The Influence of Music

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Music is an outlet or even a saving grace for several people. It has been known to help with depression, autism, and trauma patients. Music therapy is one of many methods for people with Alzheimer’s disease or other forms of dementia for improving cognitive function including memory, and emotional behavior.

 Dementia is an umbrella term for conditions that includes memory loss, and a decline in skills such as problem solving and language that affect a person’s activities of daily living, or ADLs. Conditions and diseases that fit under dementia is Alzheimer’s disease, Huntington’s disease, vascular dementia, and Lewy body dementia (LBD). The cause of dementia is due to damaged brain cells or a gene. In Huntington’s disease, the gene eventually causes Huntington’s in anyone who has the gene because it is dominant. The gene’s biological function is to produce a protein, huntingtin, and the abnormal gene produces the protein and causes mood changes and a decline in reasoning (Alzheimer’s Association, 2019). There is no cure for dementia and it only worsens with time. Due to the decline in ADLs and memory loss, it can lead to depression, vitamin deficiencies, mood swings, and a loss of concentration. However, there are methods and medications that can help with symptoms of dementia such as music therapy (Department of Health & Human Services, 2014).
 Music therapy addresses social, physical, emotional, and cognitive needs through music. The therapy includes dancing, singing, playing instruments, and listening to music. This method is also tuned to everyone’s needs (American Music Therapy Association, 2019). After the music therapist makes a treatment plan for a patient with a disease associated with dementia, it creates opportunities such as, emotional interactions between the patient and their family, memory recall, and stress reduction (American Music Therapy Association, 2006).

 The Beatles are one of the most renown artists in the world. Getting their start in 1956, when John Lennon formed the group in Liverpool, England. The band went through several names and members such as Johnny and the Moondogs, the Quarrymen, and the Silver Beatles. The Beatles members were John Lennon, Paul McCartney, Ringo Starr, and George Harrison. Their first single, “Love Me Do,” was released on October 5, 1962. The United States was not interested in the Beatles until performing on *The Ed Sullivan Show.* Shortly after, songs such as, “I Want To Hold You Hand,” “She Loves You,” and “Can’t Buy Me Love,” were released and quickly became hits in America. The Beatles were also experimenting with new sounds. With songs like, “Eleanor Rigby,” and “Tomorrow Never Knows,” were made with new techniques of recording impossible to perform at that time. They also had a diverse set of music in their albums such as love ballads, soul, and creative pieces about philosophy and life experiences. Unfortunately, differences in the band led to them breaking up. Lennon went the way of a more anti-war and political statements with songs such as “Revolution,” while McCartney stayed with ballads like, “Blackbird.” By 1968 and 1969, the members were working more individually then as a group. Lennon performed in a group called the Plastic Ono Band with his wife Yoko Ono and Ringo Starr performed in a movie *The Magic Christian.* In the last years of the Beatles, they filmed and recorded for *Let it Be* and continued with hit songs. Their album, *Abbey Road,* is one their most well-known containing songs such as “Come Together,” and “Here Comes The Sun.” The film and record of *Let It Be*, was released in 1971 and showed the arguments and the band falling apart. By the end of the 1970, all members were recording their own albums separately. At this point, the Beatles were no more and no one could get them back together. When John Lennon was murdered in 1980, songs left over by Lennon, the remaining Beatles released the taped singles, “Free As A Bird,” and “Real Love.” Only two members are alive today and recording: Ringo Starr and Paul McCartney. George Harrison died in 2001 due to cancer (Advameg, Inc., 2019).

 The chosen song to go over in the paper is “Come Together.” The song was released on October 1, 1969 in the United States. The instrumentation in the song contains handclaps, tambourine, drums, maracas, vocals, guitar, bass guitar, and electric piano. This song is one of the more catchy and popular songs of the Beatles. The pace is moderate, and the hand claps make it easy to follow along to the rhythm. The sounds are very pleasing to the ear and play more to consonant sounds. The intro of the song is also repeated in several sections throughout this lengthy song. Though the pace is moderate, during the song it feels like they’re taking their time and have all day to finish the song. Some of the chords played in this is the major IV, V, and the minor I and VI in its harmony and melody (Millard et al., 2019).

Improvement in cognitive function is only a small part of the overall goal of music therapy. In a case study by Melissa Mercadal-Brotons, there was enhancement of cognitive function through playing instruments and dancing. One of the patients was Anne, a sixty-eight-year-old with probable Alzheimer’s. Regarding playing instruments, the patient played with instruments while people were singing or music in the background to create a safe environment and reinforce learning. This invited and encouraged others to try harder and to keep playing with instruments. For dancing, it was designed to improve fine and gross motor skills that including moving the arms and legs through flexion and extension and in several directions. One of the sessions had the music, *The Colonel Bogey March*. It had a strong rhythm to dance and have fun to (Mercadal-Brotons, 2010). When it comes to the song “Come Together,” there are a lot of percussion instruments patients would be able to use to follow rhythm of the song and sing along. There are maracas, tambourines, drums, and even simple hand claps to experiment and learn with. It is a song with a strong, easy rhythm to follow along to, especially with it in the background. In addition, it is a recognized song, especially for older patients who grew up when it was released in 1969. A part of improving cognitive function is also for memory. In another case study, it has shown that memory for lyrics and melody is possible with patients with dementia, or those with Alzheimer’s. An 84-year old woman was tested by listening to several melodies, both familiar and unfamiliar. The familiar melodies such as patriotic songs were played with incorrect pitches or incorrectly performed melodies. The goal was to identify the correct and incorrect melodies. However, because of the dementia the patient could not follow directions. Once familiar melodies were played, the patient would sing along to the melody even after the music stopped. The woman also responded to the incorrectly played melodies. She made movements such as shuddering, or grimaces. The authors of the case study determined the patient responded to the melodies at the same accuracy as a normal patient would (Cuddy et al., 2012). Continuing with their study, the researchers gathered young adults and healthier older adults as the control and patients diagnosed with varying stages of Alzheimer’s as the independent variable. After carrying out a similar test as before, the musical memory of the Alzheimer’s patient was at the same accuracy as the others (Cuddy et al., 2012).

