Chapter 18
Role of Cognitive Neuroscience in New Age Psychotherapies for Adolescents

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ABSTRACT

Adolescents undergo significant developmental changes in their brain structure and function during this period. The adolescent brain is characterized by ongoing neurodevelopment, with dynamic changes in neural networks and cognitive processes. Adolescents may experience challenges in various aspects of their neurocognitive functioning, including emotion regulation, decision-making, impulse control, attention, and cognitive flexibility. Neurocognitive therapies refer to therapeutic approaches that target the cognitive and neural processes underlying mental health and behavioral issues. Advances in cognitive neuroscience research have provided insights into how the brain processes information, regulates emotions, and supports cognitive functions, which can inform the development and refinement of new age therapies for adolescents. The integration of cognitive neuroscience principles into new age therapies for adolescents can provide a unique and promising approach to promoting mental health and wellbeing in this population.

DOI: 10.4018/978-1-6684-9983-2.ch018

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INTRODUCTION

Adolescence is a transitional period between childhood and adulthood where individuals experience significant changes in their lives (Lenz, 2001). It is a time of rapid physical, emotional, and cognitive development, where adolescents start to establish their identity, form new relationships, and make important life decisions. While this is an exciting period for many, it can also be a time of significant stress and challenges, particularly for those who experience mental health issues. Adolescents often struggle with anxiety, depression, substance abuse, eating disorders, self- harmand other mental health conditions that can have long-term consequences on their lives. Unhealthy behaviors, such as smoking, drinking and illegal drug use are frequently initiated during adolescence, and associated with increased morbidity and mortality, and pose importance to public health issues (Otto et.al.,2021). Many mental health illnesses begin in adolescence and add to the current disease load in young people and later life. More than half of adult mental illnesses begin before the age of 18. Students who have mental health problems in school have poor school adjustment, reduced concentration, low achievement, problematic social relationships, and a higher rate of health risk behaviours such as substance use, school dropout, and expulsion.

Nonpharmacological treatment approaches, primarily psychotherapy and counselling are critical component of treatment for adolescents with mental health issues. However, traditional psychotherapy approaches have been effective in treating many mental health conditions, but they often fail to address the neurocognitive underpinnings of these conditions (Sorscher,2020). Cognitive neuroscience has provided a better understanding of the brain mechanisms involved in mental health disorders (Belcher et.al.,2021), leading to the development of new age therapies that can better address adolescents' specific needs.

This chapterhighlights the new age psychotherapies for adolescents in the backdrop of the unique developmental needs of adolescents, the gaps in traditional psychotherapy approaches, the neurocognitive underpinnings of adolescent mental health issues, and the integration of specific therapies that target these neurocognitive needs. Finally, the chapter presents case studies that demonstrate the effectiveness of these therapies and highlights the importance of a multidisciplinary approach for treatmentof adolescents with mental health issues.

PSYCHOTHERAPY WITH ADOLESCENTS IS DIFFERENT

While psychotherapies have been found effective with children as well as adolescents; adolescent psychotherapy must consider the unique cognitive development and needs of adolescents to be effective (Alderman et.al.,2019). Cognitive development refers to the changes in thinking and reasoning that occur during adolescence, and it is essential to understand these changes to tailor psychotherapy to the adolescent's cognitive abilities. During adolescence, the prefrontal cortex of the brain continues to develop, leading to improved executive functioning, such as planning, decision-making, and impulse control (Jadhav and Boutrel, 2019). However, the prefrontal cortex's development is not complete until the mid-20s, which means that adolescents may struggle with impulse control, emotional regulation, and decision-making (Icenogle and Cauffman,2021). Therefore, any psychotherapy for adolescents should include componentsaiming to enhance their executive functioning skills and help them develop strategies to manage their impulses and emotions effectively. Another important aspect of cognitive development during adolescence is the emergence of abstract thinking. Adolescents begin to think more deeply and

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