



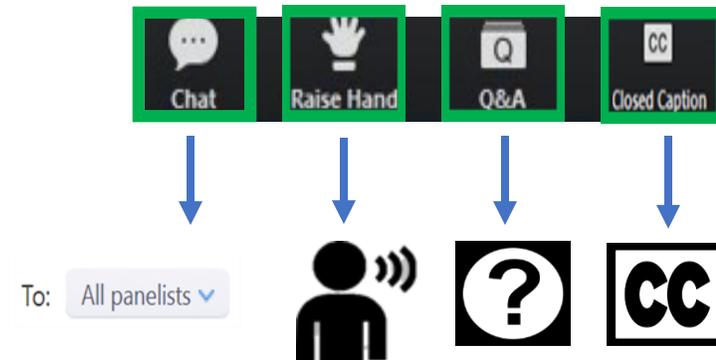
Heartbeat of the Earth – Music Therapy in Indigenous Communities

February 25, 2026



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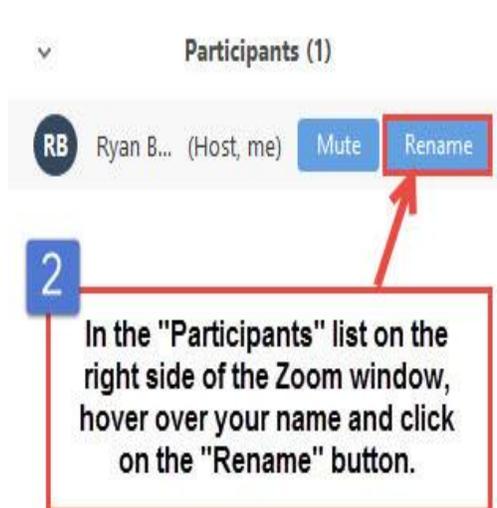


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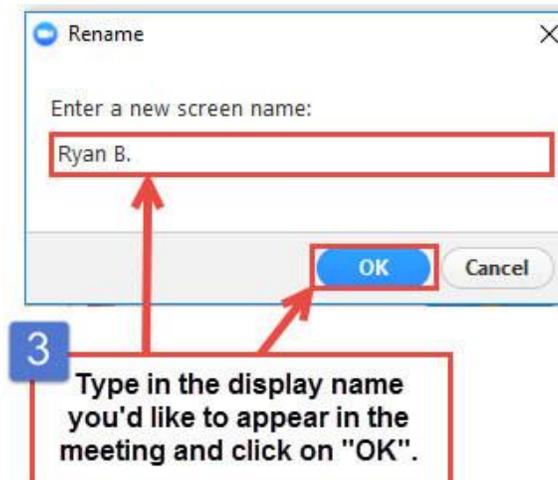
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Today's Presenters



Atheda Fletcher
Grant Project Principal Investigator
Little Axe Health Center



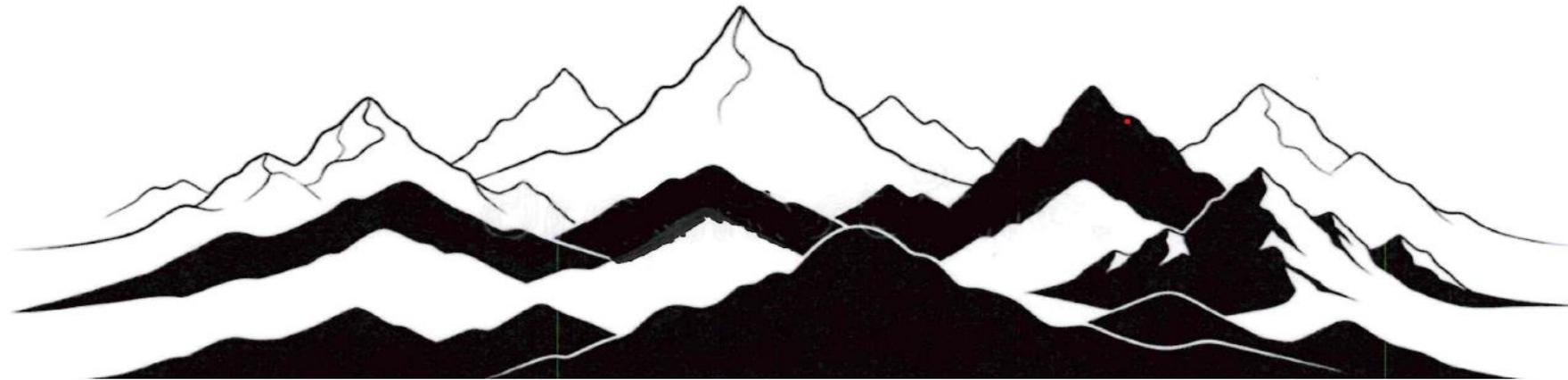
Dr. Raphael Francisco
Indian Health Geriatric Scholars Program Participant
Specialist in Internal Medicine and Endocrinology
Absentee Shawnee Tribal Health System

