Investigation of the Impact of QEEG-Based Biofeedback on Attention and Behavioral Features in Young Male Adolescents with ADHD

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Abstract

Introduction:
Attention Deficit/Hyperactivity Disorder (ADHD) is a disorder of neurobiological behavioral system. This disorder includes features such as attention deficit, impulsivity, and chronic, disproportionate-with-growth hyperactivity which reduce the child's ability to regulate, control, organize his behavior and cause attention deficit in activity of daily living (ADL). ADHD is one of the most common childhood disorders. The aim of this study was to investigate the effect of QEEG-based biofeedback on behavioral and attention factors of 7 to 14 year-old boys diagnosed with ADHD.

Method:
40 boys diagnosed with ADHD were randomly assigned into the experimental and control groups. Integrated Visual and Auditory (IVA) test and Children's Behavioral Check List (CBCL) were used before the treatment and after 8 intervening weeks of treatment in both groups. Moreover, the brain mapping (QEEG) of the experimental group was used to design a treatment protocol. The experimental group received 24 sessions of neurofeedback therapy three times a week. The acquired data was analyzed using the Analysis of Covariance (ACNOVA).

Results:
Our findings demonstrated a significant difference in test results between the experimental and control groups upon IVA and CBCL tests following the neurofeedback intervention. Moreover, there was a significant difference between pre- and post-tests in the neurofeedback group. Interaction effect was insignificant at the time.

Conclusion:
Results of the present study showed that neurofeedback can bring significant improvements in attention factors especially, sustained attention and children's externalizing behaviors. As such, neurofeedback may be considered as one of the therapeutic modalities used along with core therapies and medication, though, more research is needed to compare the clinical effects of different treatment protocols with one another.