 In a journal article, *Neurologic Music Therapy in Cognitive Rehabilitation*, the author, Michael Thaut evaluates music therapy and their relation to improving cognition. Thaut wrote,

“Recent research also has shown that musical memories may survive longer than nonmusical memories and may be functionally available and accessible for persons with neurologic memory disorders such as dementia or Alzheimer’s disease (AD) (Baur, Uttner, Ilmberger, Fesl, & Mai, 2000; Crystal, Grober, & David, 1989; Cuddy & Duffin, 2005; Halpern & O’Connor, 2000; Haslam & Cook, 2002; Samson, Dellacherie, & Platel, 2009; Son, Therrien, & Whall, 2002; Vanstone & Cuddy, 2010; Vanstone, Cuddy, Duffin, & Alexander, 2009). That this function may extend to learning new musical materials was proposed in a case study of a violinist diagnosed with AD and profound anterograde and retrograde memory deficits who not only continued to perform familiar music but learned to play a new, unfamiliar piece (Cowles et al., 2003) (Thaut, 2010).”

The evidence for this in its neurologic process for memory in the brain. One of these processes is rhythmic patterns that capture attention through coupling mechanisms. Using evidence from studies of Bonnel, Faita, Peretz, and Besson (2001) and the foundation made by Deutsch (1982), the mechanisms for processing of lyrics and music and memory formation show how temporal clunking works in a nonmusical process. It shapes perception and learning (Thaut, 2010). In the context of the Beatles song, “Come Together,” using the information from Thaut’s article and the case study above, a dementia patient or Alzheimer’s patient could learn or at the very least identify the melody of the song through repeated steps of correct and incorrect performance of the song.

 Music therapy also helps with emotional and social interactions. In the same study with Melissa Mercadal-Brotons, Anne was noted to be very shy at first. After the fourth session, “She remained in the room, and became more respondent to others comments by smiling, making eye contact, even making some comments herself (Mercadal-Brotons, 2010).” From the first to last session, her emotional response was recorded including negative responses. Her sessions and her positive reaction to them, transferred to other parts of the center. It was noted that,

“Anne was much more social with the other group members: more talkative, more responsive, and also more participatory in other activities. Although music therapy is one of the therapeutic activities that is offered to the patients, music is also present at other times, specifically background music during occupational therapy or physical therapy. If the music that was played was familiar to Anne, the staff commented that she would join in singing the songs spontaneously (Mercadal-Brotons, 2010).”

This showed that the interaction of music worked affected not only in the sessions, but in other parts of the center (Mercadal-Brotons, 2010). Another aspect in improving emotional behavior is being able to identify or capture it. In a journal article written by Michael Thaut, emotional response has a huge impact on memory (Thaut, 2010). In one of the case studies, an immediate facial reaction was made when hearing the incorrect notes or pitches of familiar melodies while none was given if it was unfamiliar (Cuddy et al. 2012). However, in a different study, the patients had to identify moods in the songs. In Alzheimer’s, the disease damages the amygdala, a structure for emotional processing for music and in facial expressions. In the study, the patients had to identify the moods of familiar songs and of unfamiliar ones and point out the facial expression on pictures given. These moods were also taken by using the tempo of the songs and had to point out the mood in the picture. The worst one and that most with severe dementia could not identify was fear. The healthier patients with their dementia being less severe had the most trouble with identifying that emotion. Sadness and happiness were the easiest (Bier et al., 2012.) In an article about the short term and long-term affects on Alzheimer’s patients, the authors mentioned the emotion disorder the patients can get in the later stages,

“Although emotional disorders are frequently present in mild to moderate stages of the disease, they are not common in the earlier stage of AD. Nevertheless, the progressive disruption of cognitive and language functions may disrupt the verbal expression of emotion (Varma et al., 1999). In contrast, nonverbal expressions of emotion seem to remain preserved in later stages of the disease. Patients with severe AD can still express sadness on their face when relatives depart after visiting (Magai, Cogen, Gomberg, Malatesta, & Culver, 1996) (Clement et al., 2012).”

The authors also went over the case study by Gagnon, Bier, Gosselin, and Provencher. The authors wrote, “…these findings indicate that recognition of emotions expressed by music might be preserved in patients with AD. It might also suggest that music is a unique medium to assist patients with AD in behavioral and emotional regulation (Clement et al., 2012).” The preservation of emotional recognition in music would be able to further rehabilitate dementia patients in their emotional response in social interactions. One could use the song, “Come Together,” a familiar song to dementia patients to identify emotions. “Come Together,” is one of the most popular songs in the 1960’s, when people in these studies were growing up. The familiar melodies and tone of the tempo as well as the band’s facial expression could benefit these patients.

 Dementia is an uncurable disease. The effects are on everyone whether it’s the patient, their family, their caregivers, or their friends. However, there are ways to help improve their situation. Music therapy is a method that has been known to aid in cognitive function and emotional behavior regarding their own emotions and recognizing others.

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