Absentee Shawnee Tribal Health System Norman and Shawnee, Oklahoma



Heartbeat of the Earth – Music in Indigenous Communities

February 25, 2026



Heartbeat of the Earth – Music in Indigenous Communities



Dr. Raphael Francisco
Atheda Fletcher



Session Objectives

- Provide a brief overview of how the brain responds to music
- Understand the neurologic basis of music therapy for people living with dementia
- Gain insight into the value of music and culture-based interventions



Absentee Shawnee Tribal Health System's Mission

We provide a culturally-sensitive, quality health care system for American Indians and Alaska Natives, which leads to health promotion and disease prevention through a multi-disciplinary team using holistic and evidence-based practices that address all health issues and educational needs while protecting individual confidentiality.



Website: <https://www.asthealth.org>



Building a Healthier Tomorrow

What were the considerations:

- Rapid aging population
- High risk factors
- Unmet needs and service gaps
- Need for education and awareness



Why Did We Choose Music Therapy

- Cultural relevancy
- Evidence-based
- Non-pharmacological
- Reduce behavioral issues
- Enhance communication
- Improve mood and well-being



Foundation: Music As Traditional Healing

- Deep roots
- Holistic approach
- Role of instruments
- Respectful integration
- Shifting the mindset and approach
- Respectful and inclusive care



Photo by Walter Larrimore, courtesy of the National Museum of the American Indian, Smithsonian Institution



The Power of Music

Music

- Provides a channel for expressive communication when words are no longer available
- Reduces agitation and restlessness
- Provides relief from fear and anxiety
- Can activate specific regions of the brain responsible for memory, motor control, and language



Music Is with Us Throughout Life

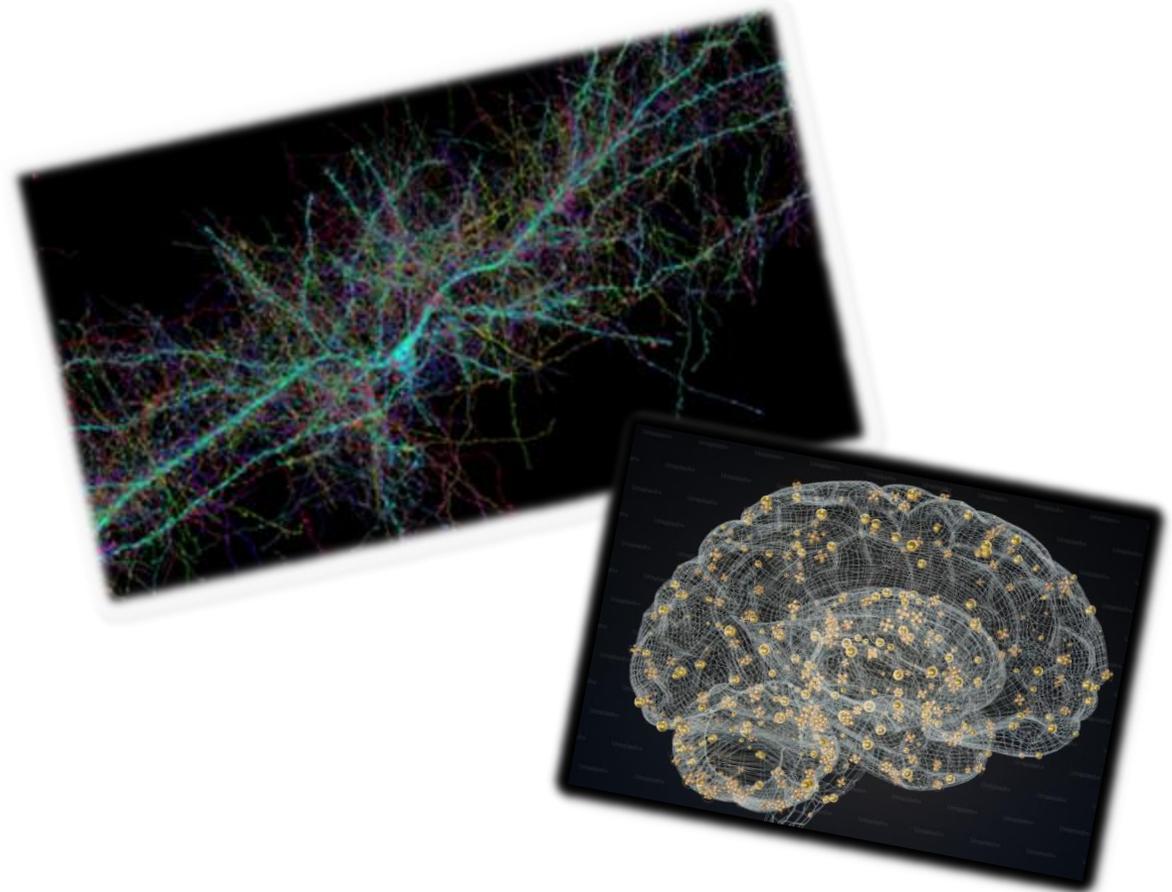
- Music is omnipresent across world cultures and has been regarded as an integral part of human nature
- Music encodes information, emotions, and social interactions throughout life
- Music can trigger or facilitate subsequent recall of information, emotions, and social interactions even if the music is unrelated to the thing being recalled



