DOI.10.7860/JCDR/2026/90859.24110 Abstract No.: OT 04

Transcranial Direct Current Stimulation (tDCS) Intervention on Social Functions in Children and Adolescents with Autism Spectrum Disorder: A Literature Review

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ABSTRACT

Introduction: tDCS is an emerging non-invasive brain stimulation modality used as an alternative treatment for ASD. This article reviews the effectiveness of tDCS in social functions in children and adolescents with ASD.

Aim: To evaluate the effectiveness and safety of using Transcranial Direct Current Stimulation (tDCS) as a therapeutic intervention for social functions in pediatric populations (less than or equal to 18) diagnosed with Autism Spectrum Disorder (ASD).

Materials and Methods: A literature review was conducted using PubMed and Cochrane databases for studies published between 2015 and 2026. Studies were selected using a PICO framework focusing on pediatric ASD, tDCS intervention, sham stimulation or conventional treatment as a comparator, and social/cognitive outcomes.

Results: The studies reviewed used different stimulation protocols and measured a range of outcomes. Some studies found improvements in social communication, sociability, and behaviour, especially with stimulation of the dorsolateral prefrontal cortex. However, in a few studies, there isa difference between the active and sham groups. Most reported side effects were mild and temporary.

Conclusion: Several tDCS studies report improvements in social domains, although study results vary.

Keywords: Brain stimulation, Non-invasive brain stimulation, Neurodevelopmental disorders, Social cognition, Social communication.

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