school performance)**
- **B) the individual finds it difficult to control the worry**
- **C) the anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms having been present for more days than not for the past 6 mo)**
  - o 1: restlessness or feeling keyed up or on edge
  - o 2: being easily fatigued
  - o 3: difficulty concentrating or mind going blank
  - o 4: irritability
  - o 5: muscle tension
  - o 6: sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)
- **D) the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **E) the disturbance is not attributable to the physiological effects of a substance or another medical condition**
- **F) the disturbance is not better explained by another mental disorder**

## Treatment of **GENERALISED ANXIETY DISORDER**:

- **Lifestyle:**
  - o Avoiding caffeine & ETOH
  - o Improving sleep hygiene
- **Psychological:**
  - o CBT
  - o Relaxation Techniques
- **Biological:**
  - o SSRIs and SNRIs are 1st line (paroxetine, escitalopram, sertraline, venlafaxine XL)
  - o 2nd line: buspirone (tid dosing), bupropion (caution due to stimulating effects),
  - o add-on benzodiazepines (short-term, low dose, regular schedule, long half-life, avoid prn usage)
  - o  $\beta$ -blockers not recommended

**Presentation:**

- Intrusive thoughts that produce anxiety
- Repetitive behaviours/Obsessions that are aimed at reducing anxiety
  - o Eg: Repetitive hand-washing
  - o Eg: Extensive Hoarding

**Psychological Consequences:**

- OCD sufferers often recognize their thoughts and subsequent actions as irrational, and they may become further distressed by this realization

**Social Consequences:**

- Symptoms can be **Alienating**
- Behaviours can be **Time-Consuming**
- Can cause severe **Emotional/Economic** Disadvantage

**Neurobiology:**

- Linked to abnormalities with Serotonin (which is thought to have a role in decreasing anxiety)
- It is thought that there is a ↓sensitivity of serotonin receptors
- OCD patients may benefit from SSRIs (Selective Serotonin Reuptake Inhibitors) (Antidepressant)

**DSM-5 Diagnostic Criteria for OBSESSIVE-COMPULSIVE DISORDER:**

- **A) presence of obsessions, compulsions, or both**
  - o **obsessions are defined by (1) and (2)**
    - § 1: recurrent and persistent thoughts, urges, or images that are experienced, at some time during the disturbance, as intrusive and unwanted, and cause marked anxiety or distress in most individuals
    - § 2: the individual attempts to ignore or suppress such thoughts, urges, or images, or to neutralize them with some other thought or action (ie: by performing a compulsion; see below)
  - o **compulsions are defined by (1) and (2)**
    - § 1: repetitive behaviours (Eg: hand washing, ordering, checking) or mental acts (Eg: praying, counting, repeating words silently) that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly
    - § 2: behaviours mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviours or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent, or are clearly excessive
- **B) the obsessions or compulsions are time-consuming (Eg: take >1 h/d) or cause clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **C) the obsessive-compulsive symptoms are not attributable to the physiological effects of a substance or another medical condition**
- **D) the disturbance is not better explained by the symptoms of another mental disorder**

**Treatment:**

- **CBT:**
  - o Exposure with response prevention (ERP) – involves exposure to feared situations with the addition of preventing the compulsive behaviours; cognitive strategies include challenging underlying beliefs
- **Pharmacotherapy:**
  - o SSRIs/SNRIs (12-16 week trials, higher doses vs depression)
  - o clomipramine;
  - o Adjunctive antipsychotics (risperidone)

**Prognosis:**

- Typically refractory & chronic

**Epidemiology:**

- ≈65% of men & 50% of women are exposed to a traumatic event in their lifetime
- **'At-Risk' Populations:**
  - o Minority populations
  - o Refugees/Asylum seekers
  - o Military and Emergency-Service Personnel (Higher in women)
  - o Car Accidents Victims
  - o Criminals & Victims
  - o Sexual Assault
  - o Victims of Disaster

**Aetiology:**

- **A Stressor = Causative Factor**
  - o Note: Not everyone will develop PTSD from a traumatic event
  - o Note: Different traumatic events affect people differently – **IE: Subjective**
- **Risk Factors:**
  - o Being Female
  - o Recent Stressful Life-Changes
  - o Childhood Trauma
  - o Inadequate Social Support (family or peer)
  - o *External* 'Locus of Control' – IE: Helplessness - Rather than an *internal* one (human cause)
  - o Recent Excessive Alcohol Intake
  - o Personality Component – (Borderline, Paranoid, Dependent, or Antisocial Personality disorders)
  - o Genetic Component - (Genetic vulnerability to psychiatric illness)

**Pathophysiology:**

- **Traumatic Events cause *Lasting Changes* in the Brain → PTSD:**
  - o **Abnormal Secretion of Cortisol**
    - § (IE: ↑CRH release → ↑ACTH secretion → Adrenal Cortisol secretion)
  - o **Changes in the Hippocampus**
    - § Impact on Memory & Learning
  - o **Changes in the Amygdala**
    - § Impact on Emotional response to Fear & Stress

**Presentation:**

- **3 Main Groups of Symptoms:**
  - o **1: Intrusive Recollection:**
    - § Distressing Recollections of the Traumatic Event (Eg: Flashbacks, Nightmares)
    - § Intense Psychological distress or Physical Reactions when reminded of the event
  - o **2: Avoidance & Emotional Numbing:**
    - § Avoidance of Activities, Places that cause recollections
    - § Avoidance of Thoughts, Feelings, or Conversations associated with the trauma
    - § Restricted Emotions – (Feeling detached from others)
  - o **3: Hyperarousal:**
    - § Difficulty Sleeping/ Concentrating
    - § Irritability/Hypervigilance
    - § Exaggerated Startle Response
  - o **Note: The DSM-IV Stipulates that symptoms must occur for *More Than One Month***
  - o **Note: The DSM-IV also requires *Significant Distress or Social/Occupational Impairment***
- **Duration of Symptoms:**
  - o **Acute** – Symptoms subside after 3mths
  - o **Chronic** – Symptoms *continue* after 3mths
  - o **Delayed Onset** – Symptoms appear at least 6mths *After* the stressor



- **A) exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:**
  - o 1: directly experiencing the traumatic event(s)
  - o 2: witnessing, in person, the event(s) as it occurred to others
  - o 3: learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental
  - o 4: experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (Eg: first responders collecting human remains; police officers repeatedly exposed to details of child abuse)
- **B) presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred**
  - o 1: recurrent, involuntary, and intrusive distressing memories of the traumatic event(s)
  - o 2: recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s)
  - o 3: dissociative reactions (Eg: flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring
  - o 4: intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)
  - o 5: marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)
- **C) persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following**
  - o 1: avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)
  - o 2: avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)
- **D) negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following**
  - o 1: inability to remember an important aspect of the traumatic event(s)
  - o 2: persistent and exaggerated negative beliefs or expectations about oneself, others, or the world
  - o 3: persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others
  - o 4: persistent negative emotional state (Eg: fear, horror, anger, guilt, or shame)
  - o 5: markedly diminished interest or participation in significant activities
  - o 6: feelings of detachment or estrangement from others
  - o 7: persistent inability to experience positive emotions
- **E) marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following**
  - o 1: irritable behaviour and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects
  - o 2: reckless or self-destructive behaviour
  - o 3: hypervigilance
  - o 4: exaggerated startle response
  - o 5: sleep disturbance (Eg: difficulty falling or staying asleep or restless sleep)
  - o 6: sleep disturbance (Eg: difficulty falling or staying asleep or restless sleep)
- **F) duration of the disturbance (criteria B, C, D, and E) is more than 1 mo**
- **G) the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning**
- **H) the disturbance is not attributable to the physiological effects of a substance or another medical condition**

### Other Considerations:

- **Difficulty in Diagnosing:**
  - o PTSD is Under-Diagnosed
  - o Patient May fail to Disclose Adequate Information
- **Comorbidity:**
  - o PTSD often presents *with* Major Depression/Substance Abuse
  - o PTSD Increases risk of Panic Disorder, Agoraphobia, OCD, Social Phobia, etc
- **PTSD in Children:**
  - o Children may have different symptoms
  - o There are Child-Specific screening tools

### Screening:

- **(Yes= 1; No=0; A score of 4 or higher indicates possible PTSD) (Positive predictive value of 71% and a negative predictive value of 98%)**
  - o Do you avoid being reminded of the experience by staying away from certain places, people or activities?
  - o Have you lost interest in activities that were once important or enjoyable?
  - o Have you begun to feel more distant or isolated from other people?
  - o Do you find it hard to feel love or affection for other people?
  - o Have you begun to feel that there is no point in planning for the future?
  - o Do you become jumpy or easily startled by ordinary noise or movements?

### Treatment considerations – PTSD:

- **Treating PTSD:**
  - o Ensure Adequate Sleep (Medicate if necessary)
  - o Ensure social support (Family/Friends/Helpline)
  - o Give opportunity to review emotional feelings about a traumatic event
  - o **Psychotherapeutic Interventions (≈10x 1hr sessions):**
    - § Supportive counselling
    - § Discuss the event
    - § Coping Strategies(Eg., relaxation)
    - § Trauma-focused Cognitive Behaviour Therapy (CBT)
    - § Hypnosis
  - o **Pharmacological Interventions:**
    - § **\*SSRI's** – Selective Serotonin Reuptake Inhibitors (Antidepressants):
      - → Prolongs action of serotonin on the brain
      - → Reduces all symptoms of PTSD
    - § **MAOIs** - Monoamine Oxidase Inhibitors (Antidepressant):
      - → Prolongs action of catecholamines in the brain
    - § **Carbamazepine (Tegretol)** – (Anticonvulsant):
      - → Voltage-Gated Na-Channel Modulator (slows 'recovery' of VG-Na-Channels)
      - → Prevents Repetitive Neuronal Firing

### Summary:

- Psycho-Education, Desensitisation & Normalisation can help
- Antidepressants & CBT are effective treatments for PTSD
- Other mental disorders can Co-Present with PTSD (Panic Disorder, Major Depression, Alcohol Abuse)

**General Overview:**

- **Adjustment Disorder** = diagnosis characterised by difficulty coping with a stressful life event or situation, leading to acute, often transient, emotional or behavioural symptoms that resemble less severe versions of other psychiatric conditions

**DSM-5 Diagnostic Criteria for ADJUSTMENT DISORDER:**

- **A) the development of emotional or behavioural symptoms in response to an identifiable stressor(s) occurring within 3 mo of the onset of the stressor(s)**
- **B) these symptoms or behaviours are clinically significant as evidenced by either of the following:**
  - o marked distress that is in excess of what would be expected from exposure to the stressor
  - o significant impairment in social or occupational (academic) functioning
- **C) the stress-related disturbance does not meet criteria for another mental disorder and is not merely an exacerbation of a pre-existing mental disorder**
- **D) the symptoms do not represent normal bereavement**
- **E) once the stressor (or its consequences) has terminated, the symptoms do not persist for more than an additional 6 mo**
  - o **specifiers:** with depressed mood, with anxiety, with mixed anxiety/depression, with conduct disturbance, with mixed disturbance of conduct/emotions, unspecified

**Common Types of Stressors:**

- **Single** (Eg: termination of romantic relationship)
- **Multiple** (Eg: marked business difficulties and marital problems)
- **Recurrent** (Eg: seasonal business crises)
- **Continuous** (Eg: living in a crime-ridden neighbourhood)
- **Developmental events** (Eg: going to school, leaving parental home, getting married, becoming a parent, failing to attain occupational goals, retirement)

**Treatment:**

- **Psychotherapy:**
  - o Individual or group therapy
  - o Crisis intervention
- **Biological:**
  - o Benzodiazepines if significant anxiety is present (short course, low dose)

