A Neuroscience Relationship-Based Framework for Psychiatric Nursing

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Objectives

1) Synthesize neuroscience and psychotherapeutic models to provide a framework for psychiatric nursing practice
2) Discuss the treatment hierarchy that informs intervention strategies and communication in psychotherapy
3) Apply neuroscience and theory to develop prioritized interventions for specific populations

THE MODEL

Synthesis of Models

- B. Dossey
- R. Scaer
- F. Shapiro
- A. Schore
- D. Siegel
- L. Cozolino
- B. Van der Kolk
- Porges
- Holistic nursing
- Neuroscience of:
  - Trauma
  - Information processing
  - Human development
  - Attachment theory

biomedical

Holistic Nursing

aim is to cure

aim is to heal

(Wheeler, 2008)
Attachment in the Therapeutic Relationship

- Relationship between the patient and the therapist is the primary vehicle for change.
- As the patient becomes attached, relational templates are revealed within the context of the therapeutic relationship.
- As therapy evolves, the therapist and patient are co-creating opportunities for corrective emotional experiences that can generate a new relational template.

Interpersonal Neurobiology

Siegel says that the therapist serves as an attachment figure and assists the patient toward more autonomous self-regulation through co-regulation of internal states. (Siegel, 2003)

Attachment Theory and Research

“Both optimal development and effective psychotherapy promote an expansion of the biologic substrate of the human unconscious, the right brain, which is considered the dynamic core of the implicit self.” (Schore, 2012)

Attachment Schemas

<table>
<thead>
<tr>
<th>Infant Strange Situation</th>
<th>Adult Attachment Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>Secure/Autonomous</td>
</tr>
<tr>
<td>Avoidant</td>
<td>Dismissing</td>
</tr>
<tr>
<td>Ambivalent/Resistant</td>
<td>Preoccupied</td>
</tr>
<tr>
<td>Disorganized/Disoriented</td>
<td>Unresolved/Disorganized</td>
</tr>
</tbody>
</table>

(Ainsworth, 1967; Hesse, 1999)

Secure Attachment

- Affective competence
- Feeling and dealing while relating
- Able to feel and process emotions in dyad
- Flexible strategies in relational experiences of affect
- Offer results in rich, intimate exchanges
- Able to maintain integrity of self and other
- Able to tolerate separation and reunion w/o being overwhelmed.
Attachment

“Children with insecure attachments (ambivalent, preoccupied, disorganized) will develop ego states that carry these perturbed experiences, their internalizations of self will be more negative; their ability to respond to the developmental tasks compromised.”

The nature & quality of early attachments are predictive of future attachment patterns in later life.

attachment Human Studies

mirror neurons brain to brain communication

Attachment

Interventions

Body
Emotion
Belief
Images
Behavior
Relationships
Community and Culture

Adaptive Information Processing

Psychobiological Paradigm Shift

Adaptive Information Processing

• Regulation of self-healing = neurophysiological harmony
• Information connected adaptively and flowing to other memory networks
• Forged and revised by experience
• Relationship provides the context for change & growth

Learning Changes the Pattern of Receptors (information network)

• Memories are contained in webs of interlinking neurons
• Each individual has their own unique biochemical profile (template)
• The capacity to learn as well as retrieve previous learning depends on the specific on the mood or feelings (physiology) at the time of the experience=state dependent learning.
Healing is...

"...the emergence of right relationship between all levels...the process of bringing together all parts of one's self (physical, mental, emotional, spiritual, relational) at deeper levels of inner knowing, leading to integration and balance..."

(Dossey, 2012)
Contrary to the prevailing popular idea, the autonomic nervous system can be more accurately conceptualized as having three branches, not two! The three are phylogenically sequential, reflecting increasing survival effectiveness at each stage.

