

**TMH Professionals, LLC, LPCA,
EAPWorks, CEUConcepts, & American
College of Psychotherapy present**

**Psychopathology, Differential Diagnosis,
and the DSM-5:
A Comprehensive Overview**

Module 2:

**Medical Conditions and Lifestyle Factors
Manifesting as Mental Health Concerns**

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This training addresses the requirements established under SB 319 /ACT377 and Composite Board Rule 135-12-.01

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About your Co-presenters

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About your Co-presenters

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Goals & Objectives

Upon completion of this course participants will:

- **DEFINE** scope of practice and appropriate actions to take when addressing medical and other conditions that may be mistaken as mental health conditions
- **IDENTIFY** depression or anxiety that may be the result of medical illness
- **EXPLAIN** the bio-physiologic mechanisms of depression and anxiety caused by medical illness
- **RECOGNIZE** the biochemical mechanisms of co-morbidity
- **DISCUSS** the psychological mechanisms of co-morbidity
- **RECALL** frequently encountered physical illnesses co-morbid with depression

Goals & Objectives

Upon completion of this course participants will:

- **LIST common drugs and medications causing depression & anxiety**
- **EXPLAIN implications of sleep deprivation, diet, and other lifestyle choices in generating contributors to mental health difficulties**
- **IDENTIFY common adverse effects of medications in creating movement and other disorders that can become a condition for treatment**
- **DISCUSS appropriate assessment processes for distinguishing medical and life style related problems from mental health disorders, role clarification, and differentiation**

Goals & Objectives

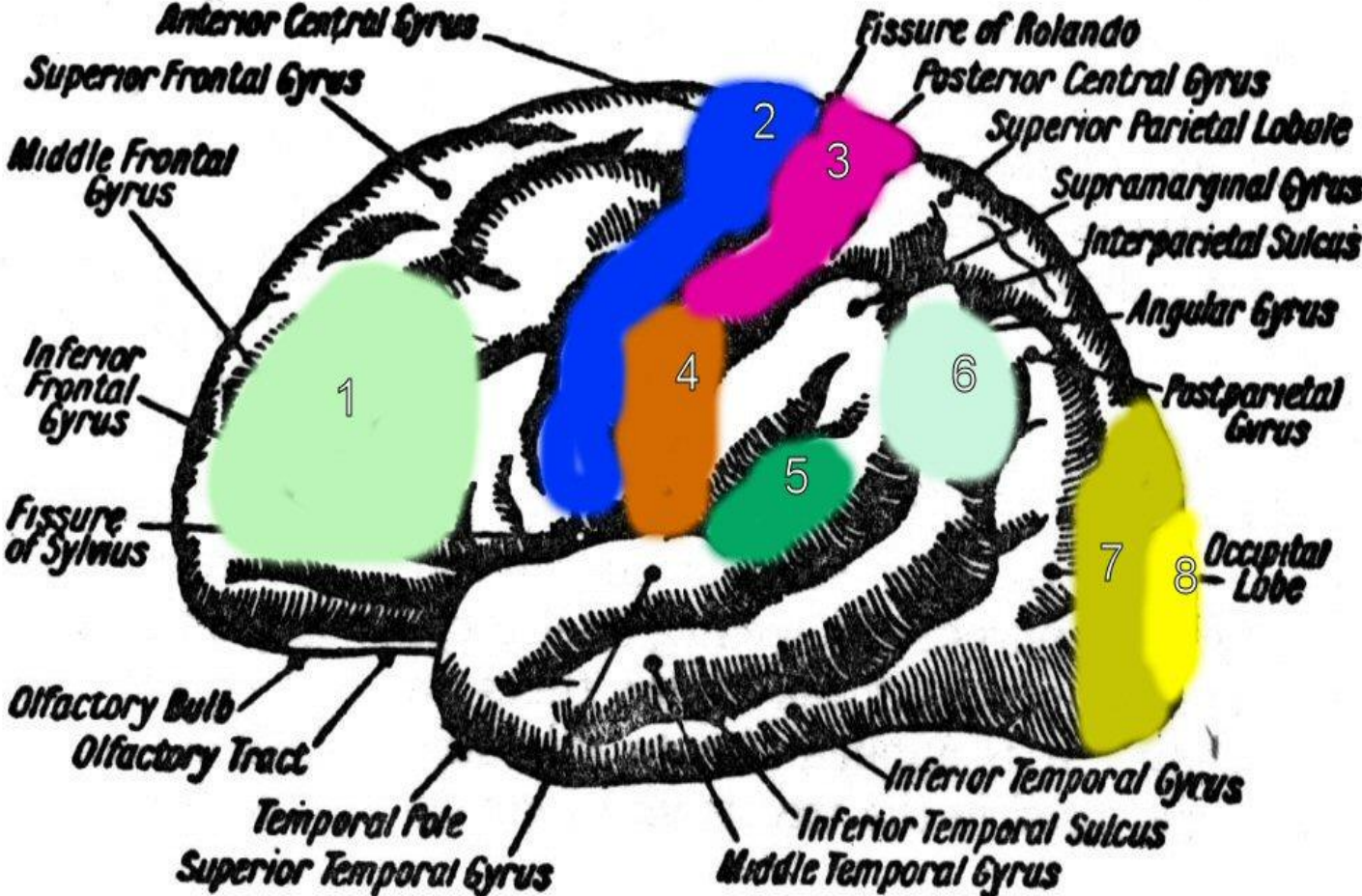
Upon completion of this course participants will:

- **EXPLAIN** appropriate procedures for making referrals to other appropriate professionals where indicated
- **DESCRIBE** etiology and complexities of diagnosis for sleep-wake disorders based on current research
- **IDENTIFY** appropriate assessment processes for determining sleep-wake disorders, role clarification and differentiation for master's level clinicians
- **DISCUSS** appropriate referrals to other professionals in establishing sleep-wake disorders diagnoses
- **APPLY** common specifiers for sleep-wake disorders

Part 1

Differential Diagnosis: Medical Issues that can be mistaken for mental health problems

HANDOUT PRINT



DEPRESSION...Facts

- **Roughly 10% of the population of the United States experiences depression each year**
- **20 – 60% of patients with somatic (physical) disorders experience secondary depression and anxiety**
- **Treatment can alleviate symptoms in over 80% of those experiencing symptoms of depression**
- **But nearly 2/3 do not get the help they need**

DEPRESSION...Facts

- **One of the most common psychiatric disorders**
- **But many...**
 - **believe that if they ignore the depression, it will disappear**
 - **do not seek help until they have prolonged issues with appetite, sleep, energy level, happiness, memory, or concentration**

Seeking treatment...

First seek **Primary Care Provider (PCP)**

- **inclined to assess the symptoms according their own specialty training >>> perceptual bias**
- **more likely to find physical symptoms where none exist**
- **less inclined to consider that the patient's distress may be the result of their mental or emotional state**

MH Provider perception...

More inclined to look for the psychological or emotional problems first...BUT

...there are patients who seek help from a mental health practitioner *when the underlying problem is actually a medical or physical illness*

- dependent upon the skill and knowledge
- look below the surface of presenting problems
- discern the presence of an ailment requiring more extensive interventions than counseling

Importance...

- Depressive symptoms are often...
 - initial symptoms of some physical diseases
 - aftermath of trauma
 - side effects from prescribed medications
- When the medical illness **unrecognized...**
 - >>> **untreated**
 - >>> **potentially severe/
life-threatening medical problems**

Importance...

Biologic relationships exist between malignancies (cancers) and depressive syndromes.

- **Depressive symptoms are associated with cancer *in up to 50% of cases.***
 - **Adjustment disorder with depressed mood to major depression**
 - **Often...onset of depression is the first indication of undetected carcinoma (cancer)**

Importance...

Most mental health clinicians are largely untrained and unskilled in looking for the signs and symptoms that could be indicative of underlying physical illnesses.

Importance...

- Often depressive symptoms caused by the frustration, discomfort, and hopelessness **secondary to physical symptoms**
- Many illnesses exist together

Co-morbid:

When two or more medical conditions present simultaneously

Co-Morbid

- **Depression/anxiety caused by - or indicating medical illness**
- **Depression/anxiety accompanying medical illness (co-morbid)**
- **Depression/anxiety caused by drugs and medications**
- **Depression/anxiety accompanying other mental illnesses (co-morbid)**

Importance of Thorough Assessment

...considers presence of physical illness or other physiological factors, in addition to the presence of a mental or emotional disorder

Symptoms...