**DSM-5 Diagnostic Criteria for DELIRIUM:**

- **A) attention and awareness:** disturbance in attention (Ie: reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment)
- **B) acute and fluctuating:** disturbance develops over short period of time (usually hours to days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day
- **C) cognitive changes:** an additional disturbance in cognition (Eg: memory deficit, disorientation, language, visuospatial ability, or perception)
- **D) not better explained:** disturbances in criteria A and C are not better explained by another neurocognitive disorder (pre-existing, established, or evolving) and do not occur in the context of a severely reduced level of arousal (Eg: coma)
- **E) direct physiological cause:** evidence that disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (Ie: due to a drug of abuse or medication), toxin, or is due to multiple etiologies
- **Note:** delirium can be described as HYPERactive, HYPOactive, or MIXED presentation. While patients with hyperactive delirium may demonstrate features of restlessness and agitation, as well as experience hallucinations and delusions, those with hypoactive delirium present with lethargy, sedation and respond slowly to questioning

**Clinical Features:**

- Distractibility
- Disorientation (Time/place)
- Misinterpretations, illusions, hallucinations
- Speech/language disturbances (dysarthria, dysnomia)
- Affective symptoms (anxiety, fear, depression, irritability, anger, euphoria, apathy)
- Shifts in psychomotor activity (groping/picking at clothes, attempts to get out of bed when unsafe, sudden movements, sluggishness, lethargy)
- Impairment in sleep duration and/or architecture (Eg: Sleep-wake reversal)

**Management:**

- **Identify and manage underlying cause**
  - o identify and treat underlying cause immediately
  - o stop all non-essential medications
  - o maintain nutrition, hydration, electrolyte balance and monitor vitals
- **Optimize the environment**
  - o environment: quiet, well-lit, near window for cues regarding time of day
  - o optimize hearing and vision
  - o room near nursing station for closer observation; constant care if patient jumping out of bed, pulling out lines
  - o family member present for reassurance and re-orientation
  - o frequent orientation - calendar, clock, reminders
- **Pharmacotherapy**
  - o low dose, high potency antipsychotics: haloperidol has the most evidence; reasonable alternatives include risperidone, olanzapine (more sedating, less QT prolongation), quetiapine (if EPS), aripiprazole (may shorten QTc)
  - o benzodiazepines only to be used in alcohol/substance withdrawal delirium; otherwise, can worsen delirium (antipsychotics will not be useful in substance withdrawal delirium)
  - o try to minimize anticholinergic side effects
- **Physical restraints to maintain safety only if necessary (last resort)**

**DSM-5 Diagnostic Criteria for DEMENTIA:**

- **A) evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:**
  - o 1: concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and
  - o 2: substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment
- **B) cognitive deficits interfere with independence in everyday activities (ie: at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications)**
  - o **Note:** if deficits do not interfere as in B, and impairments are mild-moderate as in A, this is considered “mild neurocognitive disorder”
- **C) cognitive deficits do not occur exclusively in the context of a delirium**
- **D) cognitive deficits are not better explained by another mental disorder (Eg: major depressive disorder, schizophrenia)**
- **E) in the case of neurodegenerative dementias such as Alzheimer’s Disease, disturbances should be of insidious onset and progressive**

**Management:**

- **Treat underlying medical problems and prevent others:**
  - o **Investigations:** VDRL, HIV, SPECT, CT head in dementia
- **Provide orientation cues for patient (Eg: Clock, calendar)**
- **Provide education and support for patient and family**
  - o (Eg: Day programs, respite care, support groups, home care)
- **Consider long-term care plan (nursing home) and power of attorney/living will**
- **Inform transport department about patient’s inability to drive safely**
- **Consider pharmacological therapy:**
  - o Cholinesterase inhibitors (Eg: Donepezil [aricept®], rivastigmine, galantamine) for mild to severe disease
  - o NMDA receptor antagonist (Eg: Memantine) for moderate to severe disease
  - o Low-dose neuroleptics (Eg: Risperidone, quetiapine), antidepressants or trazodone if behavioural or emotional symptoms prominent – start low and go slow
  - o Reassess pharmacological therapy every 3 mo

**Drugs are NOT NEW – Have been Used & Abused for Centuries:**

- Including Opium, Alcohol, Cocaine, Tobacco, etc...

**In the Context of Addiction Studies, a ‘Drug’ is:**

- “A Chemical, used *Non-Medically*, and *Self-Administered* for its Psychoactive Effects”

**Common Drugs of Addiction:**

- **The Media tends to Focus on ‘Illicit’ Drugs:**

- o Cannabis
- o Amphetamines
- o Ecstasy
- o Cocaine
- o Gamma-hydroxy-butyrate)
- o Ketamine
- o Heroin & Other Opioids
- o Benzodiazepines
- o Hallucinogens

- **However, the *Most Damaging Drugs In Our Society* Are Tobacco & Alcohol:**

- o Tobacco
- o Alcohol

**Why the Concern About Drugs?:**

- **Drugs have Many Potential Adverse Health Effects:**

| <u>Effect on CNS</u>   | <u>Substance</u>  | <u>Intoxication Effects</u>   | <u>Potential Adverse Effects</u>  |
|------------------------|---|---|---|
| <u>CNS Depressants</u> | <b>Alcohol</b>  | Analgesia<br>Relaxation<br>Disinhibition<br>Impaired Balance/Coordination                       | Dependence<br>Trauma<br>Other Multi-System Effects  |
|                        | <b>Opioids</b><br>(Heroin, Codeine, Fentanyl, Morphine, etc)                                | Analgesia<br>Euphoria<br>Drowsiness   | Dependence<br>Nausea<br>Constipation<br>Sedation/Unconsciousness<br>Coma                    |
|                        | <b>Depressants</b><br>(Barbiturates, Benzodiazepines)                                       | Analgesia<br>Relaxation<br>Bradycardia<br>Hypotension<br>Slowed Breathing<br>Poor Concentration | Dependence<br>Fatigue<br>Respiratory<br>Depression/Arrest                                   |
|                        | <b>Cannabinoids</b><br>(Hash & Cannabis)  | Euphoria<br>Slowed thinking<br>Confusion<br>Impaired Balance/Coordination                       | Dependence<br>Cough<br>Impaired Memory/Learning<br>Anxiety<br>Panic Attacks (Schizophrenia) |
| <u>CNS Stimulants</u>  | <b>Stimulants</b><br>(Amphetamines, Cocaine, Ecstasy, Methamphetamines, Nicotine, Caffeine) | Tachycardia<br>Hypertension<br>Hyper-Metabolism<br>Excitement<br>Hyper Vigilance                | Dependence<br>Palpitations<br>↓Appetite<br>Weight Loss<br>Heart Failure                     |

### What Constitutes “Hazardous” Use?:

- = “Any pattern of Substance Use that Increases the Risk of Harmful Consequences for the User or the Public”
- **Harmful Consequences May Affect All Aspects of Health:**
  - o Physical    o        (Eg: Hepatitis – From injection drugs)
  - o Mental       o        (Eg: Depressive Episodes – From Alcoholism)
  - o Social         o        (Eg: Turning to Crime – To Fund Addiction; Or Domestic Violence)

### What Constitutes “Substance Abuse”?:

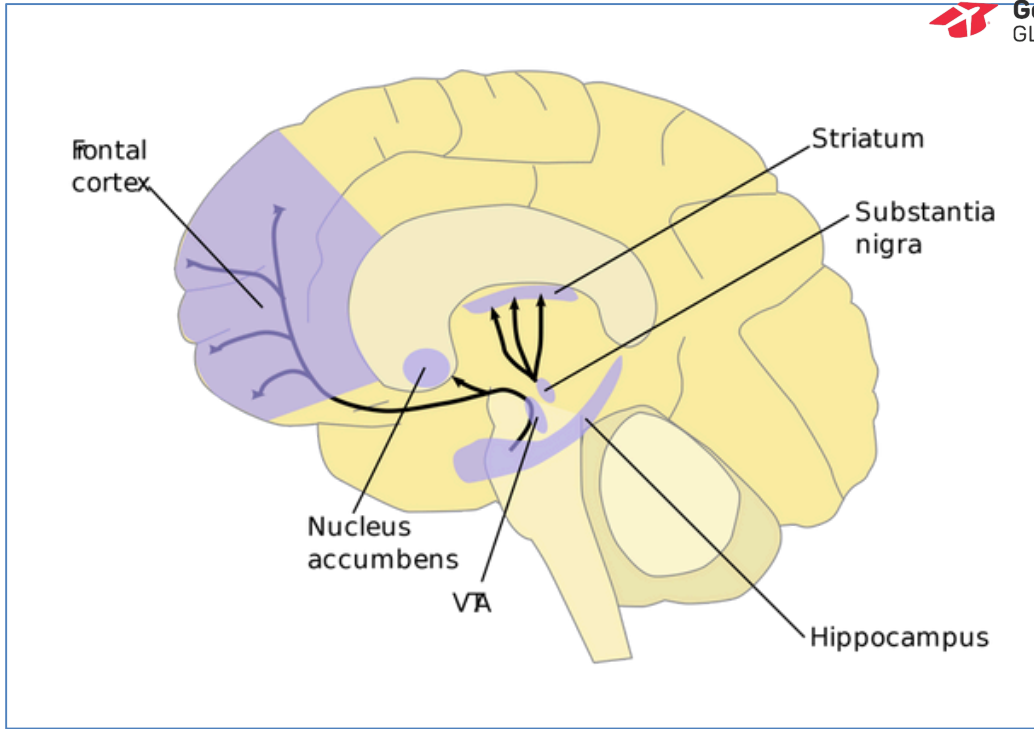
- = “A Maladaptive Pattern of Substance Use → **Clinically Significant Impairment or Distress**”
- **Typically Manifests as one of the following (Within a 12mth Period):**
  - o Failure to fulfil Major Role Obligations (Eg: Job/Parent/etc)
  - o Use in Situations in which it is Physically Hazardous
  - o Recurrent Substance-Related Legal Problems
  - o Continued Use, Despite Persistent Social/Interpersonal Problems related to effects of substance
- **NOT related to Withdrawal, Tolerance or Compulsive Use** (Which are characteristics of Substance Dependence)

### What Constitutes “Substance Dependence” (“Addiction”)?:

- = “Substance Abuse → **Some form of Physiological/Mental Addiction**”
- **Manifests as one of the following (Within a 12mth Period):**
  - o **Tolerance – Physiological Adaptation** → Diminishing Effect, or ↑Dose required for same effect
    - § **\*Withdrawal Symptoms –** (Tolerance-Related Symptoms after sudden cessation of drug use)
    - § Substance is Taken in Larger Amounts (or for longer than intended)
  - o **Mental Addiction** → Change in Behaviour:
    - § **\*Compulsive Use Despite Serious Negative Consequences**
    - § Persistent Desire, but Unsuccessful Attempts to Cut Down Use
    - § Obsessive behaviour focussed on *Obtaining/Recovering From* the Substance
    - § Social/Occupational/Recreational Activities *Given Up* in favour of substance
    - § Substance Use continues Despite Awareness of Problems
  - o **IE> The Need to Constantly Take the Drug to Feel Physically/Mentally ‘Normal’**
  - o **Note: Pathological Symptoms Occur on Cessation of Use**