**NEUROCEPTION:** How we differentiate safety, danger & life threat

Wheels trigger you to react. If your most reactive doesn’t make you feel well, you return to the specific (see the chart).
**Hyperarousal**

- Sympathetic NS
- Palpitations, chest tightness, dizziness, nausea, ↑ HR & BP, pallor, muscle bracing, ocular divergence, tremor, startle, panic, rage, constipation

**Traumatic Memories**

- when the brain is hyperaroused, storage may be incomplete and new information will be stored in nonverbal memory,
- dimensions of the memory are improperly stored and fragmented,
- determined by the total of one's cumulative life traumas + adaptive networks present
- procedural memories for the past are perceived as being present
- the greater the amount of information/memory dissociated, the less time one is in the present

**TRAUMA: A "CAPSULE" OF PROCEDURAL MEMORY**

- Somatosensory Feelings
  - all body sensations at the time
  - pain and movement sensations
  - sounds, smells, and images
  - vestibular sensations
- Autonomic Feelings
  - arousal/racing heart
  - freeze/immobility, slowed heart
- Emotional (limbic) Feelings
  - fear/terror/rage
  - emotion-linked declarative memories
Dissociation is a Failure of Integrative Capacity

High Arousal - Re-experiencing, Hyperarousal

Consciousness

Low Arousal - Numbing, Flat Affect, Immobility

Too much Arousal to Integrate

Too little Arousal to Integrate: Dissociation

Mental Illness Characterized by Complexity

- Symptoms are multi-determined:
  - Genetics
  - Prenatal insults
  - Parent-child interactions
  - Abuse
  - Neglect
  - Family dynamics
  - School & social environments
  - Illness

Trauma is ubiquitous

55-90% of people have experienced at least one traumatic event; on average, 5 traumatic events are reported per person. (CDC, 2010)

“Traumatic events are extraordinary, not because they occur rarely, but rather they overwhelm the ordinary human adaptation to life.” (Herman, 1992)

“Traumatized people relive the moment of trauma not only in their thoughts and dreams but also in their actions.”

(Herman, 1992)
Trauma vs Stress Disorders

• Stress-related diseases are more associated with chronic low-grade flight/flight i.e. diabetes, HTN etc...

• Trauma-related diseases are more associated with parasympathetic physiology of the freeze response i.e. autoimmune disorders, fibromyalgia etc.

  o Autonomic regulatory impairment, both sympathetic & parasympathetic with a predominance of vagal and parasympathetic syndromes in the later stages.

  (Scaer, 2005)

Core Negative Beliefs of Defectiveness

• I’m bad
• I’m not good enough
• I am a failure
• I’m worthless
• I’m unlovable
• I am damaged
• I’m invisible
• I am not important

Psychotherapeutic Strategies

Psychotherapy: Restructuring Neural Networks

(PET studies of brain show changes after therapy)

• Enhancing Growth of Neurons and Neural Networks
  o Formation of new networks/nerve cells
  o Strengthening existing adaptive networks

• Restoring Neural Network Integration and Coordination
  o Cortical Inhibition of amygdala irritability
  o Top-down and bottom up processing
  o Connecting right hemisphere to left hemisphere

Neuroimaging Studies

Changes occur in the cortical and limbic areas of the brain in response to psychotherapy.

(^Weatherill & Tapert, 2012)
Caring
- Provides a healing context for restructuring neural networks
- Interpersonal attunement = attachment = co-regulation
- Emotional arousal while safe
- Cultivating therapeutic alliance provides safety
- Collaborative affective bond between the patient & the therapist

Connection
- Attachment relationship is the key to accessing implicit networks through existing neural networks and/or create new networks
- Recreate state dependent procedural memories
- Limbic resonance = dyadic states of consciousness = right brain to right brain communication = co-regulation
- Mirror neurons
- Relationships stabilize and regulate physiology
- Connect subcortical (limbic) areas to cortex

To Cultivate a Therapeutic Alliance
- Ask detailed questions about the patient’s main concern
- Validate affect
- Explain the process as it unfolds
- Listen empathically without “fix it” statements
- Set collaborative goals
- Point out patient’s strengths
- Matching your style to the patient’s
- Recognize & repair the relationship when needed

Narrative
- Helps make the implicit explicit
- Connects subcortical with cortical areas
- Connects right hemisphere to left
- Strengthens ability to regulate emotions
- Identification & expression of feelings

Anxiety Management
- Moderate arousal paired with relaxation
- Create and strengthen resources to manage anxiety (decrease hyperarousal of SNS & irritability of the amygdala)
- Activate and strengthen cortex
- Affect regulation
- Use techniques for stabilization
Therapeutic Window