- **may be linked biologically, psychologically**
- **may appear to be entirely unrelated**

Importance of Thorough Assessment

When the physical illness is treated,
mental or emotional symptoms are relieved
- in many cases –

Thorough Assessment allows the clinician to work collaboratively with the client to gather more complete information

- Alerts clinician to indicators that suggest the need for referring clients to appropriate medical resources
- Advocates for better total care

Finally - in this 21st Century...

*East meets West
in the mind/body controversy.*

*No longer separated and distinct,
they are inexorably entwined
affecting health as well as illness.*



Where to begin?

...the BRAIN

Physical mechanisms in the brain are responsible for mental and emotional symptomatology

>>> Clinicians NEED TO KNOW

Components of healthy and unhealthy Mental/Emotional functioning:

- **Physiological**
- **Neuro-chemical**

Why brain functioning/structure...

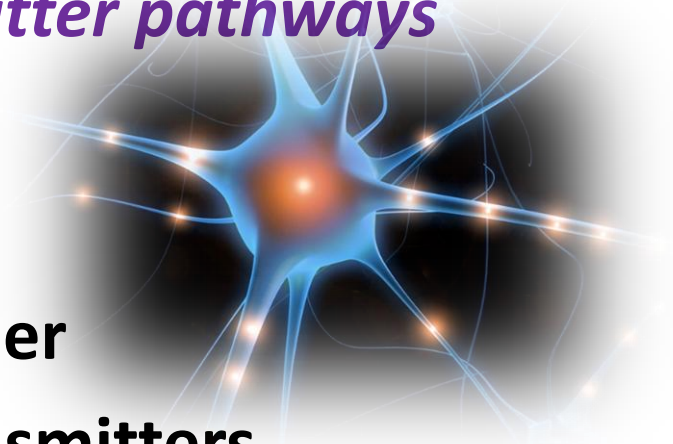
- **Dynamic interaction of the many factors may affect mood >>> present clinically as depression and/or anxiety**
- **Understanding...**
 - **the physical/mental factors**
 - **drugs and medications**
 - **co-morbid states of medical and mental illnesses**
- **Referral >>> appropriate resources for healing**

BRAIN PHYSIOLOGY...

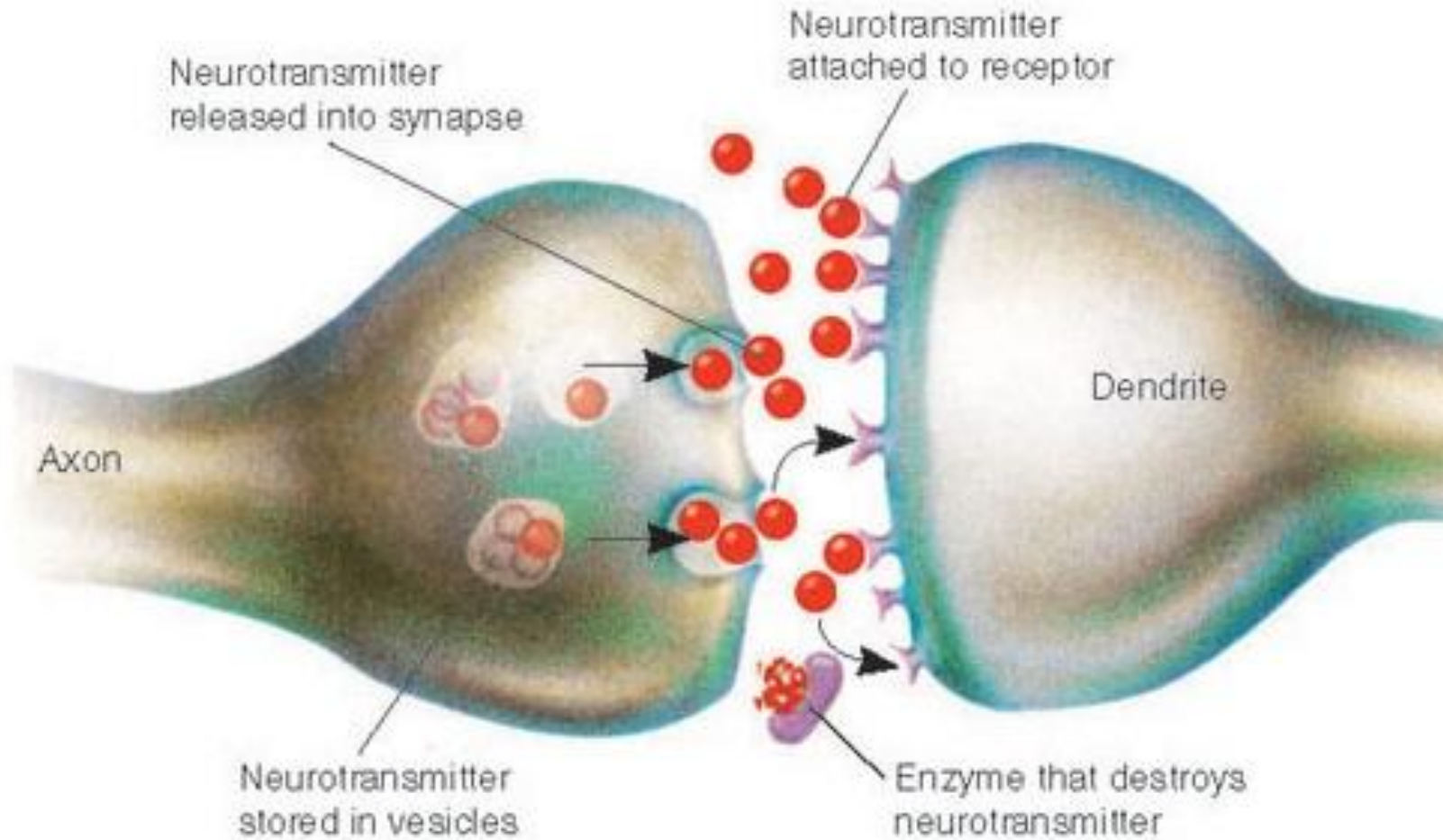
Extensive communication system between brain cells along *neurotransmitter pathways*

Brain cells (neurons)

- communicate with each other
- through action of neurotransmitters
- manufactured in these cells
- released into space between cells



Neurotransmitters



Neurotransmitter pathways **...essential to a healthy brain**

Affect everything from...

- **moods to...**
- **sleeping patterns to...**
- **ability to put thought into action**

**Many chemicals serve as neurotransmitters,
BUT...**

4 Main chemicals related to mood change...

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

Dopamine

Pathway is **concentrated in the front of the brain**

- ❖ Involved in *regulating awareness of the environment and other higher information processing tasks*
- ❖ **Abnormal functioning may lead to...**
 - ❖ **difficulties in relating to others**
 - ❖ **social isolation**
 - ❖ **distorted perceptions of the world**

Serotonin

Pathways are **widespread** covering all major areas of the brain

❖ Involved in *regulating mood and aggressive, impulsive and suicidal behaviors*

❖ Abnormal levels related to...

❖ diminished ability to control impulses

❖ depressed moods

❖ heightened risk of suicide

Norepinephrine

Pathways travel to many areas of the brain, including the **cerebral cortex and spinal cord**...chemical transmitter for ***Autonomic Nervous System (ANS)***

- ❖ **Excitatory - enhancing the responsiveness of nerve cells**
- ❖ **Major role in creating and maintaining mood states**

Low levels...

>>> depression

Excessive amounts may

>>>mania

>>>anxiety

Gamma aminobutyric acid (GABA)

Functions in the Central Nervous System (CNS) to **prevent the excessive firing of neurons** by blocking impulses from one cell to another

- ❖ **Calming, *helps to block anxiety and stress related impulses***
- ❖ **Shortage linked with panic attacks (intake of tranquilizers increases the body's GABA levels)**

This Training...

Primary focus >>>

Central Nervous System (CNS)
(Brain, Brainstem, Spinal Cord)

**BUT to better understand the medical and mental
implications of illness >>>**

Peripheral Nervous System (PNS)

Peripheral Nervous System (PNS)

- Part of the nervous system **expressing away from the brain center and traveling throughout the body**
- **Critical in connecting the CNS with muscles, organs, and other body systems.**

**We will be examining the
*Autonomic Nervous System***

Autonomic Nervous System (ANS)

- ❖ Important in the understanding of physical illnesses in relation to the brain**
- ❖ Closely associated with the spinal cord, but does not lie entirely within its column**

Autonomic Nervous System (ANS)

Responsible for...