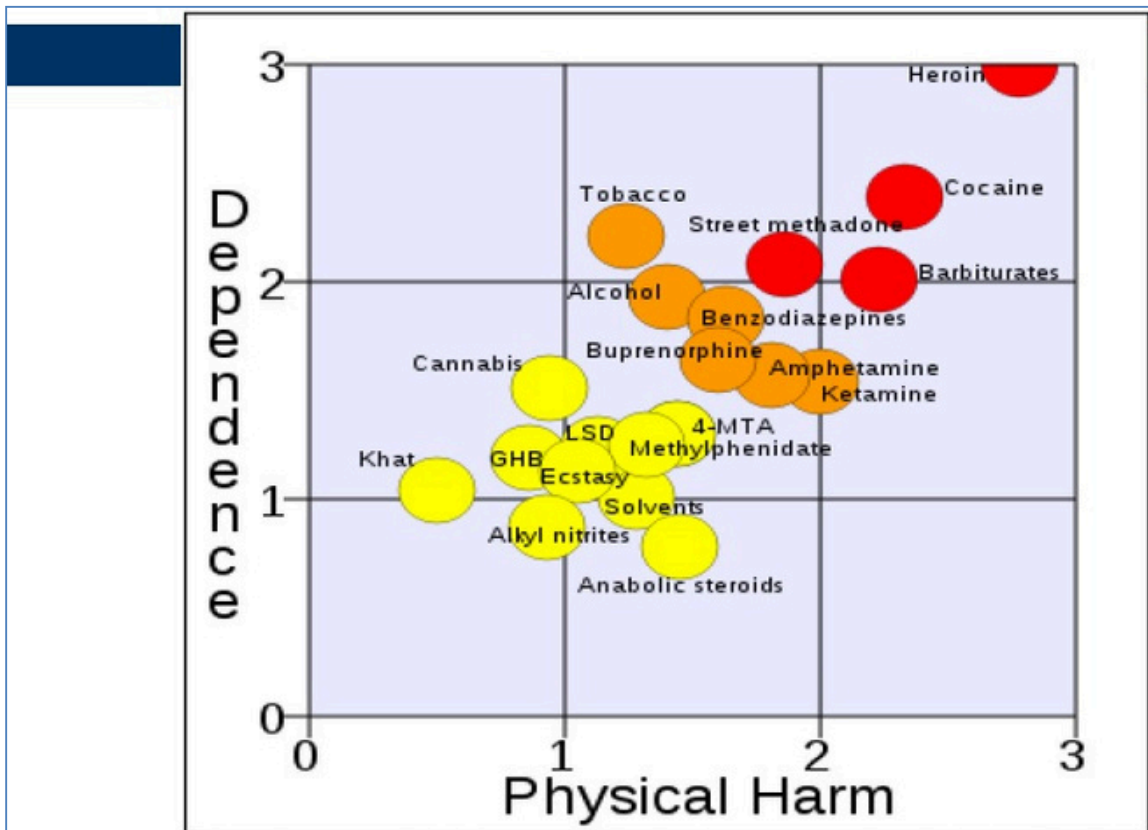
### Why Do People Become Dependent on Drugs? – ‘The ‘Mesolimbic’ Dopamine Pathway’:

- **Primary Effects are on the Midbrain → contains many areas important to Substance Dependence:**
  - o **Ventral Tegmental Area & Nucleus Accumbens:**
  - o -Regions are involved with Motivation & Learning
  - o -Involved in Reinforcing Behaviours that are:
    - § Pleasurable
    - § Or Life-Sustaining
  - o Therefore, Ironically, the pathways critical to evolutionary fitness are central to the Self-Destructive condition of Drug Dependence
- **The “Limbic (or ‘Mesolimbic’) Reward System” – AKA: The “Addiction Pathway”:**
  - o Pleasurable Stimuli → **Dopamine Release in Nucleus Accumbens & onto Prefrontal Cortex**



Original: NIDA / Derivative work: Quasihuman, Public domain, via Wikimedia Commons

**Which are the Most Addictive & Physically Harmful Drugs?:**



Data from The Lancet shows heroin to be the most addictive and most harmful of 20 drugs.(ref available)

- Note: Alcohol & Tobacco are more “harmful” & “addictive” than Ecstasy, LSD & Cannabis



### Substance Withdrawal:

- **Defined as Either:**
  - o Characteristic Withdrawal Syndrome (Symptoms Specific to the Particular Substance)  
§ OR
  - o Where the *Same* or *Closely-Related* Substance is taken to Relieve/Avoid Withdrawal Symptoms  
(Eg: Nicotine Supplements for Smoking Cessation)
- **Note:** Withdrawal Symptoms usually ≈ Opposite Effects of the Drug
- **Note:** Withdrawal is a Consequence of Dependence

### Why Do People Use Drugs?

- **Individual Risk Factors:**
  - o Positive Expectations of Use
  - o Poor Coping Skills
  - o Interpersonal Difficulties
  - o Psychological Trauma
  - o Impulsiveness
  - o Low Self-Esteem
  - o Anxiety
  - o Depression
  - o Poor Academia
  - o Sensation-Seeking Personality
- **Social/Environmental Risk Factors:**
  - o Low SES Status
  - o Liberal/Cultural Norms Towards Use
  - o High Crime Rate
  - o High Unemployment
  - o Alienation
  - o Drug Availability
- **Family Risk Factors:**
  - o Parental Substance Abuse
  - o Positive Family Attitudes towards Use
  - o Family Disruption
  - o Parental Anti-Social Behaviour
  - o Poor Attachment
  - o Poor Parental Monitoring
- **Peer Risk Factors:**
  - o Heavy Substance Use among Peers
  - o Positive Peer Attitudes towards Use
  - o Greater Attachment to Peers than to Parents
  - o Delinquent Peer Group

### Barriers to Accessing Healthcare for Drug User:

- Discrimination & Stigma
- Negative Attitudes based on Stereotypes & Fear
- Note: Drug Users are a Diverse Group who require Professional & Effective Treatment

### Drug Seeking Behaviours:

- **Verbal & Non-Verbal Communication Don't Match**
  - o Eg: Says they are having a migraine, but don't mind bright light or don't look like they're in pain
- **Asking for Drug by Name & Dismissing other suggestions**
- **Arriving Near Closing Time**
- **"Not from the area"**
- **May bring a False Letter from 'Their Doctor'**
- **Last Minute Requests ('Doorknob Questions')**

# ILLICIT DRUGS :

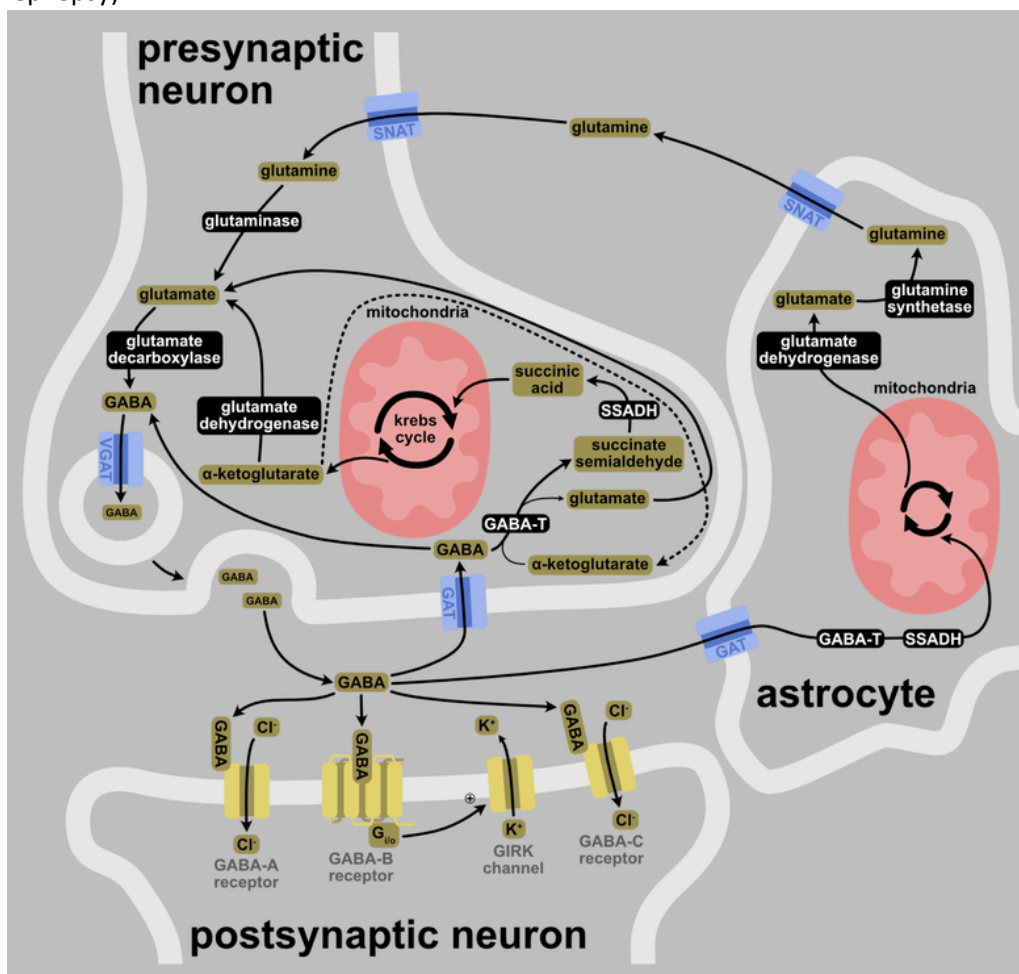
## - Summary of the Basic Pharmacodynamic Effects:

| CNS Depressants                              |   | CNS Stimulants |  |
|--|---|----------------|--|
| Drug   | Pharmacodynamics (MOA)  | Drug           | Pharmacodynamics (MOA)   |
| Alcohol (Legal)                              | <ul style="list-style-type: none"> <li>↑ Effects of GABA (Inhibitory)</li> <li>↓ Effects of G lut. (Stim ulatory)</li> <li>Stim ulates M esolim bic Pathw ay</li> </ul> | Cocaine        | Blocks Reuptake of: <ul style="list-style-type: none"> <li>- Dopamine</li> <li>- Noradrenaline</li> <li>- Serotonin</li> </ul> → Prolonged Effects.<br>Stim ulates M esolim bic Pathw ay |
| Benzodiazepines                              | GABA Channel Modulator –<br>↑ Channel's Affinity for GABA)<br>↑ GABA Actions → Cl <sup>-</sup> Influx<br>(Inhibitory)   | Amphetamines   | ↑ Release of Dopamine<br>↓ Reuptake of Dopamine<br>→ Prolonged Dopamine Action.<br>Stimulates Mesolimbic Pathway   |
| Opioids<br>(Heroin/<br>Codeine/<br>Fentanyl) | ('mu' & 'delta' Opioid Receptor<br>Agonists)<br>Dopamine Release in Mesolimbic<br>Pathway   | Ecstasy        | ↑ Release of Serotonin<br>↓ Reuptake of Serotonin<br>(Similar to antidepressant effects of<br>'SSRIs')   |

