

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

**31.03.2022**

## **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  $\geq 21$
- Caregiver age between 18–65 years

#### **Exclusion Criteria:**

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

## **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.