- ❖ **moving** sensory and conduct **information** from the brain to muscles and organs
- ❖ **linking** communications from these locations back to the brain
- ❖ **body's response** to real or perceived emergencies, through the body's “fight or flight” reaction
- ❖ **peripheral actions** of many medications

Autonomic Nervous System (ANS)

Divided into...

- **Sympathetic Nervous System** responsible for the release of **adrenaline / epinephrine** in the face of a threatening situation in order to create additional sources of energy for fighting or running
- **Parasympathetic Nervous System** serves as a regulator to reverse the effects of stress on the individual through the release of **norepinephrine**

Autonomic Nervous System (ANS)

Parasympathetic...

- Rest
- Restoration

Sympathetic...

- Fight
- Flight
- Freeze



ANS Peripheral Organ Responses

PARASYMPATHETIC

- Iris constricts accommodating near vision, dilates blood vessels, decreases HR
- Bronchial muscles constrict & glands secrete, GI motility increases

SYMPATHETIC

- Dilates eyes improving distant vision, constricts blood vessels, increases HR
- Bronchial muscles relax, GI relaxes

Autonomic Nervous System (ANS)

- ❖ Actions of this system are believed to operate independent of conscious thought...
autonomic / automatic
- ❖ However...
 - ❖ thoughts produce chemical reactions
 - ❖ chemical reactions create cellular responses

How can we consider any of the body's systems as purely automatic?

BRAIN ANATOMY...

- Each part of CNS has vital role in healthy functioning of the **whole human system**.
- Physical or chemical **damage** – through trauma or illness - to any area can produce symptoms of mental illness
- Certain **medications** affecting these areas produce MH consequences

Thorough Assessment...

Considers problems **related to CNS functioning...**

- any history of prior physical **trauma**
- toxic **chemical** ingestion (including medication or vitamin overdosing)
- **viral or bacterial** diseases that have crossed into the brain especially (i.e., viral or bacterial encephalitis or meningitis)

CEREBRUM

- ❖ Largest part of the human brain
- ❖ Fills the entire upper portion of the skull
- ❖ ***Cerebral Cortex*** is the outer surface
 - ❖ Accounts for 80% of brain itself
- ❖ Divided into two halves called *hemispheres*
 - ❖ Each...right and left...has functions it controls

Right Hemisphere

- **nonverbal communication**
- **spatial orientation**
- **recognition**
- **speech intonation and aspects of music**
- **facial recognition and expression of emotion**
- **nonverbal learning and memory**

Right Hemisphere

HEAD INJURY OR TRAUMA

Demonstrable losses in these abilities in conjunction with depression, anxiety or other mental health difficulties?

- >>> thoroughly check patient's history for head injury or trauma**
- >>> possible tumor or stroke**
- >>> referral to a neurologist indicated**

Factoid

Statistic:

*A McGill University study found that **more than 60 percent of college level soccer players reported symptoms of a concussion in the course of a soccer season.***

Source: *Neurosurgery Today*

Left Hemisphere

- **verbal language functioning**
- **both receptive and expressive speech control**
- **time order and sequencing**
- **numeric symbols**
- **verbal learning and memory**

Left Hemisphere

HEAD INJURY OR TRAUMA

Demonstrable changes in the ability to speak, or to transfer short-term memory to medium and long-term memory?

...in conjunction with anxiety, depression or other mental health problems

>>> referral to a neurologist is indicated

Corpus Callosum

Bridge of nerve tissue connecting two halves of brain...

- **Left hemisphere controls motor functioning on the right side**
- **Right hemisphere controls motor functioning on the left side**
- **Each half with own function**
- **necessary for quick info communication between hemispheres system to respond in smooth / coordinated manner**

ASSESSMENT

Trauma, illness, or injury

>>> profound consequences

>>> readily visible

- any recent change in the ability of the client in terms of equal functioning of both sides of the body
- demonstrable weakness in one side or the other

Multiple Sclerosis (MS)

Often attacks Corpus Callosum, stripping away the myelin sheath that allows for rapid communication between the two hemispheres

An illness with serious consequences for mental health functioning

- Damage to the **front** of the Corpus Callosum >>> impaired **judgment and memory** problems
- Damage to the **rear** of the Corpus Callosum >>> noticeable - sometimes profound changes in **behavior**

M H Clinician ?

Be aware...

...early psychological symptoms of MS may lead the client to seek counseling

One of these symptoms can be *a sense of euphoria, which may lead the client to underestimate the impact of the disease.*

LOBES OF THE BRAIN

- Each hemisphere further divided into **four lobes**
- Each has its **specific functions** while maintaining **coordination with each other**

Frontal Lobes – R and L

Quarter of the cerebral cortex responsible for highest / most complex aspects of cortical functioning – **Executive Functions**

- motor function of speech
- working memory
- the ability to plan and initiate activity
- insight
- judgment
- reasoning
- concept formation
- problem-solving
- abstraction
- self-evaluation

Executive Functions

Designed to prevent primitive impulsive behaviors... Damage?

- **may not be able to control or modulate responses to impulses**
- **may be changes in mood / personality**
 - **lack of spontaneity or drive**
 - **emergence of impulsive / inappropriate / violent behavior**

Damage Sources...

- Many **mind altering substances with neurotoxic effects** – such as **methamphetamine and PCP** – target this area of the brain.
- **Damage to the frontal lobes – and the pre-frontal cortex** – **can take months or even years to heal** following periods of heavy drug use.

ASSESSMENT

- **Behavioral problems are part of the diagnostic picture?**
- **Behavioral problems evident even if denies current drug use**
- **Assessment will always include history of prior substance use...**
 - ...of methamphetamine, cocaine, PCP, alcohol, inhalants and club drugs, including Ketamine.**

Parietal Lobes

- Area top middle behind central sulcus
- Shallow groove from left to right dividing the brain front to rear
- Primary area for **perceiving/discriminating visual / somatosensory input** (other bodily senses, like touch and taste)
- Support ability to recognize objects by touch, calculate, write, draw, and organize spatial directions - such as finding one's way around familiar places

Damage ?

- ✓ **Problems in discriminating sensory input**
- ✓ **Difficulty with spatial relationships**
- ✓ **Inability to detect stimuli from the opposite sides of the body**

Sudden changes in any of these abilities should be indicators >>> thorough assessment >>> referral to a neurologist

Temporal Lobes

Each side of and below Cerebral Cortex

- **Contain areas of olfactory (smell) and auditory (hearing)**
- **Where integration occurs combining sensory / visual information in written verbal language skills**
- **Influence memory, modulation of mood and emotion**

Damage/Tumor ?

- **Difficulties with verbal and written communication**
- **Disruptions in the sense of smell and hearing**
- **Tumor >>> development of distortions in smell and hearing**
- **Distortions difficult to discriminate from beginning of a psychosis**

Tumor or Psychosis ?

Is there recent history of headaches?

Tumors will not always produce headaches, particularly early in their development

**Development of frequent or persistent headaches
...in conjunction with noticeable changes in
mood, behavior, or affect >>> concern about
whether may have tumor**

Occipital Lobes

Lying in most posterior portion of brain

- **Area is responsible for vision**
- **Visual integration of information**
- **Allow individual to**
 - **perceive moving objects / color**
 - **recognize objects and faces**

Damage?

Cortical Blindness:

**the optic nerve is intact,
but the person cannot see**

Loss of any portion of vision

>>> advocate for further medical assessment

SUBCORTICAL STRUCTURES

Beneath the Cerebral Cortex

- Essential to regulation of emotions and behavior
- Several for this training:

*Hypothalamus, Thalamus, Hippocampus,
Amygdala, Limbic System*

Hypothalamus Gland

- **Master regulator of Autonomic Nervous System (ANS)**
- **Controls body temperature, blood pressure, water levels, sex, appetite/food intake, hormone levels**
- **Part of pleasure and pain system**
- **Depending what is stimulated >>> rage or pleasure reactions**

Damage?

- **Functions as central control for limbic system**
- **Liaison between Limbic System and Cerebral Cortex**
- **Serious damage usually fatal**
- **Normal homeostasis is thrown out of regulation...**
 - ...body temperature, blood chemistry, and other regulatory functions that allow body to survive**

Damage ?