## CNS DEPRESSANTS

### BENZODIAZEPINES:

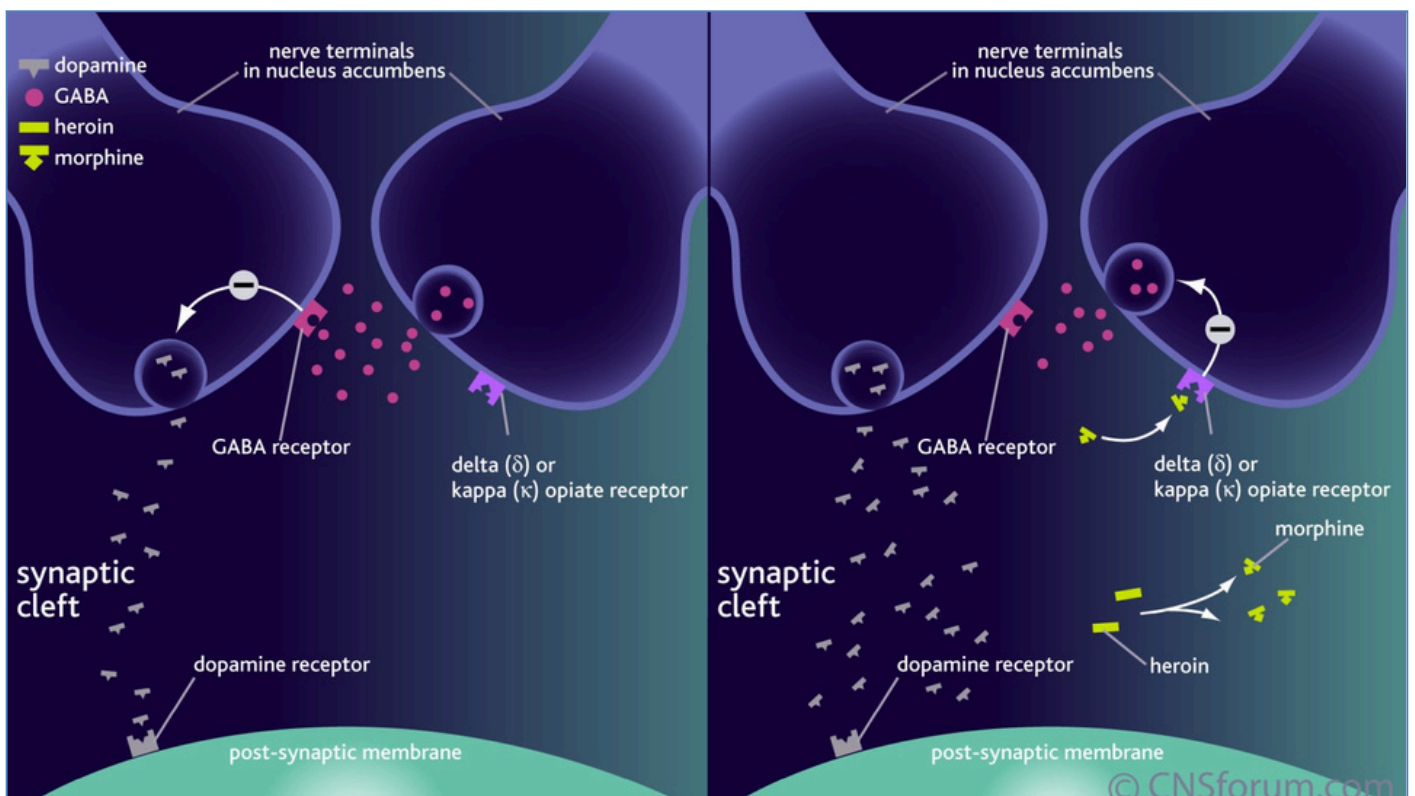
- Benzos are GABA<sub>A</sub> Channel Modulators
- Agonist-Like Effect but NOT an Agonist → Causes Conformational Change in GABA Channel
- → Makes it easier for GABA to Open the Channel
- → ↑ Frequency of GABA-Channel Opening:
  - o IE: ↑ Cl<sup>-</sup> Influx → Hyperpolarisation → Stabilises Membranes of Target Neurons (Note: Useful in epilepsy)



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## HEROIN (& OTHER OPIOIDS):

- Q) Heroin is a *Precursor* to Morphine, so Why is it preferred to Morphine?
  - o A) Because Heroin is *More Lipophilic* → Crosses the BBB *Much Quicker*
- **Mechanism Of Action: Activates Opiate Receptors in Brain →**
  - o → Inhibits GABA Release in Nucleus Accumbens (↓Inhibition)
  - o → Decreased Inhibition of Dopaminergic Neurons → ↑Dopamine Release
  - o \* → ↑**Dopamine Release in Mesolimbic Pathway → Pleasure**
- **Immediate Effects:**
  - o Euphoria
  - o Nausea & Vomiting (Note: Dopamine can trigger vomiting centres)
  - o Pinpoint Pupils
  - o Shallow Breathing
  - o Hypothermia
  - o Sedation
- **Long Term Effects:**
  - o Collapsed Veins & Skin Abscesses
  - o ↑Risk of Blood-Borne Diseases (From Needle Use – Eg: HIV/HEP-B/Etc)
  - o Chronic Constipation → Faecal Impaction
  - o Fertility Problems
  - o Malnutrition & ↓Immune Function
  - o Social Problems (Relationships/Career/etc)
  - o Risk of Overdose (Note: Even in Experienced Users)



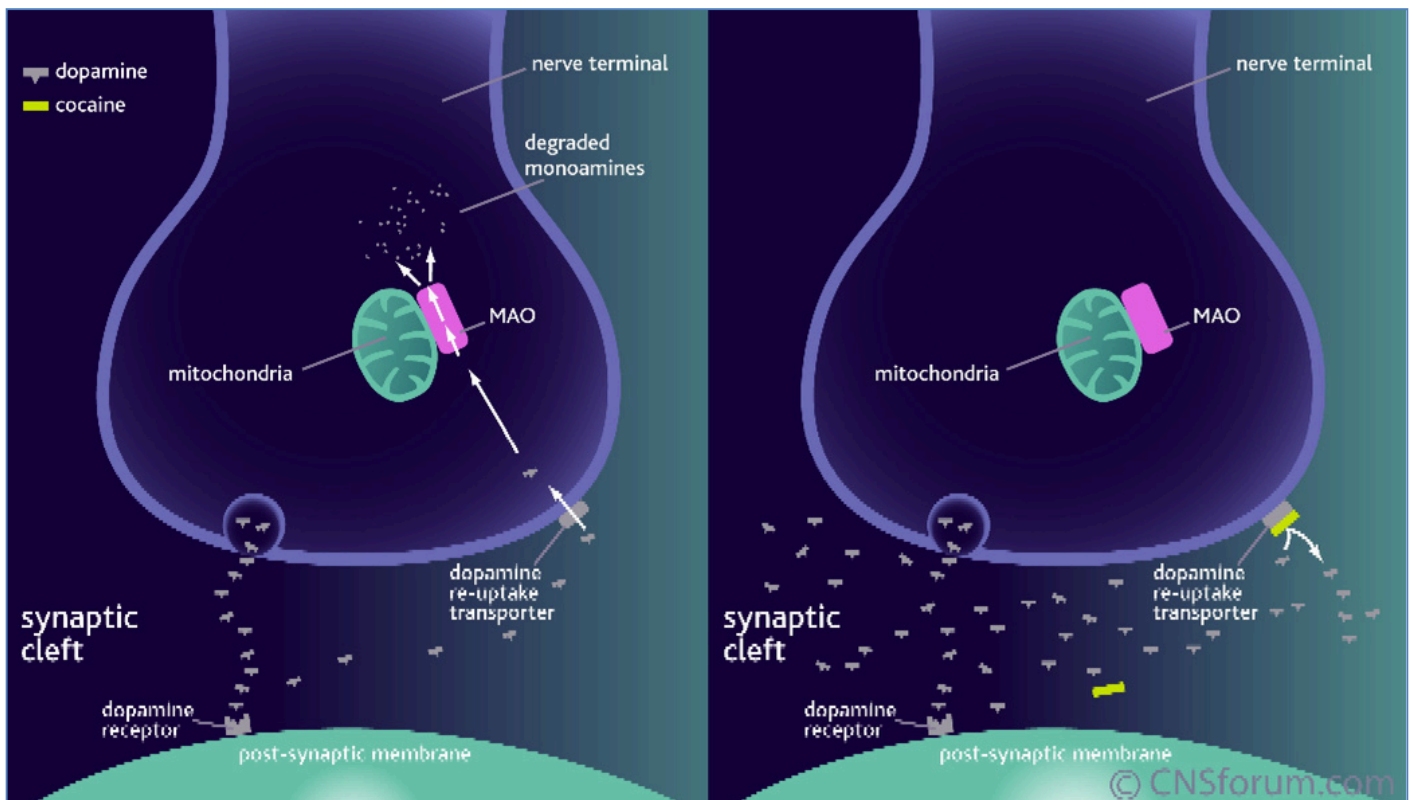
Source: cnsforum.com

**COCAINE:**

- Is a Powerful Anaesthetic (If Pure)
- Is Usually Snorted, but can also be injected
- **Mechanism Of Action: Blocks Dopamine Reuptake Transporter** →
  - o → Elevated Dopamine Levels in the Synapse
  - o (Note: Same MOA to Serotonin Reuptake Inhibitors (Antidepressants))
- **Immediate Effects:**
  - o Tachycardia
  - o Hyperthermia
  - o Pupil Dilation
  - o Faster Movements than usual
  - o **Others Depend on Dose:**

| Small Amounts  | Large Amounts  |
|--|--|
| <ul style="list-style-type: none"> <li>- Feeling Good</li> <li>- Feeling Excited</li> <li>- Feeling Confident (Taking more risk than usual)</li> <li>- ↓Appetite</li> <li>- Feeling Alert &amp; Energetic</li> <li>- ↑Aggressive</li> <li>- ↑Sexual Drive</li> </ul> | <ul style="list-style-type: none"> <li>- Headaches</li> <li>- Dizziness</li> <li>- Hypervigilance</li> <li>- Violence/Aggression</li> <li>- Loss of Libido</li> <li>- Chest Pain</li> <li>- Myocardial Infarction</li> <li>- Convulsions</li> <li>- Psychosis</li> </ul> |

- **Long Term Effects:**
  - o Nose Bleeds (Epistaxis)
  - o Sinus Problems
  - o Damage Inside Nose (Eg: Hole in Nasal Septum)
  - o ↑Risk of Blood-Borne Diseases (From Needle Use – Eg: HIV/HEP-B/Etc)



Source: cnsforum.com

## **AMPHETAMINES (Powdered form - AKA: "Speed") (Crystal form – AKA: "ICE"):**

- **Note: "ICE" Is Crystal Methamphetamine – a powerful, synthetic stimulant**
  - o ICE is more potent than other forms of Amphetamine
  - o ICE = 80% Pure
- **Note: "Speed" is Powdered Methamphetamine**
  - o Speed is Less Potent
  - o Speed = 20-30% Pure
- **How is it taken? – Smoked/Swallowed/Snorted/Injected/Vaporised**
- **Mechanism Of Action – 2 Fold Action on Dopamine Reuptake & Vesicular Storage:**
  - o **1: Reverses** the Dopamine Reuptake Transporters
    - § (IE: Instead of Taking Up Dopamine, they Secrete Dopamine into the Synapse)
    - § → ↑[Dopamine] in the synapse
  - o **2: Inhibits** Dopamine Packaging Transporters in Vesicles
    - § → ↑[Dopamine] in Pre-Synaptic Terminal → More to be leaked out through the Reversed Reuptake Transporters
  - o → ↑[Dopamine] in the Synapse
- **Immediate Effects:**
  - o **Physiological:**
    - § Tachycardia & Palpitations
    - § Tachypnoea
    - § Hypertension
    - § Hyperthermia
    - § Excessive Sweating
    - § ↓Appetite
    - § Dilated Pupils
    - § Dry Mouth
    - § Nausea
    - § Dizziness, Headaches, Blurred Vision
  - o **Psychosomatic:**
    - § Euphoria/Excitement
    - § Hypervigilance & Insomnia
    - § ↑Confidence
    - § ↑Libido
    - § Talkativeness
    - § Itching, Picking/ Scratching
    - § Tremors in Hands & Fingers
    - § Amphetamine Psychosis:
      - Hallucinations
      - Paranoid Delusions & Panic Attacks
      - Bizarre Behaviour
      - Aggression & Hostility
  - o **Coming Down:**
    - § Tension
    - § Depression
    - § Radical Mood Swings
    - § Uncontrollable Violence
    - § Aggression
- **Long Term Effects:**
  - o Hypertension (& Subsequent risk of MI & Heart Failure)
  - o Malnutrition & Rapid Weight Loss
  - o Chronic Insomnia
  - o ↓Immunity
  - o Depression/Anxiety/Tension/Paranoia
  - o Brain Damage
  - o Dental Problems (From Grinding Teeth) → "Meth Mouth"

## ECSTASY (MDMA – Methylene DioxyMethAmphetamine):

- **Note: Contains *Both* Amphetamines & some Hallucinogens**
- o IE: Has Stimulant & Psychogenic Effects
- **Note: The Major Concern with 'E' is the Doubtful Purity of home-pressed tablets**

### Mechanism Of Action – Inhibits the Vesicular Monoamine Transporter:

- o → Increased Concentrations of Serotonin, Norepinephrine & Dopamine in the Cytoplasm.
- o Also Induces their release by Reversing their Respective Reuptake Transporters.
- o → ↑**Synaptic [Serotonin, Norepinephrine & Dopamine]**.

