

# 2017 Children's Mental Health Report



In this year's report we take a look at the teenage years, highlighting unique factors that make adolescence exciting, important, and potentially dangerous — including its role as a significant risk period for mental health disorders. The report is guided and organized according to three main concepts:

- ▲ **The adolescent brain develops until at least age 25.**
- **Most mental health disorders have onset before 24.**
- **Encouraging understanding of adolescent mental health through education and anti-stigma programs will change lives.**

This report explores specific issues including:

- smartphones and social media
- substance use and abuse
- anxiety and depression
- ADHD
- psychotic episodes and schizophrenia
- suicide and self-harm
- unique challenges in adolescent mental health care
- evidence-based educational and therapeutic approaches for adolescents

## Introduction

### *A New Perspective on Adolescence*

Adolescence is a time of unprecedented cognitive and physical growth and vivid experiences of new ideas, feelings, and ambitions. It's a period of intense learning and development, but it is also a high-risk period for impulsive behavior, and for the onset of mental health and substance use disorders.

Brain changes are linked to both the exhilarating achievements of adolescence and its greatest dangers.

In this report, we summarize what we know about what's happening in the brain during adolescence, and its impact on common teenage behaviors. We outline the mental health disorders that develop during this period. And we propose ways that parents, educators, and professionals can help teenagers make the most, and avoid the biggest risks, of these years.

Understanding *why* adolescence is such an exciting time, and what's going on in their development, can help our kids understand both their strengths and their weaknesses and support their ability to make good choices. We can tell kids why exposure to drugs and alcohol can have serious, long-term effects; why certain mental health disorders show an increased onset at this time; what to look out for in their own thinking and behavior, and how to get help.

Since teenagers often have difficulty asking for and sticking with treatment for mental health disorders, this report includes a look at the most effective treatments for teens, and new interventions that are helping adolescents engage with the treatment process.

Evidence shows that when teens have positive expectations for treatment, they can be cooperative partners and get better. And school-based programs are proving successful in decreasing mental health stigma and increasing treatment-seeking behavior.



Decrease in stigma



Increase in treatment-seeking behavior

Embracing this new perspective on adolescence will help our teens thrive, including encouraging more kids to speak up and get help that can change their lives.

**Harold Koplewicz, MD**  
**President, Child Mind Institute**

## Brain Development 101

*We humans don't have a lot else going for us other than our wiles and wit. Our competitive edge is our ingenuity, brains over brawn. This edge happens to take the longest to develop, as the connectivity to and from the frontal lobes is the most complex and the last to fully mature. This "executive function" thus develops slowly; we certainly are not born with it! – Frances Jensen*

The human brain is an incredible thing, and it takes its time growing up. While the brain is never “finished” — every experience we have makes real, physical changes in our brains all our lives — the period of major structural and connective development continues from before birth into early adulthood. Adolescence is an important period of this development.

- ▶ Neural circuits, or systems, are responsible for most of what we can do and learn as humans — like speech, movement, emotional regulation, complex reasoning and more. Different systems develop throughout a child's first 25 years. Early childhood is important because so many systems are developing then. Adolescence also has a number of key systems developing.
- ▶ In addition to developing new connections, the brain also “prunes” connections into a more efficient arrangement. This happens over the first few years of life, and again in adolescence.
- ▶ When each brain system is developing, it is “plastic” and susceptible to disruption. Thus, the environment and activities of teens have significant impacts on brain structure and connectivity throughout the lifespan.<sup>1,2</sup>
- ▶ Areas responsible for cognitive control in the pre-frontal cortex are the last to become mature and efficiently connected. The process of growth, pruning and consolidation continues throughout adolescence into what is sometimes called emerging adulthood, the period from roughly 11 to 25 years of age.
- ▶ Although some brain illnesses have clear genetic causes, many mental health disorders appear to be the result, in part, of stressful experiences that cause brain changes and connections that are not helpful for the individual in our society.

## Living in Technicolor: Teen Behavior and the Brain

*Although most teenagers successfully navigate the transition from dependence on a caregiver to being a self-sufficient member of society, adolescence is also a time of increasing incidence of several classes of psychiatric illness. – Tomáš Paus, Matcheri Keshavan and Jay N. Giedd*

This dynamic process of establishing structural and functional connections in and between different brain regions is directly related to typical teen behaviors.