Less serious >>> **homeostatic problems**

- **problems regulating body temperature**
- **problems with appetite and food intake**
- **may refuse food and water**

Damage?

Other side of continuum >>>

Prada-Willi Syndrome...a non-hereditary genetic disorder

- **unable to experience sensation of being sated when eat**
- **problems with severe overeating >>> high mortality rate**

Significance?

Atypical Symptoms...

- **Clients may not fit typical profile for anorexia where under-eating is a problem**
- **Sudden problems with severe over-eating**
- **Sleep difficulties that can resemble narcolepsy**

**Clients may present with
depression or anxiety
with concern over their symptoms**

Thalamus Gland

Centrally located / surrounded by cortical tissue

- **Relay station of brain**
 - **information from all of senses, except smell, from body to CNS, mainly Cerebral Cortex**
- **Filters incoming information >>> what to pass to areas of higher thinking /processing**
- **Helps keep brain from overload with sensory stimulus**

Damage?

LEFT SIDE...

- **speech and language problems**
- **decreases in verbal fluency**
- **memory and learning difficulties**

RIGHT SIDE...

- **problems with cognitive skills in pattern recognition**
- **problems with directions / facial recognition**

Damage?

BOTH SIDES...

- **can lead to severe apathy**
- **problems with overall intellectual abilities**
- **severe memory loss**
- **selective mutism**

Significance?

Constellation of symptoms may closely resemble problems seen with Major Depression.

With such a profound set of symptoms >>> psychiatric referral

Psychiatrist will usually, although not inevitably, consider Thalamic damage

Hippocampus

Tucked within Temporal Lobes of Cerebrum

- **Responsible for adjusting moods and emotions to incoming environmental information**
- **Critical role in memory formation**

Damage?

- **Serious problems with new memory formation**
- **Inability to access old memories**

BUT more serious depression will often interfere with memory formation and retrieval

Significance?

Difficult to distinguish Hippocampal damage from memory problems associated with neurochemistry of depression

When in doubt...refer client to psychiatrist for differential diagnosis

Amygdala

One of the main nuclei of the *limbic system* involved with...

- **Associative memory**
- **Long-term memory and retrieval**
- **Production of sensations of pleasure and pain**
...pain component more significant

When stimulated >>> aggression, rage and fear reactions

- **Involved in experience of Post-Traumatic Stress Disorder (PTSD)**
- **Role in regulating changes in heart rate resulting from emotional stimulation**
- **Role in interpreting emotional states of others**

Damage ?

In childhood...

...associated with autism

In adults...

...alterations in social behavior

...lessened understanding of complex social situations

...reduced social memory

Significance?

Radical changes in social behavior or in understanding of social situations?

- **May be inclined to look for presence of psychosis or schizophrenia**
- **Less inclined to think of damage through trauma or tumor**

Referral to psychiatric care indicated...

...discuss with patient need to address possibility of a physical problem with psychiatrist

Limbic System

Part of the middle brain...

...interrelated group of structures that work together

...three components are **hypothalamus, hippocampus, and amygdala.**

- ❖ Regulation of emotions and accompanying behavior**
- ❖ Physiological and psychological responses**

Limbic System

“Emotional Brain”

...integrity is essential for *emotional well-being*

-involved with the emotions

-body temperature

-sex

-memory storage / retrieval

Damage?

Any number of difficulties in...

- **managing emotions**
- **responding appropriately to sensations of pleasure and pain**
- **learning from rewards and consequences tied to life experiences**

May mimic other psychological problems...

- **depression**
- **attention deficit disorder**
- **psychotic disorders**

Significance?

Differential diagnosis?

- ❖ **Patient's life history, family history, and other factors that would offer other explanations for symptoms.**
- ❖ **Relatively sudden onset of symptoms, when symptoms are very different from the whole arc of a client's life >>> possibility of physical or medical explanations for problems**

BRAIN STEM

Located beneath the Thalamus...comprised of *Midbrain, Pons* and *Medulla* numerous pathways to Cerebral Cortex

- life sustaining functions (breathing, heart function)
- significant effect in mediating emotional dysfunction

Area is primary source of neuro-chemicals such as *Serotonin*

Damage?

Because Brain Stem is so important as regulator of body functions...

Damage >>> usually results in **very serious / unmistakably physical problems, such as paralysis or loss of sensation**

SPINAL CORD

Runs inside the vertebrae from base of skull to tail bone...

...ANS is closely associated with the nerves of the Spinal Cord

- **constricts or dilates, contracts, or relaxes vital organs of the body.**
- **sends messages up Spinal Cord, through Thalamus to brain centers important in determination of mood and emotion**

Depression/Anxiety Caused by or Indicating Medical Illness

Appropriate intervention?

- ✓ Dependent on ability to recognize changes in mental status that **may be due to brain tissue injury, as well as to disorders of mood and thought.**
- ✓ Neurologic destruction--brain cell and tissue damage--from direct or indirect sources

Direct brain cell and tissue damage:

- Brain trauma
- Ischemia (cellular breakdown)
- Infarction (cerebral-vascular accident, or stroke)
- Abnormal neuron growth (tumor)
- Degenerative brain cell loss

Indirect brain cell and tissue damage:

- Dysfunctions of brain metabolism associated with diseases that poison the whole system
- Body trauma

DIRECT: Brain Trauma

May be temporary or permanent injury to parts of brain responsible for personality and mood

Millions have significant head trauma every year in the United States

DIRECT: Brain Trauma

Three forms of Trauma:

- **Blunt trauma** – falls or blows to head...car accident or on a soccer field when using the head to pass ball
- **Penetrating head wounds** – external objects... bullets, spikes, or other sharp foreign objects that enter the brain >>> localized destruction
- **Indirect trauma** – such as blast injuries or whiplash movements of neck >>> trauma may not be localized at any one point

DIRECT: Brain Trauma

What happens?

- Forces affect a relatively **moveable brain limited by a fixed skull**, *dura mater* (fibrous covering of the brain), cranial nerves, blood vessels, and brain stem
- Brain tissue moving against intracranial cavity
>>> random bruising and inflammation
(Same way that gelatin shakes within a closed container)

DIRECT: Brain Trauma

Penetrating head wounds **directly damage** tissue, BUT ALSO...

...send **shock waves** through brain

>>> tissue destruction some distance from path of the penetrating object

SYMPTOMS...

After the initial injury and apparent recovery symptoms may remain:

- **irritability**
- **short attention span**
- **emotional lability**
- **stressful situations become unmanageable**

The primary psychological manifestation of brain injury is depression.

Significance?

Thorough assessment >>> information about potential head trauma to include **hidden or unusual ways to cause trauma**

EXAMPLE:

Recent studies have shown potentially troubling correlations between youth soccer – where soccer balls are repeatedly “headed” by the players – and brain trauma.

Movies and sports may minimize the potential difficulties with head injuries...

In reality...

a relatively small amount of trauma can produce some fairly dramatic and sometimes durable consequences

...effects depend on location and severity

Significance?

Discuss physical activities and injuries to rule out brain trauma as a cause for depression and anxiety.

Further...trauma >>> subtle changes in

- **behavior**
- **mood**
- **drive**
- **information processing**
- **motor control**
- **spatial relationship skills**

DIRECT: Ischemia

- **Cell breakdown beginning with hypoxia (lack of oxygen to the cells)**
 - **Can be result of factors related to trauma, injury or disease**
- **Hypoxia followed by failure of ion exchange across cell membrane**
 - **Chemicals important to healthy brain functioning - like potassium - not available to support healthy neurons**

DIRECT: Ischemia

Result?

- Can be edema (swelling from body fluids)
- Influx of calcium ions, free-radical production, and lipid *peroxidation* (fat metabolism)
- Can ultimately lead to **complete cell destruction >>> severely altered neurotransmitter functioning**

DIRECT: Infarction

Complete Ischemia >>>

>>> Brain Infarction

Cerebral-Vascular Accident (CVA)

known as a **STROKE**

Significance?

After brain cell death...

Changes in metabolism of certain enzymes may lead to mood disturbances and cognitive dysfunction

Long term effects depend on...

- Severity of the injury
- Duration and degree of ischemia
- Location of the injury

Significance?

