

# MUSIC PERCEPTION IN PATIENTS WITH DEMENTIA DUE TO ALZHEIMER'S DISEASE

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## Background

This study investigates the music perception of Alzheimer (AD) patients. Although the clinical syndrome of Alzheimer's disease is characterized by an acquired decline of cognitive function, current bibliography suggests that musical activities are preserved while other cognitive functions fail.

## Aims

In our research, we tested the reaction of AD patients in simple music units and sound parameters as well as in complex music patterns and melodies.

## Method

Three different groups of subjects were tested: A group of 30 young adults (20-30 years old) used as a base line, a group of 16 individuals (67-77 years old) diagnosed as having probable Alzheimer's disease of mild to moderate levels, and a group of 30 normal elderly adults (67-77 years old) used as a control group. Both AD patients and normal elderly adults were examined in the MMSE test. The experimental material consisted of eight tests divided in two levels, which correlate the perceptual organization of simple and complex stimuli.

The first level consisted of four tests that examined the group's ability to perceive differences in frequency and timbre as well as differences in rhythmic and volume patterns. The second level consisted of four non-familiar melodies, which were composed so as to examine the group's cognition ability of disruptions in the continuity of rhythm, melody, volume and timbre.

## Results and Conclusions

Statistical analysis using Pearson's Correlation Coefficient in the group of Alzheimer's patients showed a significant positive relationship between MMSE test results scores and the number of correct answers on particular music parameters in the second level. Participants with higher MMSE scores provided more correct answers regarding the perception of differences in volume and timbre.

A mixed design ANOVA 3x4 (groups x tests) showed that AD patients tend to give less correct answers to all the tests of the first level in comparison to the other groups. Tukey's Multiple Comparison Test gave a similar difference for all the music parameters in all the tests of the second level.

Regarding the correct answers provided, a statistically significant interaction was found between the tests and the participants' groups: Alzheimer's patients exhibit a decrease in the number of correct answers regarding mainly the perception of differences in volume and rhythm.