### Immediate Effects:

- o Note: Effects can last for up to 6hrs.
- o Confidence
- o ↑Affection
- o Anxiety
- o Paranoia & Hallucinations
- o Hyperthermia (& → ↑Sweating → Dehydration)
- o Tachycardia
- o Hypertension

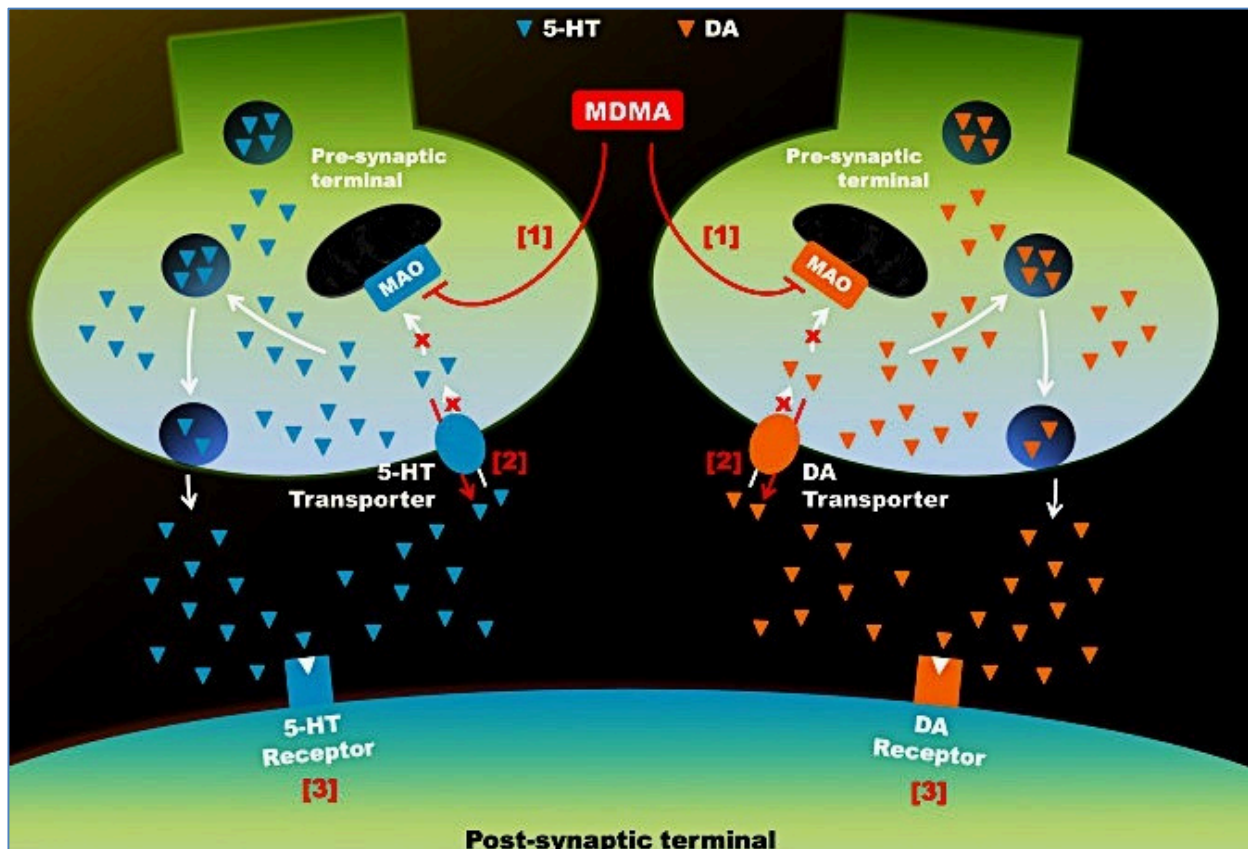
- o Seizures
- o Vomiting
- o Clenching of Jaw → Headaches.

### Long Term Effects:

- o Insomnia
- o Grinding of teeth
- o Depression
- o Poor Concentration

### Overdose or Bad-Reaction:

- o Extreme Hypertension o
  - o Tachycardia → Atrial Fibrillation o
  - o Hyperthermia → Possible Death o
- Note: Users must remember to keep hydrated.



Daniel José Barbosa, João Paulo Capela, Maria de Lourdes Bastos, Félix Carvalho,

Chapter 40 - Mitochondrial Trails in the Neurotoxic Mechanisms of MDMA, <https://doi.org/10.1016/B978-0-12-800212-4.00040-6>.

## **TOBACCO/NICOTINE:**

### - **Definition of smoker:**

- o Someone who smokes daily-weekly.

### **Epidemiology:**

o **Is the Leading preventable Cause of Death Worldwide.**

o 1/3 of adult population smokes worldwide

o The younger you are when you start smoking, the more likely you are to become lifetime smokers.

o About 50% of smokers die of a tobacco-related disease.

o Higher Proportion of men smoke than women (Overall Rate is Declining)

o Highest rate of smoking in:

§ 24-29 yrs

§ Men

§ Low SES

### - **Components of Tobacco Smoke:**

o **\*NICOTINE – The Addictive Stuff.**

o **Also Contains Mono-Amine-Oxidase Inhibitor Compounds:**

§ MAO's are Responsible for the Breakdown of many Neurotransmitters including:

- \*Dopamine
- Serotonin
- Epinephrine
- Norepinephrine

o **Also Contains Lots and lots of Carcinogens:**

§ → ↑↑Risk of Cancer (Especially Mouth, Tongue, Nose, Tracheal, Lungs)

o **Also Contains Lots of Carbon Monoxide**

§ Has a higher affinity for Hb than oxygen → Prevents full O2 saturation of Hb

o **Also contains TAR:**

§ Approximately 1 cup of tar is deposited in the lungs from a pack a day after just 1 year

### - **Health Effects:**

o Vascular Changes:

§ Atherosclerosis

§ Heart Disease

§ Cerebrovascular Disease

§ Peripheral Vascular Disease

o Cancer

o Lung Disease (COPD & emphysema)

o Toxicity to Reproductive system

§ Impaired fertility

§ Foetal effects (prematurity, low birth weights)

o Delayed healing of Peptic Ulcer Disease

### - **What do you die of?:**

o Mostly Cancer

§ \*Lung

§ Head/neck cancers

§ Pancreatic cancer

o Vascular Disease (Eg: Peripheral Vascular Disease → Necrosis of peripheral limbs)

o COPD

o Other Respiratory (Emphysema)

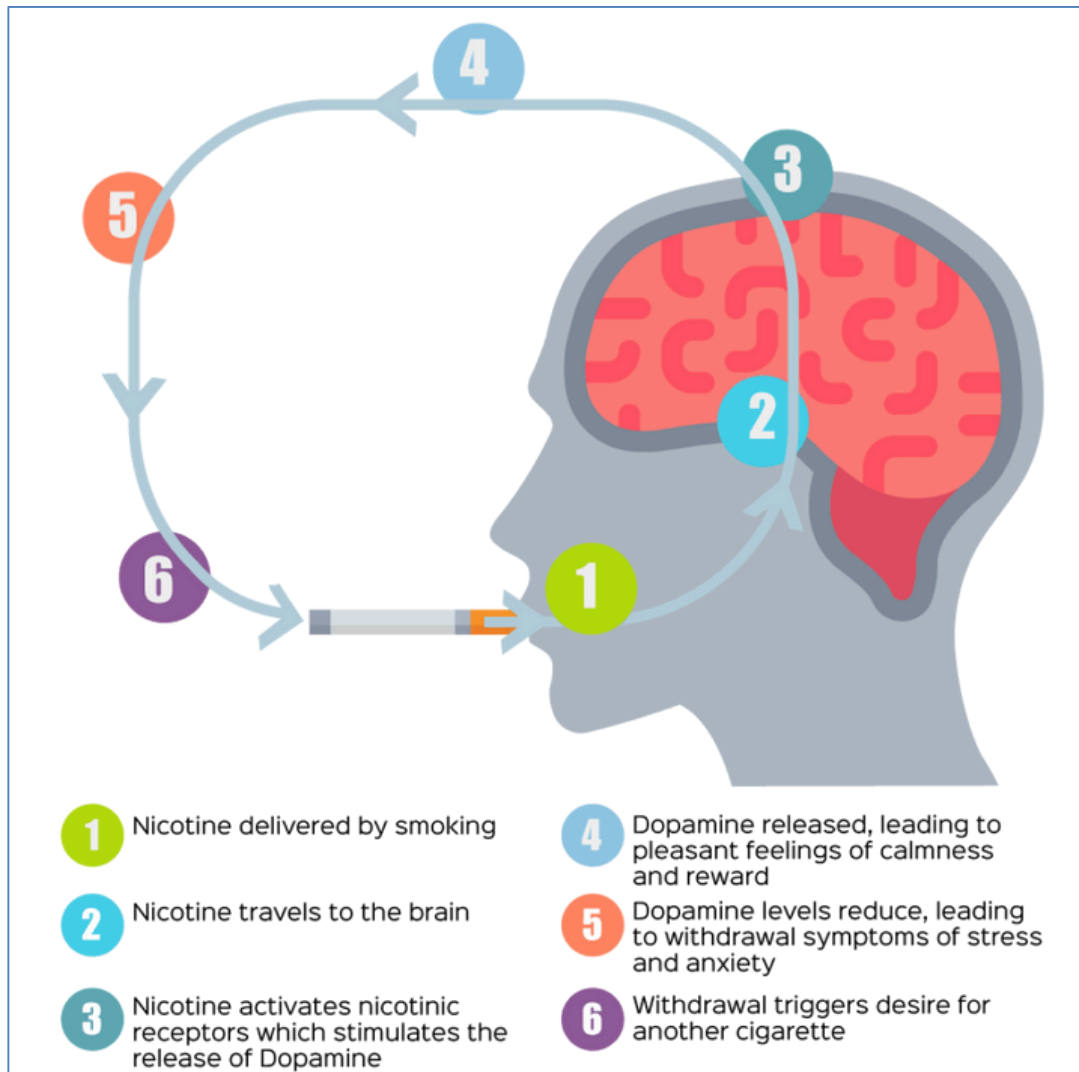
- **What Makes Tobacco Addictive?:**

o **Nicotine is the active ingredient (It is a natural Insecticide)**

- § Nicotine is readily absorbed through the skin
- § Is a Euphoric substance in small doses:
  - Explains why people like to smoke
- § Is a Neurotoxin in large doses:
  - Parasympathetic Responses
- Metabolised by the P450 Enzyme System

o **Neurobiology of Nicotine Addiction:**

- § **\*Nicotine Enters Brain → Stimulates Nicotinic Acetylcholine Receptors → Dopamine secretion → ↑Dopamine Concentration in Dopamine Reward pathway**
  - →Addiction to “Reward” sensation
- § The Dopamine Reward Pathway is what motivates you to do activities that ensure your survival (Eg: Eating when hungry, reproductive urges) Hence why it is so hard to override
- § Note: all addictive substances influence this mesolimbic pathway (Brain Dopamine Reward Circuit)→ Dopamine release into this circuit causes mild euphoria



Source: <https://ash.wales/mind-over-matter-why-quitting-smoking-could-improve-your-mental-health/>



- **Nicotine Withdrawal:**

o Due to Re-Regulation of the Nicotinic Ach Receptors (complete after 2-3 weeks)

o Note: Long term susceptibility to relapse

o **Symptoms:**

- § Depressed mood
- § Insomnia
- § Irritability
- § Anxiety
- § Poor concentration
- § Restlessness
- § ↓HR
- § ↑Appetite
- § ↑Weight

- **Pharmacological Interventions:**

o **Nicotine Replacement with step down plan:**

- § Gum
- § Patch
- § Inhaler/electronic cigarette
- § Lozenge
- § Sublingual Tab

o **Bupropion:**

- § An antidepressant
- § Stimulates Dopamine and Noradrenaline Release
- § Stimulates the reward pathway
- § Is NOT addictive, but can still have some withdrawal symptoms

o **Varenicline (chamfix):**

- § Work at the nicotinic receptor level
- § Has the highest success rate (of approximately 16%)

o **Vaccine?? – Still Being Developed**

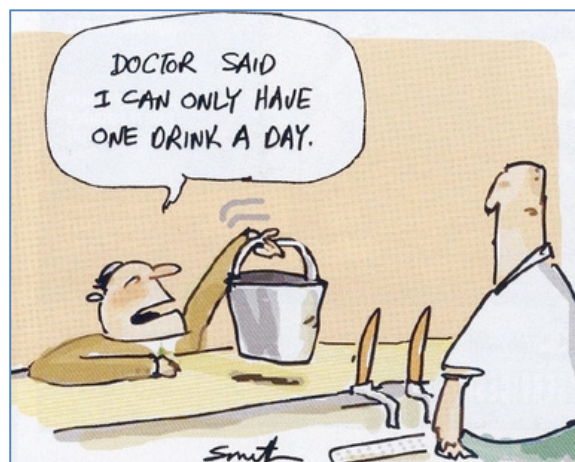
o **Behavioural Treatment:**

- § **Motivational Interviewing by Doctor**
- § Quitline
- § Advice
- § Counselling with craving avoidance strategies