Normal brain functioning...

certain neurotransmitter pathways must function properly:

Dopamine: transmission of motor messages, managing of the appropriate level of anxiety, mood, and motivation

Epinephrine: supports learning and memory

Serotonin: affects alertness, overall sense of well-being, and information processing

Significance ?

Pathways may be temporarily impaired...

- due to immediate injury
- due to swelling or compression following injury

Pathways may be...

- permanently blocked
- function only marginally

Depression >>> due to alterations in biochemical neurotransmitter systems

Significance ?

Factors affecting the likelihood / severity of depression...

- Location of the lesion
- Family history of depression
- Pre-morbid depression history
- Pre-stroke social functioning

DIRECT:

Abnormal Neuron Growth / Tumor

May lead to brain cell destruction...

- **overproduce mutant cells**
- **replace functioning cells >>> areas of impaired neuronal transmission**
- **take up space and compress healthy brain tissue >>> ischemia**
- **Produce byproducts of cancer cell metabolism >>> neuronal / destruction of brain tissue**

DIRECT:

Abnormal Neuron Growth / Tumor

PHEOCHROMOCYTOMA

...one of most likely **endocrinological** ailments to produce **anxiety states**

...tumor of Adrenal Medulla

...causing the adrenal glands to produce **excess adrenaline**

...produces severe hypertension and anxiety attacks

Significance ?

Can present as sudden changes in mood

- **Often with anger and agitation**
- **Dependent on areas of brain affected**

BUT may be difficult to diagnose

Significance?

When changed mood results in different behaviors towards others >>> increased agitation or aggression >>> changes in behaviors and mood of others with whom they interact

- **Others may withdraw from or get angry at client**
- **Client's lack of insight may prevent awareness of personal changes in mood and behaviors**
- **May instead blame others for problems**

Significance?

- ❖ **Head injury, sudden illness, or presence of neurotoxic chemicals that destroy brain tissue?**
 - >>> rapid changes in behaviors and mood**
- ❖ **Slow growing tumor ?**
 - >>> slowly shifts mood and behavior >>>**
 - difficult to identify medical process as cause**

DIRECT: Degenerative Brain Cell Loss

Can be caused directly through degenerative illnesses such as **Parkinson's disease and **Alzheimer's****

Depending on area >>>

...first symptom may be depression

...decreased intellectual functioning can also leads to depression

Depression in this population as high as 60%

DIRECT: Degenerative Brain Cell Loss

These diseases >>> neuronal degeneration

- **Neuro-chemical changes**
 - **loss of dopamine secretion**
 - **decrease in dopamine receptor sites in neuronal pathways**

>>> contribute to manifestations of mood disorders

Significance?

Depressed mood affected by degree of functional impairment - activities of daily living (ADL)

Loss of the ability to communicate and to be responsible for self-care >>> highest indicators of mood disorders

- **complicates rehabilitation**
- **affects compliance**
- **impacts overall healing of body itself**

Significance ?

Streptococcus Pneumoniae bacteria

**...common source of ear infections (otitis media)
in children,**

*...can lead to brain damage and cell loss in
children's developing brains*

Important to gather any history of problems

- **repetitive ear infections**
- **ear infections that went untreated for extended periods of time**

Significance?

Thorough assessment will look for any history of **encephalitis or **meningitis**.**

These serious brain infections can lead to brain tissue damage / loss

INDIRECT: Dysfunctions of Brain Metabolism with Diseases affecting Whole System

- ❖ **Any process >>> disruption of brain chemistry >>> brain cell loss and psychiatric symptoms**
- ❖ **Diseases that attack nervous system directly - such as Multiple Sclerosis (MS) - do damage by affecting metabolism within cells**

INDIRECT: Dysfunctions of Brain Metabolism with Diseases affecting Whole System

**Depression is often one of the first
symptoms in MS**

...occurring in 50% of MS cases

**Symptoms depend on the areas /
extent of damage**

Significance ?

Certain physical illnesses affect brain chemistry and aggression

EXAMPLE:

Violence brought on by hypoglycemic episodes is experience of many alcoholics regardless of whether or not they are drinking

Significance?

Quolla Indians of Central America

- **known to have high rates of violence with murder common among them**
- **shed light on effects of hypoglycemic episodes**
- **every tribesman tested hypoglycemic**
 - **very poor diets: high in refined sugars and alcohol, poor basic nutrition**
- **most violent supernormal surges of adrenaline when glucose levels too low**

Significance?

Helps to understand alcoholic who becomes abusive after an evening of drinking...

- **heavy drinking >>> hypoglycemic state**
- **adrenaline is released, with reasoning brain (cerebral cortex) turned off or dulled**
- **adrenaline hits bloodstream when home leaving the animal brain in charge**

**Recipe for danger from violent episodes
that can have tragic results**

Significance?

- **Anger reactions with hypoglycemia due to illness or poor diet**
- **Further, if hypoglycemic alcoholics stop drinking but continue to consume large amounts of caffeine and refined sugars, >>> outbursts of irritability and sudden anger continue**
- **Symptoms disappear when brain glucose levels stabilize**

INDIRECT: Dysfunctions of Brain Metabolism

with Diseases affecting Whole System

Physical conditions that lower anger threshold...

- **Over-tiredness**
- **Hunger**
- **Sexual frustration**
- **Hormonal changes due to puberty, pre-menstruation, pregnancy, child birth and menopause**
- **Physical craving for addictive substances such as alcohol, nicotine, caffeine or other drugs**
- **Intoxication**
- **Physical injury**
- **Living with chronic or acute pain**
- **Hypoglycemia**
- **Medication effects**
- **Dementia**

Significance?

Cellular health dependent on...

- **critical balance of nutrients entering and being used by cells**
- **adequate mechanisms for transfer of toxins out of system**

Many diseases that affect the body lead to high toxicity and/or poor elimination of toxins

Significance?

ALSO...

Disorders create toxic conditions in the brain (eg. **Phenylketonuria [PKU]) through failures of body to process essential amino acids or other substances necessary for metabolic or neurochemical functioning**

- **Most common is **Diabetes Mellitus****
 - >>> depression due to dysfunction of metabolism critical for brain activity**

Significance?

- ❑ Neurotransmitters depend on **delicate balance of nutrition** to produce the enzymes for pathways to function
- ❑ Deficiencies in vitamins / minerals >>> brain chemical imbalances expressed as
 - behavior problems
 - learning difficulties
 - dyslexia
 - mood disorders
 - insomnia

Significance?

British study of prisoners...

- Neurotransmitter imbalances may have been set up at an early age as a result of dietary choices
- Poor diets plus chemicals in colas and canned drinks disturbed delicate brain function and interfered with absorption of nutrients.

They believe that...

some people are **particularly sensitive to these types of chemicals** making them over-reactive and potentially violent >>> National Policy of Education on benefits of healthy eating to help prevent crime and poor behavior

Significance?

Diseases that lead to **poor nutrient intake compromise cellular functioning...**

- **elements necessary for cellular regeneration depleted**
- **cells in the brain and elsewhere lose ability to function**
- **may alter the body's ability to intake certain minerals or vitamins**
- **may affect appetite leaving important nutrients out of diet**

Significance?

EXAMPLE: Vitamin B6...

**...essential for synthesis of neurotransmitters
serotonin and dopamine**

Deficient in this vitamin?

**- as with excessive alcohol intake and poor overall
nutrition >>> problems with neurotransmitter
formation**

**Symptoms may appear that
look like mental health problems.**

Significance?

Problems may occur related to **excessive intake** of certain vitamins and minerals

EXAMPLE:

- **Vitamin B6** - nerve damage in the arms / legs
- **Folic Acid** - convulsions in people with epilepsy
- **Manganese** - symptoms resemble schizophrenia, with hallucinations / extreme irritability / increase potential for violence

Significance?

Genetic conditions affect ability to absorb specific essential vitamins and minerals.

Wilson's Disease - copper accumulates in the body and brain >>> inability to transport copper across cell membranes >>> toxicity / damage to kidney and nervous system

Most of problems can be identified with routine blood work at thorough physical exam

Assessment

- **Ask** what vitamin supplements clients are taking - or are not taking – for good nutritional balance
- **Look for changes** in appetite, taste, and overall nutritional health

Mental health problems may be created by what they are putting in or withholding from their bodies.

AND more...

Some allergens may directly affect the brain tissue...

Conditions such as food intolerances, gluten intolerance, lactose intolerance, other food and digestive ailments >>> psychiatric symptoms, including fatigue and malaise

Genetic predispositions for many of these food related problems >>> include family history of problems with certain food groups.