- ▶ The limbic system, a collection of brain regions associated with emotion, motivation, and behavior, develops early. Imaging studies suggest that these circuits become even more active in adolescents — more so than in adults.
- ▶ Another vital system developing in adolescence is the reward circuitry of the brain, which includes the basal ganglia and enables pleasurable feelings, habit-formation and appetite. The reward system is more active and less inhibited by the frontal cortex in early adolescence.<sup>3,4,5</sup>
- ▶ Along with hormonal changes in puberty, the developing interplay between the prefrontal cortex and the emotional and reward centers of the limbic system and the basal ganglia appear to contribute to the vividness of adolescent experience. This interplay results in increased intensity in feelings (fear, aggression, excitement,

## SECTION 1: The Developing Teen Brain

sexual attraction) and decreased ability to “hit the brakes” in responding to these feelings, characterized by spontaneity, impulsivity, and the potential to develop unhealthy habits.

- ▶ Increased sensitivity of the limbic system has also been linked to feeling self-consciousness, making adolescents truly feel like everyone is watching them. These feelings peak around 15 years old.<sup>6</sup>
- ▶ Peer approval has been shown to be highly rewarding to the teen brain, which may be why teens are more likely to take risks when other teens are around—or even when teens just THINK that peers are watching.<sup>7</sup>

### Smartphones and Social Media

*If this generation is going to be named after anything, the iPhone just might be it: according to a fall 2015 marketing survey, two out of three US teens owned an iPhone, about as complete a market saturation as possible for a product. The complete dominance of the smartphone among teens has had ripple effects across every area of their lives, from their social interactions to their mental health. – Jean M. Twenge*

Teenagers and young adults — ages 16 to 24 — are the most intense users of social media. Benefits of social media use include enhancing friendships and decreasing loneliness. But there is also evidence that overuse has a negative impact on self-esteem and satisfaction with their lives. And this social media use is also linked to an increase in mental health problems, including anxiety, depression and suicidality.

- ▶ Nearly 90% of 16-24 year olds use the internet for social networking<sup>8</sup>

Social media’s popularity among adolescents isn’t surprising, since it has been shown to affect the reward centers that are so active in teen brains.

- ▶ An imaging study has shown that these regions are activated when participants viewed images with a lot of “Likes.”
- ▶ The response is strongest when Likes are on images posted by participant.
- ▶ When viewing photographs of risky behaviors ostensibly taken and posted by peers, activation in the cognitive control network decreased.<sup>9</sup>

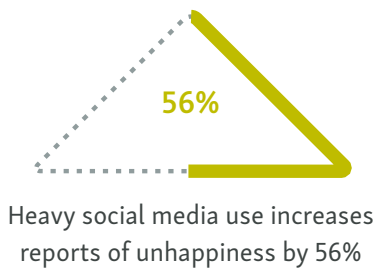
Increased time on social media has had dramatic effects on teen behavior, including fewer risky social activities and more mental health symptoms. “Displacement” may account for these effects. If social media replaces negative activities or isolation, it can be positive. If it replaces face-to-face interaction or exercise, it can be negative.<sup>10</sup>

The good:

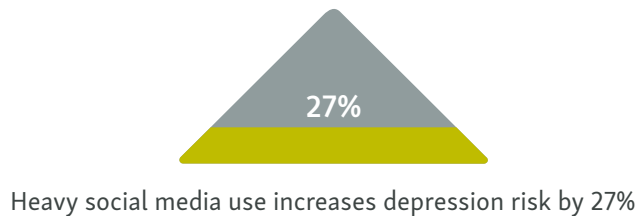
- ▶ 12th-graders in 2015 were going out less often than 8th-graders did in 2009.
- ▶ Drinking, illicit drug use, and car accidents are down.
- ▶ Ninth-graders now are 40% less sexually active and the teen birth rate is down 67 percent since 1991.
- ▶ Less than an hour of gaming a day may have positive mental health effects.<sup>11</sup>

The bad:

- ▶ Eighth-graders who spend 10 or more hours a week on social media are 56% more likely to report being unhappy than those who spend less time.



- ▶ Heavy users of social media increase their risk of depression by 27 percent.<sup>12</sup>



- ▶ YouTube is widely viewed by teens as a positive force, but teens report Snapchat, Facebook, Twitter and Instagram increase feelings of anxiety.<sup>13</sup>

Girls are disproportionately affected by the negative aspects of social media.

- ▶ More than twice as many girls as boys said they had been cyberbullied in the last year (22% vs. 10%).<sup>14</sup>



- ▶ Boys' depression increased by 21% between 2012 and 2015, and girls' increased by 50%.<sup>15</sup>

There may be a hidden casualty of the constant social media onslaught: sleep.