## ALCOHOL/ETHANOL:

- **Why do People Drink?**
  - o Pleasure (For the Effects/Taste)
  - o Self-Medication for Anxiety (Eg: Reduces Anxiety)
  - o Genetic Predisposition to Alcoholism
  
  - o Parents were Alcoholics
  - o Psychiatric Co-Morbidity (Eg: Depression/Eating Disorders/Sexual Abuse)
- **Mechanism of Action (in Brain):**
  - o Increases GABA Activity (Inhibitory)
  - o Decreases Glutamate Activity (Stimulatory)
  - o Stimulates Reward Pathway
- **Statistics:**
  - o **Alcohol is Implicated in:**
    - § 50% of Assaults
    - § 30% of Motor Vehicle Accidents
    - § 12% of Suicides
    - § 10% of Industrial Accidents
  - o **Who Drinks:**
    - § **Males:**
      - 48% Drink at least 1/week
      - 12% Drink at least 1/day
      - 10% Drink at HAZARDOUS LEVELS
    - § **Females:**
      - 35% Drink at least 1/week
      - 6% Drink at least 1/day
      - 10% Drink at HAZARDOUS LEVELS
- **\*Standard Drinks:**
  - o **\*1 Standard = 10g of Pure Alcohol**
    - § = 30ml Spirits
    - § = 285ml Beer
      - = 1can Mid-Strength
      - = 2 cans Light Beer
    - § = 100ml Wine
    - § = 60ml Port
  - o **\*Calculating Standard Drinks from a %Alcohol:**
    - § **Figures to Remember:**
      - 1 Standard = 10g Alcohol
      - Specific Gravity (IE: Density) = 0.789g/ml
    - § **Exemplar – Q) How many Standards in 170ml of Champagne (11.5%)?**
      - $170\text{ml} \times 11.5\% = 19.55\text{ml}$  of Alcohol
      - $19.55\text{ml} \times \text{SG} (0.789) = 15.4\text{g}$  of Alcohol.
      - $15.4\text{g}/10\text{g} = 1.54$  Standard Drinks



- **Adverse Effects:**

| Psychosocial   | Physical  |
|--|---|
| <ul style="list-style-type: none"> <li>- Loss of Self Esteem</li> <li>- Irritability</li> <li>- Devious Behaviour</li> <li>- Anxiety &amp; Phobias</li> <li>- Depression</li> <li>- Stress</li> <li>- Relationship breakdown</li> <li>- Child Abuse</li> <li>- Memory Disturbances</li> <li>- Accidents</li> <li>- Driving Offences</li> <li>- Crime/Violence</li> <li>- Attempted Suicide.</li> </ul> | <ul style="list-style-type: none"> <li>- Brain Damage (Irreversible)</li> <li>- Epilepsy</li> <li>- Depression</li> <li>- Wernicke-Korsakoff Syndrome (AKA Alcoholic Encephalopathy) – Result of Thiamine (VitB1) Deficiency. → Vision Changes, Ataxia &amp; Impaired Memory</li> <li>- Insomnia</li> <li>- Hand Tremor</li> <li>- Peripheral Neuropathy (Eg: “Dupuytren’s Contracture”)</li> </ul> <div style="text-align: center;">  <p>(Or Tactile Disturbances)</p> </div> <ul style="list-style-type: none"> <li>- Hypertension</li> <li>- Heart Disease</li> <li>- Liver Disease</li> <li>- GIT Disease</li> <li>- Sexual Dysfunction.</li> <li>- Gout (from Red Wine)</li> <li>- Obesity</li> <li>- Metabolic/Endocrine Disorders (Gynecomastia, Hyperlipidaemia, Osteoporosis, etc)</li> <li>- Haematopoietic Effects (Macrocytic Anaemia, Leucopenia, Thrombocytopenia)</li> <li>- Some Cancers</li> </ul> |

- **Alcohol Dependence:**

- o For definition of ‘Dependence’, see start of notes
- o **Note: Dependence Requires a High Level of Tolerance:**
  - § **Tolerance** = If ↑Dose is required for the same effect
- o **Random Fact:** People who start drinking @ 15 or younger, are 4X more likely to become dependent than those starting @ 21 or older

- **Screening for Alcohol Dependence:**

- o **“CAGE” Test – For Alcohol Dependence:**
  - § **1:** Ever wanted to **Cut** Down on Drinking?
  - § **2:** Ever been **Annoyed** by someone criticising your drinking?
  - § **3:** Ever felt **Guilty** about your drinking?
  - § **4:** Ever had an **Eye Opener?** (Eg: Drank in the morning to steady nerves/fight hangover)
  - § **Note: A score of 2/More Suggests Alcohol Dependence**
- o **“AUDIT” Test – For Alcohol Problems:**
  - § (Alcohol Use Disorders Identification Test)
  - § **10 Question Questionnaire**
    - Higher Score = Higher Risk Drinking
    - Very High Score = Dependence
    - Note: The Score is *Gender-Dependent*

## WHAT'S YOUR SCORE?

| QUESTIONS  | SCORING SYSTEM |                   |                     |                    |                       |
|--|----------------|-------------------|---------------------|--------------------|-----------------------|
|  | NEVER          | MONTHLY OR LESS   | 2-4 TIMES PER MONTH | 2-3 TIMES PER WEEK | 4+ TIMES PER WEEK     |
| How often do you have a drink containing alcohol?  | 0              | 1                 | 2                   | 3                  | 4                     |
| How many units do you drink on a typical day when you are drinking?  | 0-2            | 3-4               | 5-6                 | 7-9                | 10+                   |
| How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year? | NEVER          | LESS THAN MONTHLY | MONTHLY             | WEEKLY             | DAILY OR ALMOST DAILY |
|  | 0              | 1                 | 2                   | 3                  | 4                     |

**1 UNIT =**

- 1/2 pint of beer
- or
- 1/2 glass of wine
- or
- 1 single shot of spirit

**YOUR TOTAL**

**CHECK BELOW TO FIND OUT YOUR RESULTS**

|  |   |   |
|--|---|---|
| <b>0 1 2 3 4</b><br><b>SCORED 0-4?</b><br>Congratulations! Your drinking is at low-risk for health harm. Keep it up! | <b>5 6 7 8 9 10</b><br><b>SCORED 5-10?</b><br>You may be drinking at a level that could put your health at risk. A few small changes could make all the difference. | <b>11 12</b><br><b>SCORED 11 OR 12?</b><br>It may be worth speaking to your GP about your score. Take this scratch card with you and ask for some advice. Or, you could call Drinkline. |
|--|---|---|

<https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention/chapter-2-summary-guidance-tables-for-dental-teams>

- **Biological Markers of Alcohol Abuse:**
  - o **Macrocytic Anaemia** – (↑MCV & ↓Hb)
  - o **Elevated Liver Enzymes** – (Especially GGT – ‘Gamma Glutamyl Transferase’)
  - o **Fatty Liver**
  - o **Alcoholic Hepatitis**
  - o **Cirrhosis of Liver**
- **Clinical Management:**
  - o **Early Recognition & Intervention** → Best Outcomes
    - § **Early Brief Intervention:** IE: Motivational Interviewing
    - § **Pharmacotherapy:** Is Used for Patients with Alcohol Dependence
  - o **How to Bring it Up?**
    - § **ASK** About Alcohol as part of the Social Hx & Lifestyle Factors
    - § Use Screening Tests – **CAGE & AUDIT**
  - o **Note: A Detailed Assessment is Crucial:**
    - § Alcohol History – (Qty, Time, Withdrawal, Pattern)
    - § Physical, Social & Emotional Problems
    - § Physical Examination – (Especially Liver Disease)
    - § Investigations – (Eg: Blood Tests – Mean Cell Volume; & Liver Function Tests)
  - o **Tips to Reduce Drinking:**
    - § Note: these don’t work for full-blown alcoholics

| Ways To Limit Yourself When Drinking   | Ways To Avoid Drinking   |
|--|--|
| Have your 1st drink after starting to eat.<br>Quench thirst with <i>Non-Alcoholic</i> drink First.<br>Have a Non-Alcoholic Drink before every Alcoholic one.<br>Switch to Light-Beer/Dilute Spirits more.<br>Take Smaller Sips | Plan other activities around the times you usually drink.<br>When Bored/Stressed, do exercise instead of drinking.<br>Explore new interests – Re-Occupy your time.<br>Avoid the pub after work<br>If under social pressure, say “my doctor told me not to” |

- **Alcohol Withdrawal:**
  - o **Note: Alcohol Withdrawal is one of the Only 2 Life-Threatening Withdrawal Syndromes**
    - § **2-10% Fatality Rate** – Due to Arrhythmia or Pneumonia
    - § (The other is Benzo-Withdrawal)
    - § (All Other drug withdrawal symptoms are *Unpleasant*, but *Not Life-Threatening*)
  - o **Note: Severity is Measured by ‘CIWA Score’** (Clinical Institute Withdrawal Assessment)
  - o **Symptoms (Simple or Complex):**
    - § **‘Simple’ Withdrawal Symptoms:**
      - Confusion, Agitation, Hallucinations, Anxiety, Paranoia, Insomnia, Depression
      - Tremors
      - ↑Sympathetic Activity (Tachycardia, Perspiration)
      - Nausea & Vomiting
    - § **‘Complex’ – ‘Delirium Tremens’**
  
- **SEVERE Alcohol Withdrawal → DELIRIUM TREMENS (A Medical Emergency!!)**
  - o AKA: “The DT’s”/“Rum Fits”
  - o **Timeframe:**
    - § **Begin Within 2 Weeks** After Ceasing Alcohol
    - § **Last for ≈1-6 Days**
  - o **Withdrawal Likely if:**
    - § Over 30yrs
    - § Regular (Daily) Heavy Alcohol Use
    - § History of Previous DT’s/Dependence/Withdrawal
    - § Raised GGT or MCV
    - § Presence of Alcohol-Related Disease
  - o **Pathophysiology of DT’s:**
    - § ↑Cardiac Workload
    - § Hyperventilation → ↑Arterial pH → ↓Cerebral Blood Flow (Autoregulation)
    - § ↑Sympathetic Activity → Sweating, Fever, Vomiting, Tachypnoea
    - § Hypokalaemia due to Renal Excretion & Altered Aldosterone Levels
    - § Hypomagnesemia → Causes Withdrawal Fits
    - § Hypophosphataemia from Malnutrition → Can cause Heart Failure
  - o **‘Complex’ Withdrawal Symptoms:**
    - § Seizures (Grand Mal /Tonic-Clonic)
    - § Severe Hypervigilance & Agitation
    - § Hyperthermia
    - § Tachycardia
    - § Hypertension
    - § Arrhythmias → Possible Cardiac Arrest
    - § Possible CVA (Cerebrovascular Event)
  
- **Treating Alcohol Withdrawal:**
  - o **Treated with Sedatives (#1 – Diazepam)**
    - § Adjust doses until symptoms stabilise
    - § Patient is gradually weaned off as Symptoms Subside
  - o **Other Symptomatic Treatment:**
    - § IE: Drugs for Vomiting, Diarrhoea & Cramps
  - o **Correct Electrolytes**
  - o **Correct Vitamin Deficiencies (VitB1/Thiamine)**
    - § Note: If not corrected, patients may develop Wernicke-Korsakoff Syndrome