Factoid

Statistic:

The average length of time it takes for a symptomatic person to be diagnosed with Celiac Disease in the United States is eleven years.

Source:

Green, PH et al. (2001), Characteristics of adult celiac disease in the USA: Results of a national survey, *American Journal of Gastroenterology*.

With health concerns such as lassitude or depression...

Thorough assessment..

- **is aware of the possible effects of food intolerances and poor nutrition on well being of clients**
- **explores what other physical symptoms might be present to R/O medical problem**

If suspect nutritional origins >>> referral to GI specialist for further examination

INDIRECT: Body Trauma

- Neurotransmitters responsible for responses of fear and anxiety are in balance >>> ready to respond to threats
- When a threat perceived, information from Thalamus and Cerebral Cortex activates the *hypothalamic-pituitary-adrenal (HPA) axis* through connection with Amygdala
- Adrenal steroids release and trigger stress response in the body

INDIRECT: Body Trauma

Most serious body trauma is perceived by primitive systems of the brain as a threat

**>>> stress chemistry triggered >>>
changes to client's emotional state**

Significance?

Complex neuro-chemical process...

- Norepinephrine, γ -aminobutyric acid (GABA), and serotonin are overwhelmed by the release of *catecholamine*
- Catecholamine is depleted by hyper-stimulation of norepinephrine sites
- Body system responds to increased norepinephrine (adrenalin) with no buffer or balancing factors >>> anxiety S & S

Significance?

- Persistent / severe stress leads to complete malfunction of HPA axis and secretion of high levels of catecholamines >>> destructive to *physical* systems of the body
- Certain *cancers, infections, myocardial disease (heart disease), and neurologic degenerative disorders* are linked to **chronic stress responses** in individuals with poor adaptation skills for coping with trauma

Significance?

Pain thresholds vary...

- ability to tolerate pain without severe emotional distress
- individual differences influence degree that pain will impact hypothalamic-pituitary-adrenal axis, whether the pain comes from body traumas or emotional traumas

Low pain tolerance creates more destruction through continuous imbalance at the catecholamine receptors

Summary...

Psychiatric disorder seen by mental health clinician may be first manifestation of primary, physical, or medical disease.

- **Dysregulation of normal brain functioning is often seen first in such primary diseases as Huntington's chorea, multiple sclerosis, HIV, Parkinson's, Cushing's disease and systemic lupus erythematosus.**
- **Depression in the elderly might look like dementia and often is a precursor to dementia**

Summary...

- **In children, various medical conditions present as depressive symptoms**
 - **Assessment among children/adolescents is even more difficult/who reports for child?**
- **Care must be taken in all populations, since some of these are devastating illnesses**
- **Baseline laboratory studies should be considered to R/O organic components of depressive symptoms**
- **Communication with a medical team is critical for treatment of the whole client/patient in all cases.**

Comorbidity with Medical Illness

- **People with chronic medical illnesses have a 41% higher rate of psychiatric disorders than do their physically healthy counterparts.**
- **About 5% of patients with an initial diagnosis of Major Depression have been found to have a medical illness as the cause of their depression.**
- **Comorbidity between mental and medical conditions is the rule rather than the exception**
- **68% of adults with a mental disorder had at least one medical condition**
- **29% with a medical disorder had a comorbid MH condition**

Comorbidity with Medical Illness

Co-morbid psychological symptoms may be:

- **Secondary to chemical issues inherent with the illness**
- **Due to the impact of illness on the patient and its meaning to him/her**
- **Indicative of a primary psychiatric illness that can predispose clients to medical complications**
- **Results of psychological stressors having a profound impact on the systems of the body**
- **Due to adrenal and immune systems affected by continuous stress with cellular metabolism and healing disrupted**

Medical or Mental?

- **Depressed patients twice risk of developing diabetes**
- **Asthma prevalence much greater in those with high levels of depression/anxiety**
- **Up to 40% of patients with cancer suffer from depression and anxiety**
- **Chronic pain and chemo pts at risk for depression**

>>> Negatively impacts recovery

Medical or Mental?

**“Which came first the chicken or the egg?”--
the mental/emotional or the physical illness?**

- **Regardless of the cause, often, the physical illness is the first to require treatment.**
- **Occasionally, it is the mental health professional who is first to encounter the client/patient.**

Significance?

- **Medications used for treatment of psychological symptoms may be affected by the physical illness and may require adjustments from normal levels**
- **Physician treating client for physical illness may not be attuned to the need to adjust medication accordingly**
- **Clinician should be working closely with PCP or specialist >>> coordinated plan of safe, effective, and comprehensive care**

Biochemical Mechanisms of Comorbidity...

Nervous, Endocrine, and Immune Systems and their components communicate and interact through their biochemical pathways.

- **Thought processes, in response to environmental stimuli, initiate in the Cerebral Cortex and Limbic System of the brain and activate neuroendocrine HPA Axis**
- **Hormonal messengers travel between Adrenals, Pituitary, and Hypothalamus to stimulate responses outside of brain**
- **Immune system responds to signals from HPA axis and sends signals to it as well**

Biochemical Mechanisms of Co-morbidity...

- **Protective activities of immune system rely on neuro-chemicals to begin processes that fight infection and respond to stress**
- **Levels of hormones circulating throughout the system serve as feedback messengers to inhibit HPA activity after sufficient response has occurred**

Dysregulation of the hypothalamic, pituitary, and adrenal systems >>> malfunction of other systems

Biochemical Mechanisms of Co-morbidity...

Abnormal nervous system firing in the hippocampus, as seen in chronic stress/trauma and neurologic disorders, alerts adrenal and immune systems unnecessarily and vice versa.

Neuro-chemical messengers...norepinephrine, endorphins, cortisol, and dopamine >>> affect mood and many higher level cognitive activities

Biochemical Mechanisms of Co-morbidity...

Disease processes affect nervous, endocrine, and immune systems which detect metabolic and cellular changes >>> signs and symptoms of disease.

Body resources initiated to stop disease process.

Automatic process that does not require cognitive directions to the body

Biochemical Mechanisms of Co-morbidity...

ALSO,

- potential effects of **ruminative thoughts** filled with fear/pain, negativity, hopelessness, and worry >>> imbalance in the hypothalamic-pituitary-adrenal (HPA) axis
- physical body destruction can occur with extended catecholamine depletion

Wherever neurochemistry is involved >>> possibility for psychiatric conditions in course of medical illnesses and may >>> to manifestations of physical disease.

Examples: MS, lupus, Parkinson's, and HIV.

Physiology of these diseases causes neuro-chemical imbalances that lead to psychiatric symptoms

Biochemical Mechanisms of Co-morbidity...

PAIN...

- **message transmitted through neural pathways carrying information about touch and temperature >>> specific neuro-chemical responses**
- **painful stimuli cause activation in brain responsible for memory, emotion, and personality >>> neurotransmitters to be released at the sight causing a local inflammatory reaction while stimulating central pain receptors**

Biochemical Mechanisms of Co-morbidity...

- **Endorphins and Serotonin** part of chemical process body uses to inhibit pain
- Effects of these chemicals on mental status often **go beyond pain modulation** to include mood enhancement, behavior modulation and influence the development of tolerance or dependence on narcotics.

Psychological Mechanisms of Co-morbidity

In *all cases* of medical illness...

- >>> normal for client to respond with grief/loss reaction
- >>> hopelessness often accompanies grief especially when illness is **life-threatening, demoralizing, or without a clear diagnosis or prognosis**

Chronic illness...

- >>> often characterized by loss of function and limitations in daily activities
- >>> separation from systems that support sense of self such as jobs, families, and activities
- >>> forced to comply with treatments that are uncomfortable yet seemingly ineffective

Psychological Mechanisms of Co-morbidity

Medical patients...

commonly experience insomnia, fatigue, weight loss, and motor retardation...though not to degree present in psychiatric illnesses

>>> often unable, due to disability or medication, to perform self care or participate in rehabilitative activities.

Strong inverse correlation between *Coping Resources and Depression*

Coping resources solid and strong?

...depression less likely

Coping resources reduced or eliminated?

...higher incidence of depression

Psychological Mechanisms of Co-morbidity

Medical illness >>>

...resources (strong support network, tension reduction methods, problem-solving skills, and confidence) may be compromised

>>> feelings of hopelessness and helplessness

Conversely...

chronic life stress + mental illness

>>> series of biologic processes

>>> physiologic or medical disorder

Significance?

