

Mindfulness and Neurodecolonization
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Colonialism: The Invasion, Subjugation, and Occupation of one people by another

Colonization: The behaviors, ideologies, institutions, policies, and economics that increase the wealth and power of the colonizer and subjugate the Indigenous Peoples. Colonization strips Indigenous Peoples of their territories, sovereignty, rights, identity, resources, self-determination, and cultural values and practices (Yellow Bird, 2008).

Colonization extinguishes the intellectual, social, political, and healing fabric of Indigenous Peoples. Colonization produces exceedingly high rates of: poverty; suicide, mortality, chemical dependency, community violence, loss of natural helping systems; chaotic governance; and the chronic diseases (Yellow Bird, 2008).

Settler colonialism is a form of colonial formation whereby foreign people move into a region. An imperial power oversees the immigration of these settlers who consent, often only temporarily, to government by that authority. This colonization sometimes leads, by a variety of means, to depopulation of the previous inhabitants, and the settlers take over the land left vacant by the previous residents. Settler colonialism is a resilient formation that rarely ends (Wiki, 2016).

Trauma: *Pathology:* a body wound or shock produced by sudden physical injury, as from violence or accident. *Psychiatry:* an experience that produces psychological injury or pain the psychological injury so caused (Dictionary. Com).

Historical Trauma: (HT), in social work, refers to cumulative emotional and psychological wounding, extending over an individual lifespan and across generations, caused by traumatic experiences. The historical trauma response (HTR) is a constellation of features in reaction to this trauma.

The HTR may include substance abuse as a vehicle for attempting to numb the pain associated with trauma. The HTR often includes other types of self-destructive behavior, suicidal thoughts and gestures, depression, anxiety, low self-esteem, anger, and difficulty recognizing and expressing emotions. Associated with HTR is historical unresolved grief that accompanies the trauma (Yellow Horse Brave Heart).

Chronic Stress: grinding stress that wears people away day after day, year after year. Chronic stress destroys bodies, minds and lives. It wreaks havoc through long-term attrition. It's the stress of poverty, of dysfunctional families, of being trapped in an unhappy marriage or in a despised job or career. It's the stress that the never-ending "troubles." Chronic stress comes

when a person never sees a way out of a miserable situation. It's the stress of unrelenting demands and pressures for seemingly interminable periods of time. With no hope, the individual gives up searching for solutions (American Psychological Association).

Adverse Childhood Experiences: (ACEs) are potentially traumatic events that can have negative, lasting effects on health and well-being. These **experiences** range from physical, emotional, or sexual abuse to parental divorce or the incarceration of a parent or guardian (childtrends.org).

Epigenetics: literally means "above" or "on top of" genetics. It refers to external modifications to DNA that turn genes "on" or "off." These modifications do not change the DNA sequence, but instead, they affect how cells "read" genes (Rachel Rettner, Live Science, 2013).

Neuroplasticity: The ability of the brain to change in structure or function in response to experience – (how we think, feel, and behave changes our brain).

Dendritic Spine: is a small membranous protrusion from a neuron's dendrite that typically receives input from a single synapse of an axon. Dendritic spines serve as a storage site for synaptic strength and help transmit electrical signals to the neuron's cell body.

Brain Derived Neurotrophic Factor: is part of a cascade of proteins, produced in the brain that promotes neuron growth and stops neurons from dying.

Teleomere: is a region of repetitive nucleotide sequences at each end of a chromosome, which protects the end of the chromosome from deterioration or from fusion with neighboring chromosomes. Like the plastic cap at the end of a shoelace it prevents the lace from becoming frayed.

Decolonization: "...the *restoration* of cultural practices, thinking, beliefs, and values that were taken away or abandoned (during colonization) but are relevant and necessary for survival and well being. It is the *birth* and use of new ideas, thinking, technologies and lifestyles that contribute to the advancement and empowerment of Indigenous Peoples" (Michael Yellow Bird, 2012)

Neurodecolonization: The deliberate engagement in mindfulness and traditional Indigenous Peoples contemplative practices with the intent to willfully train the mind and change the brain's structures and functions to heal from the traumas associated with colonialism. Neurodecolonization begins with an understanding how our mind, brain, genetic, and immune systems operate when under the stresses of colonialism and during optimal decolonization processes (Michael Yellow Bird, 2010, 2015).

Mindfulness: refers to maintaining a moment-by-moment awareness of our thoughts, feelings, bodily sensations, and surrounding environment. Mindfulness involves acceptance, meaning that we pay attention to our thoughts and feelings without judging them—without believing, for instance, that there's a "right" or "wrong" way to think or feel in a given moment. When we practice mindfulness, our thoughts tune into what we're sensing in the present moment rather than rehashing the past or imagining the future (Greater Good in Action, 2016).