Autobiographical Memories and Emotions

Autobiographical memory

- The memory for life experiences in which the “self is the object of knowledge”
- Is mostly episodic in nature
- Is more easily remembered if associated with stronger emotions



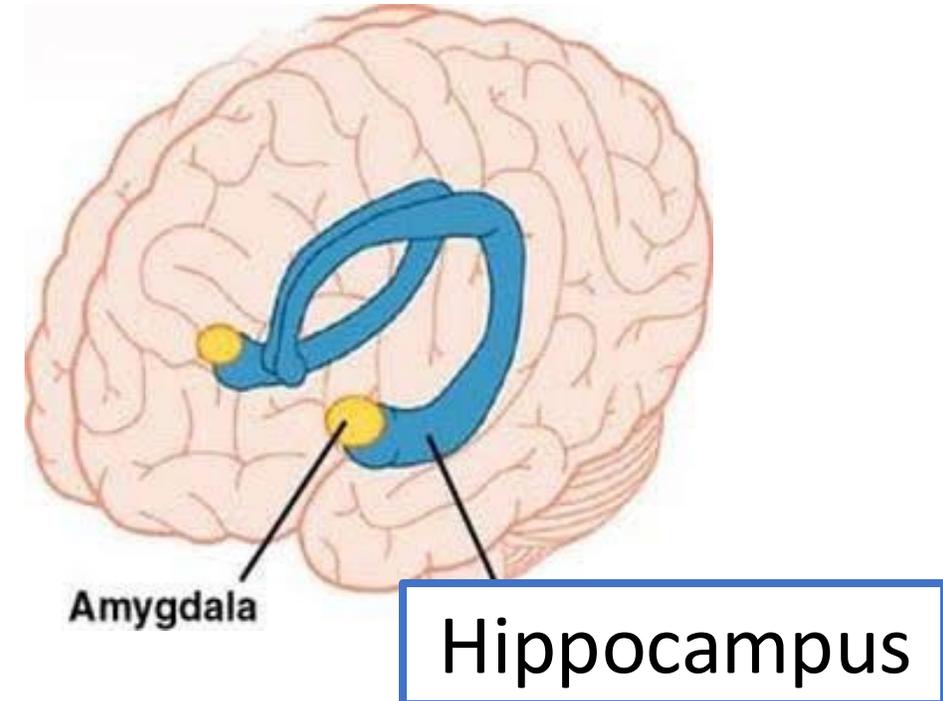
Music Can Evoke Autobiographical Memories

