

Effects of Music-Based Occupational Therapy Activities on Attention Executive Functions in Children with Attention Deficit and Hyperactivity Disorder

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Study Protocol

Title: Effects of Music-Based Occupational Therapy Activities on Attention and Executive Functions in Children with Attention Deficit and Hyperactivity Disorder

Background and Rationale

Attention Deficit and Hyperactivity Disorder (ADHD) is a multifactorial neurodevelopmental disorder characterized by attention deficits, impulsivity, and hyperactivity. This study investigates the effect of music-based occupational therapy on attention and executive functions in children with ADHD. Music-based rhythmic and motor activities are hypothesized to enhance cognitive, emotional, and behavioral regulation.

Objectives

Primary Objective:

To examine the effect of music-based occupational therapy on attention performance in children with ADHD.

Secondary Objective:

To evaluate the effects of the intervention on executive function skills and caregiver burden.

Study Design

Design Type: Experimental, two-arm parallel design

Groups:

- Group 1: Music-Based Occupational Therapy
- Group 2: Standard Occupational Therapy (Control)

Randomization: Simple random assignment

Masking: None (Open Label)

Duration: 6 weeks, 1 session per week, 45 minutes each

Setting: Istanbul Medipol University, Department of Occupational Therapy

Participants

Inclusion Criteria:

- Clinical diagnosis of ADHD

- Age 5–12 years
- Residing in Istanbul
- Caregiver PSI ≥ 21
- Caregiver age between 18–65 years

Exclusion Criteria:

- Additional diagnosis with ADHD
- Cardiopulmonary issue in last 3 months
- Prior musical instrument training
- Caregiver BDI ≥ 31

Intervention

Experimental Group:

Music-Based Occupational Therapy - structured rhythmic, singing, and instrument-based (harmonica, drum) sessions designed to improve self-regulation and executive functions.

Control Group:

Standard occupational therapy sessions emphasizing sensory-motor and behavioral regulation without musical elements.

Outcome Measures

Primary Outcome:

- Change in attention (DSM-V Level 2 Inattention Scale)

Secondary Outcomes:

- Executive Function (Childhood Executive Function Inventory)
- Caregiver Burden (Zarit Burden Scale)

All measures assessed pre- and post-intervention.

Data Analysis Plan

The analyses were performed using SPSS 25.0 software. For descriptive statistics, mean, standard deviation, and percentage values were used. Normal distribution was checked with the Kolmogorov-Smirnov Test. For independent variables, nominal data were evaluated with the Chi-Square Test, while numerical data were assessed with the T-Test / Mann-Whitney U Test. Two-Way Repeated Measures ANOVA was applied for within-group and between-group time interactions. The significance level for all tests was accepted as $p < 0.05$.

Ethical Considerations

Approved by Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee (E-10840098-772.02-2028).

All caregivers provided informed consent prior to participation.

Expected Outcomes

Music-based occupational therapy is expected to improve selective attention, executive function, and reduce caregiver burden compared to standard therapy.