Cultural Neuroscience: is the study of how cultural values, practices and beliefs shape and are shaped by the mind, brain, and genes across multiple timescales (Ames, D. L.; Fiske, S. T.)

Collectivist Cultures: emphasize the needs and goals of the group as a whole over the needs and wishes of each individual. In such cultures, relationships with other members of the group and the interconnectedness between people play a central role in each person's identity (About Health).

Serotonin Transporter Gene: The serotonin transporter gene may affect neural circuits connecting the amygdala and the cingulate and cause depression. People with anxiety disorders or depression complain not so much about the emotion itself as its unceasing nature, says Daniel Weinberger of the National Institute of Mental Health. The serotonin transporter gene, which encodes a key protein for neurotransmission in the brain, comes in a long form and a short form. People who have the short form are susceptible to developing depression or anxiety, though the gene does not actually cause it (<https://www.dnalc.org/view/862-serotonin-transporter-gene.html>).

Insula: The insula is another name given to the area of the brain known as the insular cortex the tissue surrounding the largest portion of the brain. Other names for this structure include insular lobe or insular cortex. The insula is part of cerebral cortex and helps to regulate emotion and works to assist in motor control function. The insula monitors **bodily sensations** and is involved in experiencing “gut-level” feelings. Along with other brain areas, it helps “guide” how strongly you will respond to what you sense in your body (i.e., is this sensation something dangerous or benign?). It is also heavily involved in experiencing/feeling empathy.

Temporal Parietal Junction: (TPJ) is an area of the brain where the temporal and parietal lobes meet, at the posterior end of the Sylvian fissure. The TPJ incorporates information from the thalamus and the limbic system, as well as from the visual, auditory, and somatosensory systems. The TPJ also integrates information from both the external environment as well as from within the body. The TPJ is responsible for collecting all of this information and then processing it. This area is also known to play a crucial role in self-other distinctions processes and theory of mind (ToM). Furthermore, damage to the TPJ has been implicated in having adverse effects on an individual's ability to make moral decisions and has been known to produce out-of-body (OBEs).

Theory of Mind: is the ability to attribute mental states — beliefs, intents, desires, pretending, knowledge, etc. — to oneself and others and to understand that others have beliefs, desires, intentions, and perspectives that are different from one's own (Wiki).

Left Prefrontal Cortex: the left side of the frontal lobe – known as the left prefrontal cortex – is more active when people feel happy. In contrast the right side of the frontal lobe –the right prefrontal cortex - is more active when people feel sad. Thus, by learning what stimulates the left prefrontal cortex we can encourage or even train people to be happier. Similarly, by learning what calms the activity in the right prefrontal cortex we can discourage or train people to reduce sadness (Richard Davidson, 2008).

Parietal Lobe: The parietal lobe plays important roles in integrating sensory information from various parts of the body, knowledge of numbers and their relations, and in the manipulation of objects. Its function also includes processing information relating to the sense of touch. Portions of the parietal lobe are involved with visuospatial processing. Both the left and right parietal systems play a determining role in self transcendence, the personality trait measuring predisposition to spirituality (Wiki, 2016). When inactivated when we feel a sense of ourselves as connected to other things in the world (Andrew Newberg, 2008)

Amygdala: is the alarm system of the brain, what most refer to as the “**Fear Center**.” It's a part of the brain that is responsible for many of our initial emotional responses and reactions, including the “fight-or-flight” response. The Uh Oh Center, (Rebecca Gladding, Psychology Today, 2013).

Dorsomedial Prefrontal Cortex (dmPFC) – involved in processing information related to people who you perceive as being *dissimilar* from you. This very important part of the brain is involved in feeling empathy (especially for people who we perceive of as not being like us) and maintaining social connections.

Anterior Cingulate Cortex: just behind the frontal lobe, is activated when we are aware of others and empathize with them, when we sense how they feel, and when we feel compassion for other people. Prayer increases activity in this area, which is considered to be the part of the brain that most clearly distinguishes human beings from animals. Dr. Newberg calls it the “neurological heart.”

Mirror Neurons: You see a stranger stub her toe and you immediately flinch in sympathy, or you notice a friend wrinkle up his face in disgust while tasting some food and suddenly your own stomach recoils at the thought of eating. This ability to instinctively and immediately understand what other people are experiencing has long baffled neuroscientists, but recent research now suggests a fascinating explanation: brain cells called **mirror neurons** (society for Neuroscience, 2008).