- If music was played in the background, in individuals without form of dementia, recent and remote memories:
 - Were more easily and vividly retrieved and recalled
 - Had more detail and emotion
 - Had a more positive overall mood
- The effect seemed to be greater if self-selected, familiar music was played, but persisted even if unfamiliar music was played
- The effect was also observed in patients with Alzheimer's disease (AD)
- These are called music-evoked autobiographical memories (MEAM)



Music Can Evoke Emotions in the Hippocampus

- It is well-known that music evokes emotions
- A meta-analysis of functional neuroimaging studies on music and emotion indicated activity changes in the anterior hippocampal formation (among numerous other structures)
- Music-evoked emotions (MEE) may increase neurogenesis in the hippocampus, even though the hippocampus is one of the first regions to be affected by AD

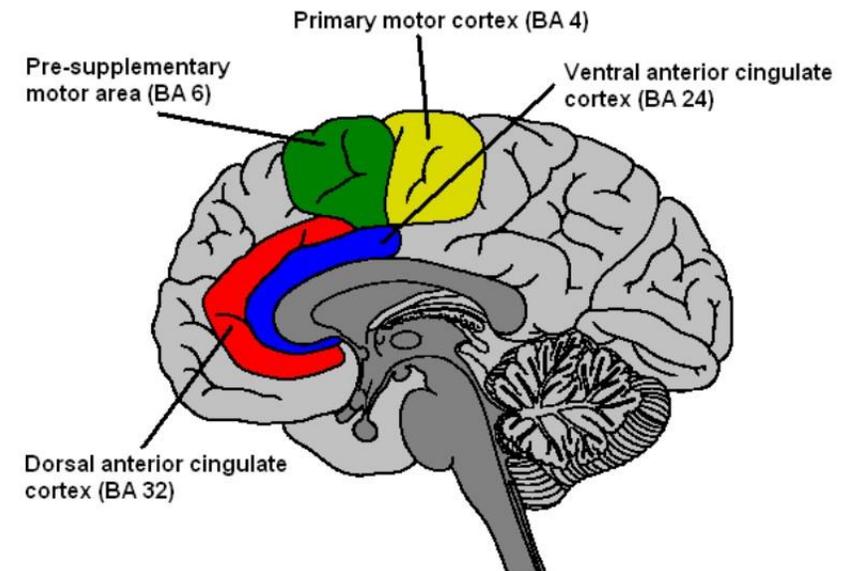


Music Can Evoke Emotions in Other Areas of the Brain

Like the hippocampus, the **pre-supplementary motor area (SMA)** and **caudal anterior cingulate cortex** play a role in MEE

- Based on functional neuroimaging studies, the pre-supplementary motor area and caudal anterior cingulate cortex also appear to be the areas where long-known music is encoded.
- These two regions are among the last to degenerate in AD
- This might explain why many AD patients have surprisingly well-preserved musical memory and MEE

Pre-SMA cortex; Caudal anterior cingulate cortex



Music Therapy in Patients with AD

- A trained music therapist typically administers music therapy
- The music can be:
 - Live or prerecorded
 - Vocal or instrumental
 - Familiar or unfamiliar to the patient
 - Involve or not involve patient vocalization or movements (such as clapping, swaying, dancing, etc.)



Therapeutic Effects of Music Therapy in Patients with AD

- A randomized controlled trial of 298 patients with mild, moderate, and severe AD (*Journal of Alzheimer's Disease*, 2018)
- Patients were treated with singing, lyric reading, or nothing and assessed at 0, 3, and 6 months
- Those exposed to singing had the greatest improvements
- Patients with mild AD had increased memory and language scores
- Patients with moderate and severe AD had alleviated psychiatric symptoms and caregiver stress
- All had better verbal fluency



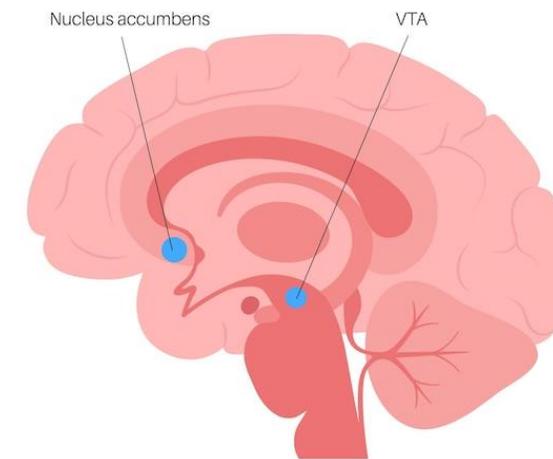
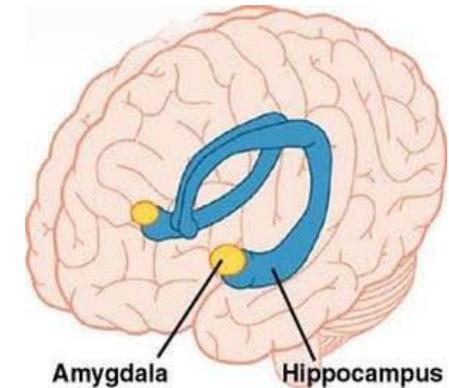
Therapeutic Effects of Music Therapy in Patients with AD (cont.)