- Emotional arousal in psychotherapy provides a portal of opportunity to access implicit memory
- Manage physiological arousal so new learning (processing) can occur
- Increase frontal cortex activation to stabilize patient
  - Mindfulness
  - Dual awareness

Stabilization

- Increasing internal & external resources if needed
- Enhance patient’s ability to make ‘state’ changes
- Creates or strengthens adaptive memory networks
- Helps to decrease irritability of the amygdala & increase function of prefrontal cortex

Maslow’s Hierarchy of Needs

- Self Actualization
- Self Esteem
- Love and Belonging
- Safety and Security
- Physiological Needs

resources:
- physical health
- loving extended family
- impulse control

- trauma:
  - poverty
  - caregiver depression
  - learning disability
  - pet recently died

Wheeler
Some Stabilization Strategies

- Cognitive-behavioral techniques
- Case management
- Affect management/DBT
- Mindfulness
- Managing physiological arousal
  - Safe place imagery
  - Container exercises
- Medication
- Education
- Stress management
- Ego state therapy

Creating Resources (adaptive memory networks)

Creating new internal resources and skills to elicit positive emotional states and contain negative states.

- Containers
- Yoga
- Meditation
- Progressive muscle relaxation
- Guided imagery
- Safe place
- Soothing activities

Creating Resources (2)

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Soothing Activities

- Smoothing on warm body lotion
- Taking a shower or bath
- Taking a long walk
- Looking at a tank full of fish swimming
- Looking at the sky
- Eating something delicious mindfully
- Massaging feel or scalp

Soothing Activities (2)

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Processing

- Access to all dimensions of the memory (behavior, affect, sensations, cognitions & beliefs)
- Connects adaptive networks with dysfunctional material to create trait changes
- Results in new learning (neural connections)
- Changes implicit to explicit memory
- Restores consciousness
- Healing occurs as formerly disrupted/dysfunctional neural networks are re-created and connected with constructive adaptive networks

Processing Strategies

- Through therapeutic relationship
- Psychodynamic psychotherapy
- Imaginal exposure
- In vivo exposure
- Cognitive-processing/journaling
- EMDR
- Communication
Brain grows from bottom up. Bottom is less malleable, harder to change, rooted with unconscious thoughts, feelings, sensations, emotions and procedural memories.

CBT targets prefrontal cortex.
EMDR targets limbic system and prefrontal cortex.
Mindfulness targets limbic area.

(Wetherill & Tapert, 2012)

Treatment Hierarchy and Continuum of Therapeutic Communication

Processing leads to expansion of consciousness....

(Wheeler, 2008)

Audrey

- 26 year old married woman who is a costume designer/seamstress; previous therapies since age 13.
- Numerous psychosomatic complaints; frequent stomach aches, irritable bowel syndrome, acid reflux, headaches, restless legs syndrome, generalized pain as well as cold chills all over her body.
- Attachment trauma + 2 car accidents
- Past diagnoses of depression, bipolar II, panic disorder, and anorexia; easily overwhelmed and sometimes scared to leave the house, often feels not safe, irritable, fearful and depressed.
- Scored 63 on the Spielberger Trait Anxiety Scale (STAI) which indicates significant anxiety; 22 on the Beck Depression Inventory (BDI) which indicates moderate depression and 27 % on the Dissociative Experiences Scale which is significant for dissociation.

Outcomes
Outcomes of Relationship-based Psychotherapy

- Develop a new, more adaptive pattern of attachment and relatedness
- Feels secure about self/others
- Develop an integrated narrative about self and caregiver(s) that includes a recognition of the impact of past history
- Ability to self-regulate; greater access to authentic experiences (core affects) and insights
- Ability to deal and feel within the context of relatedness; attuned communication
- Greater resiliency to navigate needs and express self within the context of being in relationship

Harmony
Connection
Integration
Balance

Treatment & Outcomes
Stabilization
• Prozac 20 mg
• Safe place
• Container
• Fraser table technique/ego states

Processing
• EMDR
• Relationship

Outcomes (5 months later)
Wk #1 GAF 60; wk #4 post-treatment 85; 6 months later 90; stated that she never felt this good before; seemed more robust and stronger over time; her creativity, visual imaging skills, and humor were great assets to her in our work together.

(Steele, 2007)