Having an *optimistic attitude* is one of best treatments one can have.

- ***Positive feelings*** >>> healing chemicals produced by the body in response to feelings of love, joy, and peace
- ***Negative feelings*** >>> chemical messages leading to cellular stress/breakdown from anger, fear, pain, worry

Patients who are depressed *have a higher probability of dying after heart attack or stroke compared to those who are not suffering with depression...*

and some evidence that *depression can actually lead to cardiovascular disease.*

Significance?

- ✓ **Depression/Anxiety adversely affects the recovery rate from cancer, response to cancer therapy, and death rate**
- ✓ **Asthma much more prevalent with high levels of depression and anxiety**
- ✓ **Depressed patients twice as likely to develop diabetes than normal individuals**

Comorbidity with Mental Illness

- Depression occurs with other mental disorders
- Important to **treat the primary illness** where there is co-morbidity of more than one mental illness

Five main categories of MI co-morbid with depression and anxiety:

- **Anxiety**
- **Eating disorders**
- **Personality Disorders**
- **Psychosis**
- **Substance Abuse**

Anxiety...

**In person with a Major Depression,
ANXIETY >>> poor treatment response,
reduced social and work function, increased
chronicity, and increased risk of suicidal
behavior.**

Mild-to-Moderate Depression >>>

- 11% also suffer from panic disorder**
- 3% from bipolar disorder**
- 46% from concurrent anxiety disorders**

Anxiety...

Major Depressive Disorder >>>

- **80-90% have anxiety symptoms...anxiety, obsessive preoccupations, panic attacks, phobias, excessive health concerns**
- **one third of individuals also have a full-blown anxiety disorder...Panic Disorder, Obsessive-Compulsive Disorder, or Social Phobia**

**Panic disorder leads to a risk of suicide
in as many as 15% of cases**

Anxiety...

In children...

- separation anxiety is prominent
- sadness, hopelessness, anger, and depression from security needs felt when parents leave or are absent (eg. hospitalized children)

In pregnancy...

- anxiety may manifest as panic disorder after pregnancy in conjunction with postpartum depression (PPD)
- anxiety often limits lifestyle choices and lowers self-esteem >>> hopelessness inherent in depression itself

Significance?

Anxiety disorders...

- most common of all psychiatric illnesses treated by healthcare professionals
- affect all ages including children and adolescents
- risk factors...age under 45 years, smokers, low socioeconomics, separation or divorce, and abuse survivors
- single patient may have more than one anxiety disorder or other psychiatric illnesses

Left untreated the anxiety worsens and can lead to suicide

Eating Disorders...

Anorexia and Bulimia clients often develop Major Depressive Disorder...

- result of **chemical imbalances** from malnutrition, excessive exercising, or purging...an intense physical and emotional process that overrides all of body's cues to nourish itself
- **unresolved feelings surface**...were suppressed by ED patterns...maladaptive coping mechanisms for feelings and life situations >>> destabilization of mood when in treatment with "coping mechanism" no longer in place "to keep them stable"

Significance?

- Depression usually subsides with treatment that includes the **learning of effective, healthy coping mechanisms**
- Many of the body's physical systems are compromised when a client/patient has an ED >>> severe and sometimes irreversible medical complications,
...even death

Personality Disorders...

Personality Disorders...

- **limits the functioning of individual cutting off from job, support, and other resources**
- **often starts in adolescence / early adulthood >>> extremes of distress and impairment**
- **exact etiology unclear...**
 - **seem to share underlying limbic system and sympathetic nervous system reactivity with mood disorders**
 - **problems in cortical functioning and processing >>> shared symptoms with depression**

Significance?

Depression may be the first symptom to bring the client to therapy

Borderline Personality Disorder (BPD)... associated with mood disorders, substance abuse, anxiety disorders, dissociative identity disorder, and eating disorders

- **correlations of biologic abnormalities with the affective instability, psychotic episodes, and impulsivity**
- **limbic system and frontal lobe dysfunction, decreased serotonin activity and increased receptor site reactivity for stress responses**

Significance?

Histrionic Personality Disorder affects 2-3% of the population

- **males may manifest with substance abuse problems**
- **women usually present with depression, suicidal attempts, and medical symptoms that seem unexplained**

Significance...

Too many personality disorders to elaborate here,

BUT when this individual enters medical system...

...his/her symptoms may be treated appropriately or passed off as a mental illness manifestation

...some actual illnesses, even cancers, are missed

...patients receive medication where none is required

FURTHER,

...impulsivity and other behaviors associated with many of these disorders predispose individuals to acts of suicide, inaccurate treatment by medical personnel, or other lethal situations

Most important fact...

...there is a co-morbidity with depression

Psychosis...

Exact etiology of these disorders is **unclear** but many of them seem to share...

- ✓ underlying **limbic** and **sympathetic** nervous system reactivity
- ✓ problems in cortical functioning and processing
 - ...with mood disorders
 - ...accounting for shared symptoms

Significance...

- **Mood congruent delusions and hallucinations may accompany severe Major Depressive Disorder >>> **complicate diagnosis** of primary mental disorder and render treatment ineffective**
- **Life changes and limitations from onset of psychosis **may lead to hopelessness and helplessness** of depression**

Significance...

- Psychotic disorders often **limit functioning of individual** cutting him/her off from job, support, and other resources

Depression may be the first symptom to bring the client to therapy.

Significance...

Depressions among clients/patients with psychosis are important to recognize / treat appropriately

- **Suicide rate among schizophrenics is 10% ...higher than that of general population**
- **With **schizoaffective disorder** >>> more mood responses than those with schizophrenia and are **very susceptible to suicide.****

Significance...

Individuals with Schizophrenia and other thought disorders are at high risk...

- from their disease
- from suicidal effects of depression
- from the medications used to treat them >>>
weight gain, Type II Diabetes
- from *Neuroleptic Malignant Syndrome* (NMS)

Neuroleptic Malignant Syndrome (NMS)

Psychotropic medications can lead to NMS (such as Haldol or other dopamine blockers)

- **affects about 1% of those taking them**
- **can be a fatal situation - 33% of patients with this complication die as a result**

Characterized by...

- **severe muscle rigidity**
- **elevated temperature greater than 99.5
...usually between 101 and 103F.**

Neuroleptic Malignant Syndrome (NMS)

Rigidity and temperature are accompanied by two or more of the following:

- Tachycardia (rapid heart rate)
- Hypoxia (decreased oxygen)
- Hypertension or hypotension (elevated or low blood pressure)
- Excessive diaphoresis (sweating)
- Incontinence (loss of bowel and bladder control)
- Tremor
- Change in mental status ranging from confusion to coma
- Mutism (inability to speak)
- Lab tests showing elevated leukocytes, creatinine phosphokinase, and metabolic acidosis

Significance...

Thorough / ongoing assessment of individuals w/ Psychotic illnesses...

- diseases are **life altering**
- face many **losses** as result of onset >>>
control, job, family, support systems
- **complicated** by co-morbidity with depression
- high incidence of **suicide**
- awareness of the potential for **NMS**

Substance Abuse...

Co-morbidity rate...

- 21% for mild-to-moderate depression and substance abuse
- 19% with drug abuse apart from alcohol

Depression may be...

- consequence of drug or alcohol withdrawal
- commonly seen after cocaine and amphetamine use

Many with depression self-medicate with alcohol and street drugs >>> ***actually worsens a Major Depressive Disorder***
>>> making diagnosis and treatment difficult

**Many with alcohol or drug addictions have
a high rate of depression.**

Dual Diagnosis Disorders

Coexistence of substance use and mental disorder often diagnosed/treated as

Dual Diagnosis Disorders

These manifest in four possible ways:

- **Primary mental illness with subsequent substance abuse**
 - self-medication to cope with symptoms of primary mental illness
 - usually have poor coping skills, impaired judgment, and poor impulse control.

Dual Diagnosis Disorders

Primary substance use disorder with psychopathologic sequelae

- psychiatric symptoms manifest due to intoxication, withdrawal, or chronic drug/ETOH abuse

Dual primary diagnosis

- mental illnesses and substance abuse exist together and exacerbate each other

Dual Diagnosis Disorders

Common etiology

- one factor causing both disorders
 - genetics
 - dopamine dysfunction
 - cholinergic activity dysfunction (HPA axis)

Predispose clients/patients to affective disorders and substance abuse through their own body chemistry

Significance...