- **WERNICKE-KORSAKOFF SYNDROME (AKA Alcoholic Encephalopathy):**
  - o **A Preventable, but Irreversible Demented/Amnesic State**
    - § Can be fatal – 20% (if Untreated)
    - § 75% of Untreated Cases → PERMANENT BRAIN DAMAGE
    - § 20 % of Survivors Require LIFE-LONG Care! (In Nursing Home/Mental Health)
  - o – **Results from Thiamine (VitB1) Deficiency often due to Alcohol**
    - § Note: Alcohol Inhibits Uptake of Oral Thiamine
  - o **Note: Thiamine is Metabolically Critical:**
    - § - **For Enzymes in the *Pentose Phosphate Pathway*:**
      - Which are Essential for Nucleic Acid Synthesis & Neurotransmitter Synthesis
    - **For Enzymes in *Glycolysis & TCA-Cycle*:**
      - Which are Essential for Acetylcholine, Myelin, & Neurotransmitter Synthesis

## **(GAMBLING – A Non Substance-Based Addiction):**

- **Definitions:**
  - o **Gambling** = “To Risk Something Valuable on a Game of Chance, hoping to Make A Profit”
  - o **Problem Gambling** = “Gambling that results in Problems in Any Area of a Person’s Life”
- **Epidemiology:**
  - o 80% of Australian Adults gamble each year
  - o 2-3% have gambling *Problems*
- **Who is “At Risk” of Gambling:**

| <b>Risk Factor</b>   | <b>Explanation</b>                                  | <b>Effective Treatment</b>   |
|----------------------|---|--|
| <b>#1 = Access</b>   | Accessibility/Availability                          | -Cognitive Behavioural Therapy -<br>Education on Odds/Probability -<br>Brief Solution-Focussed Therapy -                                 |
| <b>Vulnerability</b> | Eg: A Maladaptive Coping Strategy for Trauma/Abuse. | Abstinence is Recommended<br>-Cognitive Behavioural Therapy<br>- Stress Coping<br>- Problem Solving Strategies                           |
| <b>Biological</b>    | Eg: ADHD & Impulsivity.                             | <b>-Note: Very Challenging to Treat.</b><br>- Abstinence is Recommended<br>- Cognitive Behavioural Therapy<br>- Psychiatric Consultation |

- **Why is it Addictive?**
  - o Gambling Produces *Similar Physiological Effects* as Drugs & Alcohol
    - § **IE:** It Triggers the Dopamine Reward Pathway
    - § People get addicted to the ‘*Rush*’ associated with a ‘*WIN*’
  - o **Note:** Some believe gambling to be a *Maladaptive Coping Behaviour*, rather than a *Disorder*
- **Problem Gambling:**
  - o **Problems Associated With Gambling – The ‘Ripple’ Effect:**
    - § The Effects of Problem-Gambling spill over into all aspects of the person’s life:
      - Work
      - Finance
      - Family/Friends
      - Community
  - o **Indicators of Problem-Gambling:**
    - § **Tense** – Nervous or ‘On Edge’
    - § **Lying** – Usually about money
    - § **Unexplained Absences** – From home & work
    - § **Isolation** – Decreased Interaction with others
    - § **Emotionally Absent** – In Relationships
    - § **Secretive** – IE: With mail (IE: Avoiding bad bills, etc)
    - § **Breaking Promises** – IE: Unreliable
    - § **Out of Touch**
  - o **\*2 SCREENING-QUESTIONS For Problem-Gambling::**
    - § **1:** Have you Ever Felt the Need to Bet *More Money*?
    - § **2:** Have you ever had to lie to people important to you about *how much* you Gamble?
  - o **Immediate Issues TO TARGET:**
    - § **Money** – Controlling Cash flow
    - § **Time** – Substitute Gambling Time with Other Activities
    - § **Stress/Anxiety/Depression** – Exploring new ways to Relax

**How People Change:**

- **Note: Patients don't change just because you say so**
  - o Ambivalence, Resistance & Defence Mechanisms are Normal
  - o **Intentional Change Occurs Gradually**
- **Requirements for Change:**
  - o Change in Thinking/Feeling about an Issue
  - o **\*\*Motivation**
  - o Intention (& Therefore Commitment)
  - o Planned Steps
  - o Time

**Motivational Interviewing & Health Coaching:**

- **- Is a Good Basis for Brief Interventions in a GP Setting:**
  - o Provision of Information & Advice in order to:
    - § -Guide the Patient to Elicit & Strengthen Motivation to Change
    - § -Explore & Resolve the Patient's Ambivalence to Change
    - § → Increases *Intrinsic* Motivation (Not External *Imposed* Motivation)
- **Focuses on the *Patient's* - :**
  - o Values
  - o Goals
  - o Motivations
  - o Insights
  
  - o Resources for Change
- **Things to Ask The Patient:**
  - o "How important is the issue to them?"
    - § (Scale 1-10)
  - o "What do they want to change?"
  - o "How confident are they in making the change?"
    - § (Scale 1-10)
- **Things to Remember:**
  - o Be Non-Judgemental
  - o Be Respectful
  - o Be Empathic
  - o The Patient is the Expert *on Themselves*
  - o The Patient is OK *Now*...And they *Experience*...(Depression/Alcoholism/Obesity/etc)
  - o People don't *Purposely* stuff up their lives
  - o There is No Miracle Cure
  - o Allow Patient to make their own choices (Whilst Encouraging Good Ones & Discouraging Bad Ones)



## Tools for Motivational Interviewing:

### - “SNAP”: – Guidelines for Managing Lifestyle Risk Factors:

#### o What are the Risk Factors?

- Smoking §
- Nutrition §
- Alcohol §
- Physical Exercise

### - “GRACE” Model - of Motivational Interviewing:

#### o **Generate a Gap:**

- § - Between the current situation & what the patient wants

#### **Roll with the Resistance:**

- § Be Agreeable → Prevents Stubborn Patients ‘Digging their Heels In’

#### **Avoid Arguments:**

- § Arguments only *Increase* Resistance

#### **‘Can-Do’ Attitude:**

- § Encourage Self-Efficacy & Hope
- § **‘Strengths Focus’** – What does the Pt already do well? – Build on this
- § **‘Solution Focused’** – Rather than problem solving
- § Keep it Simple - Small Steps

#### o **Empathy:**

- Listen §
- Communicate Acceptance & Support
- Gently Persuade
- Respect Personal Views & Choices

### - The 5 A’s Approach to Motivational Interviewing:

#### o **1: Ask:**

- § Ask which Risk Factors apply to Patient
- § Eg: Do you Smoke/Eat Healthily/Drink/Exercise?

#### o **2: Assess:**

- § Assess Level of Risk & Relevance to Patient’s Health
  - IE: Behaviour History (Smoking/Diet/Drinking/Exercise History)
  - BMI
  - **\*Cardiovascular Risk Calculator** – Work out absolute risk level for CVD
- § Assess Motivation/Readiness to Change
- § Assess Health Status

#### o **3: Advise:**

- § Advise with Written Information (Eg: Pamphlets)
  - Eg: Consequences of *No Change*
  - Eg: Benefits of *Change*
- § Advise with a Lifestyle Prescription (Life Script)
- § Advise with a Brief Intervention & Motivational Interviewing

#### o **4: Assist:**

- § Set Goals & Strategies
- § Assist with Pharmacotherapy
- § Assist with Self-Monitoring (Suggest Keeping a Diary)
- § Assist with Written **“Life-Script”**

#### o **5: Arrange:**

- § Arrange Referral to:
  - Specialist Services (Eg: Dietician/Exercise Physiologist/‘ATODs’)
    - o Note: ATODs = Alcohol, Tobacco & Other Drugs
  - Support Groups
  - Helplines
  - Counselling
- § Arrange Follow-Up

- **“Life Scripts” – Tools for Assessing & ‘Prescribing’:**

- o Life-Scripts Utilise the **5-A’s** method of Assessment
- o They also Use Questionnaires (Specific for each of the **“SNAP”** Lifestyle Risk Factors)
- o Finally, they Provide a Template for a **‘Prescription’** for a **Lifestyle Change**

**A Useful Tool: “The 5 Stages of Change Model”:**

- **1: Precontemplation:**

- o No intention to change behaviour
- o **Precontemplation → Contemplation:**
  - § Make the patient aware of the problem (Link their Behaviour to their Health)
  - § Show the Patient the *Trajectory* that they are on
  - § Encourage them to take ownership of the problem
  - § Explain the Negative Aspects of Problem (Convince patient that the behaviour *is* a problem)
- o Often it takes a **‘Cue For Action’** to move Patient from Precontemplation → Contemplation

- **2: Contemplation:**

- o Person is thinking about changing behaviour
- o **Contemplation → Preparation:**
  - § Get patient to Think How the Behaviour is Affecting Others
  - § Change how they think & feel about the Issue
  - § Note: Pushing People to Change can be Counterproductive → Resentment
  - § 3 Strong Motivators:
    - Health
    - Money
    - Relationships

- **3: Preparation:**

- o Person prepares to make the change:
- o **Preparation → Action:**
  - § Gathers information
  - § Finds out how to achieve the change
  - § Set Firm Goals & Priorities
  - § Acquiring Skills Necessary for change

- **4: Action:**

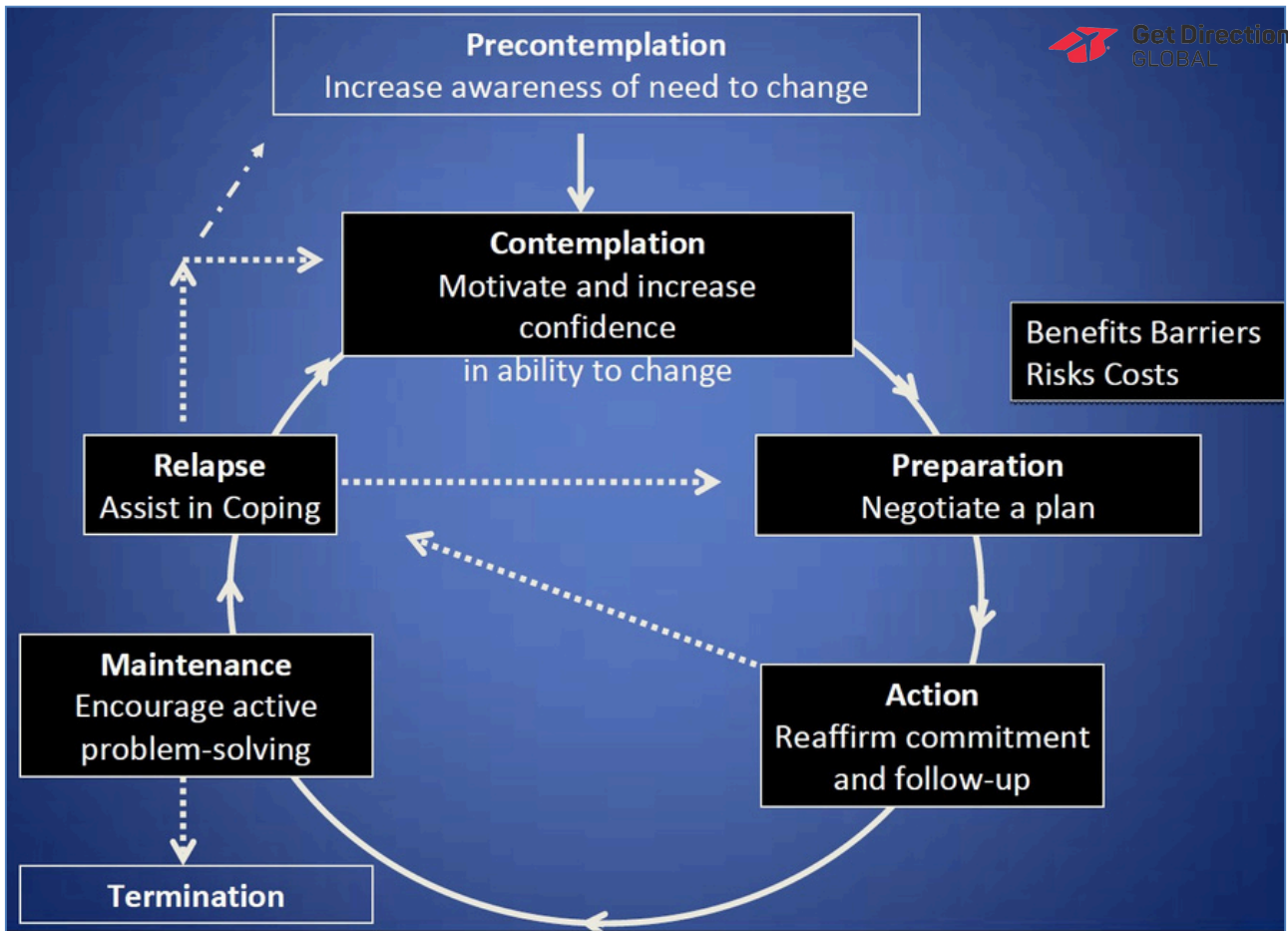
- o Person makes changes (may be small steps at first)
- o **Action → Maintenance:**
  - § Self-Efficacy is very important
  - § Keep focussed
  - § Acknowledge that Change is Difficult & Potential Relapse is Normal

