

Chapter 2

Adolescent Chronic Stress: Brain Function and Treatment for Depression and Anxiety

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ABSTRACT

As adolescents face new challenges, the prevalence of stress, anxiety, and depression is growing. This chapter presents research on stress, anxiety, and depression as it relates to brain development and treatment options. While prescription medication is a common treatment option, there is concern over use with the development of the adolescent brain and side effects. In addition to, or in place of, medication, other treatment options presented in this chapter include psychotherapy, biofeedback, mindfulness, diet, exercise, and social media use. With advances in technology and increased use among adolescents, the chapter will present new treatment options that are available through apps and social media.

INTRODUCTION

Adolescent development is associated with major changes in emotional and cognitive functions, as well as, a rise in stress-related psychological disorders, such as anxiety and depression. It is also a time of significant maturation of the brain, marked by structural alterations in many limbic and cortical regions (Romeo, 2017). Stress and adversity can cause depression, which, worldwide affects approximately 350 million people (Wu et al., 2017).

Stress significantly contributes to mood, well-being, behavior, and health (Schneiderman, Ironson, & Siegel, 2005). Depression can have a negative impact on growth and development, performance in school, relationships, and may lead to suicide (Bhatia & Bhatia, 2007).

Ross, Foster, and Ionescu (2017) studied how chronic stress can lead to anxious depression through behaviors, physiology, circuits, and molecules. Anxiety and depression among U.S. teenagers increased 33% from 2010-2015, while suicide attempts increased 23%, and suicide increased 31% (Twenge, Joiner, Rogers, & Martin, 2017). Furthermore, the Royal Society for Public Health (2017) states that rates of anxiety and depression in young people have risen 70% since 1992.

Romeo (2017) presents the potential impact of stress on the structure of the adolescent brain and implications for adolescent mental health, emphasizing that adolescence is often a time of stress related anxiety and depression and the adolescent brain could be sensitive to stressors leading to changes in structure. Research is lacking on how chronic stress could disrupt the maturation of the brain in limbic and cortical regions (Romeo, 2017).

As undertreated depression and anxiety present a growing health crisis, Steffen, Austin, and DeBarros (2016) suggest that an effective approach for reducing anxiety and depression is to reduce chronic stress; furthermore, they argue that typical treatment methods like antidepressants and psychotherapy are not working and suggest biofeedback and mindfulness as simple, effective preventative measures for treating chronic stress to address the growing problem. Additional studies suggest treating depression and anxiety with diet and social media (Wu et al., 2017; Royal Society for Public Health, 2017). The mission of this chapter is to discuss existing research on the brain development of adolescents with chronic stress. Additionally, the chapter will present the increase in antidepressant use and some of the advantages and disadvantages of treating depression and anxiety with antidepressants. Lastly,

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