At highest risk for suicide are males with...

- chronic substance abuse
- frequent relapses
- frequent short hospitalizations
- impulsive behavior
- negativity toward treatment
- suicidal gestures
- Psychosis/periods of untreated psychosis
- depression
- treatment with older antipsychotic drugs

Significance...

Alcohol and drug-dependent individuals are at high risk for **other causes of death...**

- **Behaviors** while intoxicated often put them in harms way for
 - homicide
 - infections such as HIV or hepatitis.
- Increased rate of **medical illnesses**
 - Diabetes
 - liver disease
 - gastrointestinal problems
 - high blood pressure
 - stroke

Significance...

Often these clients/patients **enter the medical system for treatment of their medical symptoms.**

- Their substance abuse goes untreated.
- Their abuse interferes with medications/medical treatments.
- Their general health complicates healing.
- Their tendencies towards impulsivity or treatment resistance >>> impair medical outcomes.

Therefore...must treat substance abuse as the primary disease being aware of possibility for dual disorders >>> complications and even death in these cases.

Summary...

- **Differential diagnosis** critical >>> effective treatment plan may include combination of therapies
- Effectiveness of these interventions depends on ordering of interventions to **treat the primary disease first**
- Symptoms may be due to medications, medical illness, trauma, alcoholism, mental illness, or a combination of all of these.

The order and timing of these interventions will be critical to their success.

Depression/Anxiety Caused by Drugs and Medications...

❖ **HANDOUT**

ASSESSMENT

- **DISCUSS HANDOUT**
- **Discussing Possible Medical Problems with Mental Health Clients...**
- **Present medical information within level of clinician's expertise**
- **Be aware client limitations for understanding information and accessing care**
- **Facilitate client's navigation of healthcare systems and advocate where necessary**

Part 2

Differential Diagnosis: Sleep, sleep problems and Sleep-Wake Disorders

Role of the Clinician

- **Accurately assessing for sleep-wake disorders and making appropriate referrals for further diagnosis and treatment**
- **Encouraging and supporting good sleep habits while building motivation for change**
- **Helping clients establish conditions to maximize their sleep patterns**
- **Normalizing variations in sleep schedules so clients don't become anxious if their sleep patterns don't match the "norm"**
- **Educating clients about factors that can affect sleep patterns, such as medications, food and beverages, and nutritional supplements**

Why is sleep so important?

Sleep and Health

There are four major areas of health with which research has clearly established correlations to sleep deprivation:

Obesity

Diabetes

Hypertension and associated cardiovascular risks

Suppression of the immune system

Sleep and Mental Health

There are a number of areas related to mental health with which research has clearly established correlations to sleep deprivation:

Anxiety

Depression

Bipolar Disorder

Additionally there are a number of mental health problems whose course is affected negatively by sleep problems:

Anxiety Disorders

Trauma Disorders

Depressive Disorders

Substance Use Disorders

ADHD

Mood and psychotic disorders

The Importance of Good Sleep

There are a number of reasons why good sleep hygiene has such important restorative effects:

Reductions in levels of cortisol (stress hormone)

Increases in levels of growth hormone for cellular growth and repair

Cellular repair during slow wave sleep

Re-establishment of body homeostasis and diurnal rhythm

Blood pressure control

Inflammatory reductions

Improved immune functioning

Improved learning

Stages of Sleep

Stage 1 - transition stage from wakefulness to sleep – light sleep, very easy to wake people in this stage.

Stage 2 – deeper sleep, slower brain waves mixed with periods of very fast wave sleep spindles, the stage when responses to outside stimuli are suppressed. More time (50%) is spent in state 2 sleep than any other stage.

Stages of Sleep

Stage III (formerly Stages 3 and 4) – (Formerly Stage 3) slow wave sleep (delta waves) interspersed with faster brain waves (Formerly stage 4) Deepest level of sleep and it is difficult to wake people during this stage, slow (delta) wave brain activity almost exclusively. Bedwetting, night terrors and sleep walking may occur. Growth hormone released exclusively during this period of sleep. In children, physical growth occurs exclusively during this period. Muscle repair occurs during this period. By-products of brain metabolism are cleaned out during this period of sleep. Information and memory consolidation occur during this stage of sleep (to a lesser extent in Stage 2 and REM sleep)

Stages of Sleep

REM (Rapid Eye Movement) Stage – Period when most vivid dreaming occurs. The exact function of dreaming, if any, is not fully and entirely understood, although many theories exist. 20% of sleep time is in REM sleep. During first two full sleep cycles, REM cycles occur at end of movement through all stages of sleep down from 1-3 and back up from 3-1. For later sleep cycles, people do not typically move to Stage 3 sleep, and progressively more time is spent in REM sleep the longer a person sleeps. Infants typically spend about half of their sleep time in REM sleep. It is believed that REM sleep may have some role to play in brain development, as the less fully developed an animal is at birth, the more time they spend in REM sleep throughout the course of their life.

Sources: American Sleep Association: <https://www.sleepassociation.org/patients-general-public/what-is-sleep/>

Source: http://www.ninds.nih.gov/disorders/brain_basics/understanding_sleep.htm

Stages of Sleep

- Most people have two full sleep cycles in their first four hours of sleep, during which time they have two periods of slow wave sleep and two periods of REM sleep.
- In the second half of the night, most people have mostly Stage 2 sleep and increasing time spent in RM sleep.

First Sleep and Second Sleep

- During much of the time before artificial lighting, most people had two distinct periods of sleep.
- People would sleep for approximately 4 hours (first sleep), then would arise for a period of wakefulness (1-2 hours) followed by another period of 4-5 hours (second sleep)
- During the period between first sleep and second sleep, people would eat meals, stoke fires, socialize, and sometimes try to make babies.
- For clients who struggle with sleep because they don't sleep all the way through the night, this information can help normalize their experience and make them less anxious about falling back asleep

Chemistry of Sleep

Circadian Rhythm/Ultradian Rhythm

Melatonin Release

Orexin-Adenosine Axis

Orexin-Leptin/Ghrelin Axis

GABA/Serotonin/Norepinephrine - Orexin Axis

Serotonin-Cortisol Axis

Cortisol-Growth Hormone Axis

The Sleep Assessment

Please refer to your handouts for an overview of a basic sleep assessment.

Sleep Problems

- Approximately 30% of Americans experience some sleep problems on a regular basis
- 40% of the people who present with sleep problems such as insomnia also present with ***co-morbid psychiatric problems***
- Insomnia disorder has an estimated prevalence of more than 10%
- Restless Legs Syndrome has an estimated prevalence of 5.5%
- Sleep apnea has an estimated prevalence of 3.9-7.9%
- 3-7% of adults 30-60 have obstructive sleep apnea
- 25-75% of alcohol use disordered clients in treatment has some degree of sleep disorder

Sleep Diagnosis

- Mental health clinicians may legitimately diagnose Insomnia Disorder (G47.00) with careful examination of signs and symptoms
- Because Insomnia Disorder may be hard to distinguish from other sleep disorders or may exist comorbidly with other sleep disorders, a referral to a sleep specialist must also be considered
- Most other sleep disorders should be diagnosed by sleep disorder specialists: Sleep Apnea, Restless Legs Syndrome, Narcolepsy, Sleep-Related Hypoventilation, Circadian Rhythm Sleep-Wake Disorder, Non-REM Sleep Arousal Disorder, Sleep Walking Type, Non-REM Sleep Arousal Disorder, Sleep Terror Type, Nightmare Disorder, REM Sleep Behavior Disorder

Insomnia Disorder

- Most common sleep disorder likely to be encountered
- May be caused by a number of reasons: disruption to sleep schedule (even by one hour), increase in anxiety, birth of a child, increase in caffeine or nicotine intake, jet lag, traumatic event, alcohol use, medical problems

Approaches for Insomnia Disorder

- Psychoeducation and normalization
- Establish a regular sleep schedule
- Good sleep hygiene
- Sleep therapy approaches

Assessment and Referral for Other Sleep Disorders

- Biopsychosocial Assessment – Look for medical, medication, substance abuse contributions
- Rule out Insomnia Disorder
- Have knowledge of sleep specialist resources
- Provide psychoeducation – including prevalence
- Normalize and motivate for referral
- Follow up to make sure of follow-through

Diagnostic Exercise