- Smaller uncontrolled clinical studies documented improvements in cognitive function, behavioral symptoms, and mood (less depression and anxiety) with music therapy
- There is still a need for more high-quality, empirical evidence from well-designed clinical trials to determine the full range of benefits of music therapy in patients with AD



3 Potential Mechanisms for Beneficial Effects of Music Therapy in Patients with AD

- When music therapy generates **social interaction**, it stimulates neurogenesis and neuroplasticity, especially in the hippocampus
- Music therapy stimulates **dopamine release** from dopaminergic mesolimbic neurons of the ventral tegmental area to the nucleus accumbens and prefrontal cortex
- Music therapy modulates the **release of brain cytokines**, thereby reducing stress, inflammation in the brain, and neurodegeneration



Music and Memory

- A service of the Institute for Music and Neurologic Function, a leader in advancing the therapeutic power of music



A favorite program...



The Power of Personalized Music

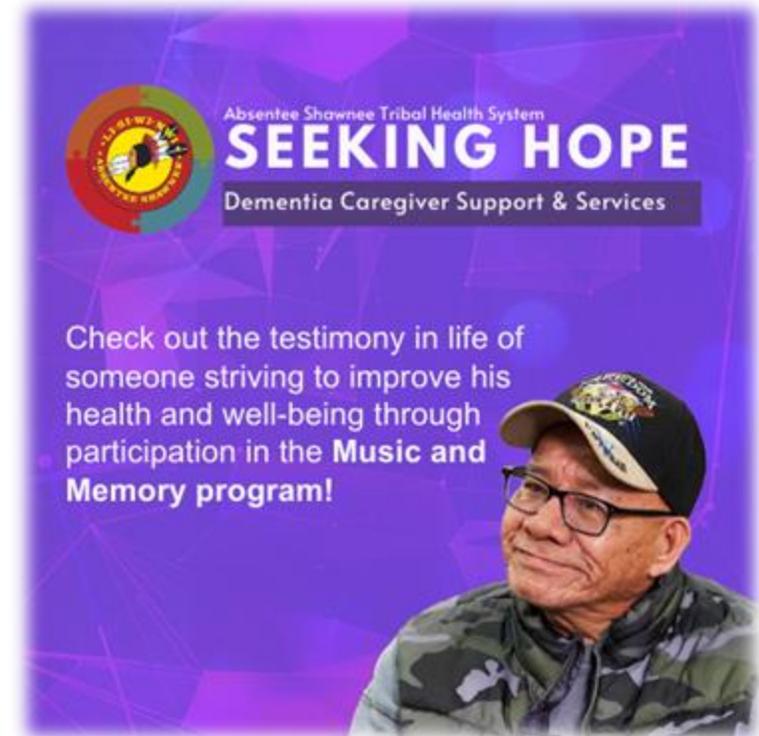
Favorite music can renew lives lost to dementia

- Offers a safe, non-pharmaceutical approach to reducing depression, anxiety, and chronic pain
- Provides a viable, effective alternative to mood-altering medications
- Reduces fall risks and resistance to care
- Helps improve swallowing and nutrition
- Increases engagement and socialization with family, friends, and staff
- Provides a meaningful activity for those on dialysis, vent, and or bedridden
- Relaxes participants and restores a sense of calm
- Provides family and professional caregivers with much needed respite



Participant Speaks: Raymond Tiger

- Absentee Shawnee tribal member
- U.S. Army veteran
- Program participant



Key Takeaways



Music has power



Music respects culture



Music integrates cultural traditional elements



Music is a tool for connection and emotional healing





Questions?