- **5: Maintenance:**

- o Consistently practices new/altered behaviour
- o Acknowledge that Change is Difficult & Potential Relapse is Normal

- **//Relapse:**

- o Person relapses back to original behaviour
- o Move back to Contemplation if Relapse Occurs



**What Constitutes an Eating Disorder?**

- characterized by a persistent disturbance of eating that impairs psychosocial functioning or health

**Aetiology:**

- **Multifactorial:** psychological, sociological, and biological associations
- **Individual:** perfectionism, lack of control in other life areas, history of sexual abuse
- **Personality:** obsessive-compulsive, histrionic, borderline
- **Familial:** maintenance of weight equilibrium and control in dysfunctional family
- **Cultural factors:** prevalent in industrialized societies, idealization of thinness in the media

**Risk Factors:**

- **Physical factors:** obesity, chronic medical illness (Eg: Diabetes)
- **Psychological factors:**
  - o Eg: individuals who by career choice are expected to be thin,
  - o Eg: family history (mood disorders, eating disorders, substance abuse),
  - o Eg: history of sexual abuse (especially for BN),
  - o Eg: concurrent associated mental illness (depression, OCD, anxiety disorder [especially panic and agoraphobia], substance abuse [specifically for Bulimia])

**DSM-5 Diagnostic Criteria for ANOREXIA NERVOSA:**

- **A) intake and weight:** restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. Significantly low weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected
- **B) fear or behaviour:** intense fear of gaining weight or of becoming fat, or persistent behaviour that interferes with weight gain, even though at a significantly low weight
- **C) perception:** disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight
  - specifiers: partial remission, full remission, severity based on BMI
    - o mild = BMI >17 kg/m<sup>2</sup>,
    - o moderate = BMI 16-16.99 kg/m<sup>2</sup>,
    - o severe = BMI 15-15.99 kg/m<sup>2</sup>,
    - o extreme = BMI <15 kg/m<sup>2</sup>,

**Management of Anorexia Nervosa:**

- (Low utility of Medications)
- **Psychotherapy:** individual, group, family (gold standard): address food and body perception, coping mechanisms, health effects
- Outpatient programs
- Inpatient hospitalisation is rare

**Prognosis of Anorexia Nervosa:**

- Early intervention yields best results Better outcome in adolescents than adults
- With treatment, 70% resume a weight of at least 85% of expected levels **Long-term mortality:** 10-
- 20% of patients hospitalized will die in next 10-30 yr (secondary to severe and
- chronic starvation, metabolic or cardiac catastrophes, with a significant proportion committing suicide)

### **DSM-5 Diagnostic Criteria for BULIMIA NERVOSA:**

- **A) recurrent episodes of binge-eating; an episode of binge-eating is characterized by both of the following**
    - o eating, in a discrete period of time, an amount of food that is definitely larger than what most individuals would eat during a similar period of time and under similar circumstances
    - o a sense of lack of control over eating during the episode
  - **B) recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting, or excessive exercise**
  - **C) the binge-eating and inappropriate compensatory behaviours both occur, on average, at least once a week for 3 mo**
  - **D) self-evaluation is unduly influenced by body shape and weight**
  - **E) the disturbance does not occur exclusively during episodes of Anorexia Nervosa**
- Specifiers:** partial remission, full remission, severity (measured in # of inappropriate compensatory behaviours/wk: mild = 1-3, moderate = 4-7, severe = 8-13, extreme = 14+)

### **Clinical Features:**

- Fatigue & Muscle weakness
- Fluid/electrolyte imbalances
- Tooth decay
- Oedema due to fluid retention
- Russell's Sign (Knuckle callus from self-induced vomiting)

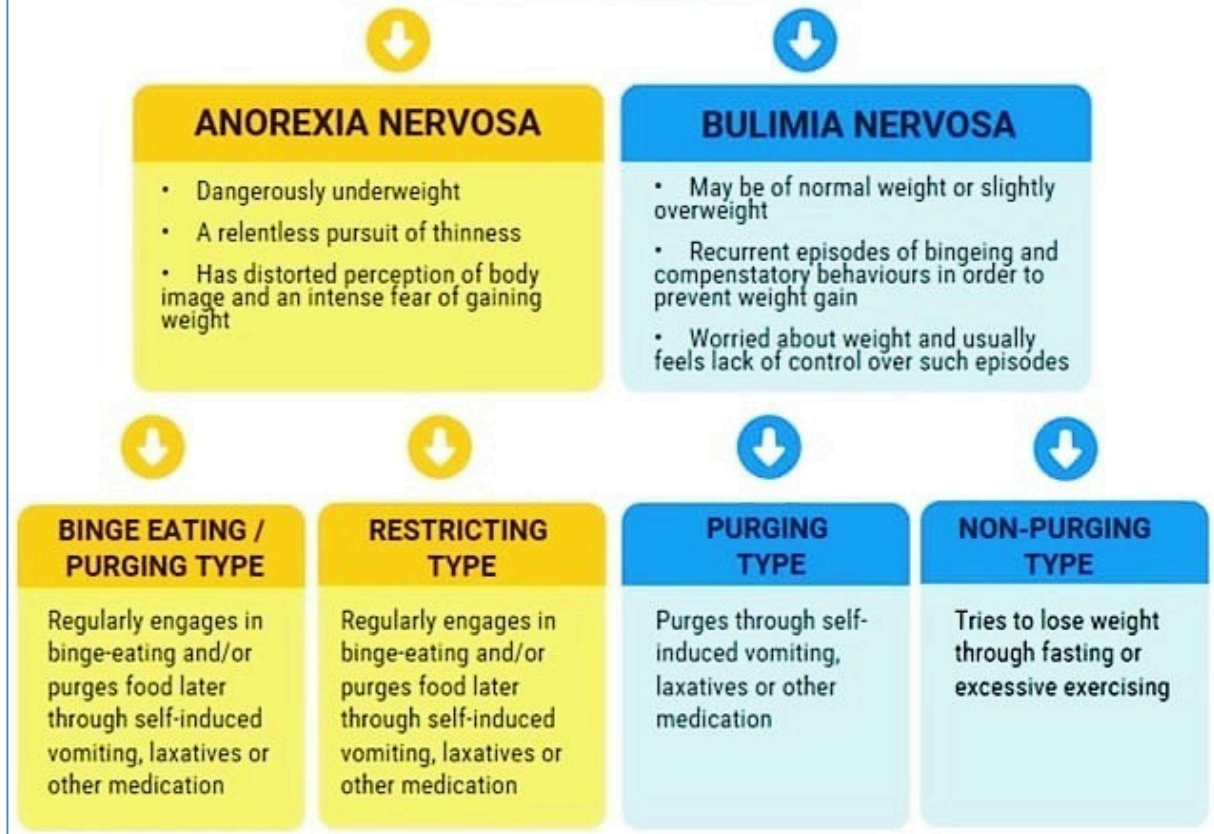
### **Management of Bulimia Nervosa:**

- (Admission if significant electrolyte imbalances)
- **Biological:**
  - o Treatment of starvation effects,
  - o SSRIs (fluoxetine most evidence) as adjunct
- **Psychological:**
  - o CBT
  - o Family Therapy
  - o Education regarding health risks
- **Social:**
  - o Challenge underlying views of body image
  - o Create normative eating behaviour through environmental changes

### **Prognosis of Bulimia Nervosa:**

- Common relapses
- Adolescents usually return to healthy weight within 2yrs of active treatment
- Later age of onset has poorer prognosis

# EATING DISORDERS



**General Overview:**

- Lifelong abnormal patterns of behaviour/relationships leading to very poor functioning
- Note: Some may be very successful in limited areas, but on the whole, they function poorly & are a burden on other people

**3 Clusters of Personality Disorders:**

- **Cluster A: "Mad":**

- **Paranoid**
  - Secretive, suspicious, you're either with me or against me, bears grudges
- **Schizoid**
  - Detached, solitary, unemotional
- **Schizotypal**
  - Magical & superstitious thinking, socially anxious, solitary, odd emotional expression

- **Cluster B: "Bad":**

- **Antisocial**
  - Lacking in empathy, manipulative, deceitful, criminal, impulsive, violent
- **Borderline**
  - Instability of mood, identity, personal relationships. Impulsive self harm, drug/alcohol abuse
- **Histrionic**
  - Theatrical, seductive, dramatic. Superficial relationships
- **Narcissistic**
  - Arrogant, manipulative, preoccupied with power & image, needs to be admired

- **Cluster C: "Sad":**

- **Avoidant**
  - Fears criticism and rejection; avoids risk taking in relationships and employment
- **Dependent**
  - No initiative or autonomy; great reliance on supportive relationships; cannot express disagreement
- **Obsessive-Compulsive**
  - Perfectionist, rigid, miserly, resists change, needs to be in control, cannot delegate

**Clinical Features:**

- **Persistent deficits in 3 areas of social communication/interaction:**
  - o **1: Social-Emotional Reciprocity:**
    - § Eg: Abnormal social approach and failure of normal back-and-forth conversation
    - § Eg: Reduced sharing of interests, emotions, or affect
    - § Eg: Failure to initiate or respond to social interactions
  - o **2: Nonverbal Communicative Behaviours:**
    - § Eg: Poorly integrated verbal and nonverbal communication,
    - § Eg: Abnormalities in eye contact and body language
    - § Eg: Deficits in understanding and use of gestures
    - § Eg: Total lack of facial expressions and nonverbal communication
  - o **3: Developing, Maintaining, And Understanding Relationships:**
    - § Eg: Difficulties adjusting behaviour to suit various social contexts,
    - § Eg: Difficulties in sharing imaginative play or in making friends,
    - § Eg: Absence of interest in peers
- **Plus, restricted, repetitive patterns of behaviour, interests, or activities (2 or more of the following):**
  - o Stereotyped or repetitive motor movements,
  - o Insistence on sameness,
  - o Highly restricted fixated interests,
  - o Hyper-/hypo-reactivity to sensory input

**Differential Diagnoses:**

- Developmental impairment
- Childhood schizophrenia
- Social phobia
- OCD
- Communication disorder
- ADHD
- Hearing/visual impairment
- Abuse

**Diagnosis:**

- Hearing and vision test to rule out impairment
- Psychological testing to assess intellectual functioning and learning
- Chromosomal analysis to rule out abnormalities (Eg: Trisomy 21, Fragile X syndrome)
- Rule out psychotic disorders, social problems, depression, anxiety, abuse

**Treatment:**

- **Multidisciplinary:**
  - o School
  - o Psychologist
  - o Occupational Therapist
  - o Physiotherapist
  - o Speech therapist
  - o Psychiatrist
- **Psychosocial:**
  - o Family education/support
  - o School programs
  - o Behaviour management
  - o Social skills training
- **Pharmacotherapy:**
  - o Atypical antipsychotics may be useful for extreme irritability/aggression/self-mutilation
  - o SSRI's (for anxiety/depression)
  - o Stimulants (for inattention)