- ▶ Teens who spent three or more hours a day on electronic devices were 28% more likely to get less than seven hours of sleep, and teens who visited social media sites every day were 19% more likely not to get adequate sleep.<sup>16</sup>

Lack of sleep can negatively affect teens' mood, ability to think, to react, to regulate their emotions, to learn and to get along with adults. It's a vicious cycle—lack of sleep affects mood, and depression can lead to lack of sleep. And multiple studies have found that severe sleep debt is linked to suicidal ideation.

- ▶ Teens who don't sleep enough are more than twice as likely to report higher levels of depressive symptoms (31% vs 12%).
- ▶ Teens who sleep less than seven hours a night are also 68% more likely to have at least one risk factor for suicide.<sup>17</sup>

## Substance Abuse Risks in Adolescence

*Because their brain architecture is still not fully developed, adolescents' brains are more susceptible to being radically changed by drug use — often specifically by impeding the development of the very circuits that enable adults to say “later” or “not at all” to dangerous or unhealthy options. – Nora Volkow*

The same changes going on in the brain that allow adolescents to learn and thrive are also thought to make it more susceptible to lifelong damage than at other times.

Early and sustained exposure to drugs and alcohol can more quickly lead to dependence than drug and alcohol use in adulthood, and is also linked to the development of mental health disorders like psychosis.<sup>18</sup> A strong reward system and weak regulatory and harm-avoidance systems are thought to contribute to substance use.<sup>19,20</sup> This “triple threat” makes teens more likely to try drugs, and to abuse them.

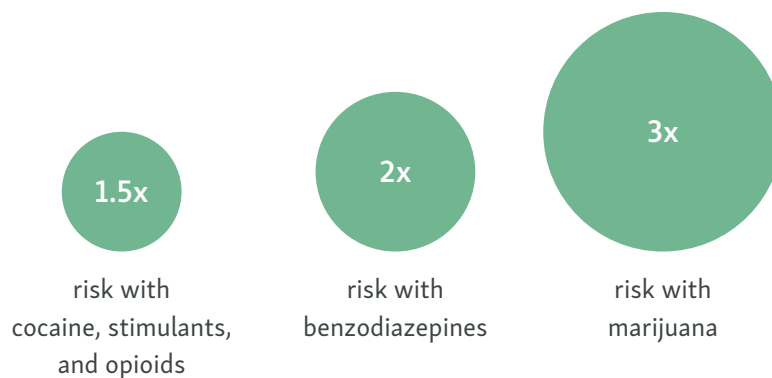
Of high school seniors in the United States:<sup>21</sup>

- ▶ 35.6% have used marijuana or hashish in the past year
- ▶ 14.3% have used an illicit drug other than marijuana in the past year
- ▶ 55.6% have used alcohol in the past year
- ▶ 12% have illicitly used a prescription drug in the past year
- ▶ 6.7% have used amphetamines in the past year

56% of those seen in treatment for cannabis abuse/dependence began using by 14 years of age, and 92% began by 18 years of age.<sup>22</sup>

Studies show there is heightened risk of eventually developing symptoms of drug dependence when drug use starts before age 18.<sup>23</sup>

- ▶ 3x risk with marijuana
- ▶ 2x risk with benzodiazepines (e.g., Ativan, Valium, etc.)
- ▶ 1.5x risk for cocaine, stimulants, and opioids



### Marijuana and Psychosis

- ▶ Use of cannabis is linked to earlier onset of psychosis in teens and young adults already at risk<sup>24</sup>
- ▶ Daily use of marijuana doubles risk of onset of a psychotic disorder



### Marijuana and cognitive function

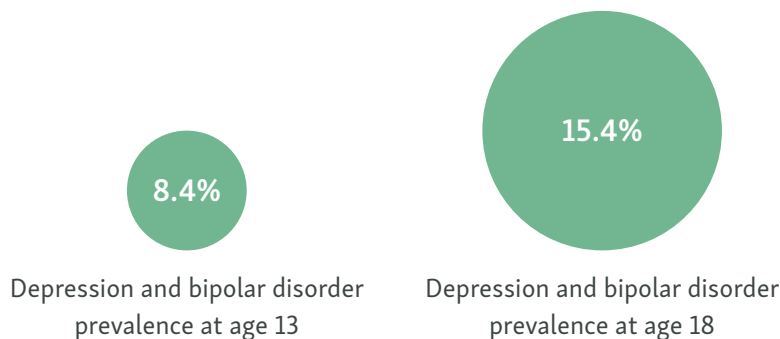
- ▶ Persistent marijuana use is tied to declines in IQ which cannot be reversed even if use stops,<sup>25</sup> a phenomenon that is exaggerated in adolescents who begin chronic use of marijuana before age 18

## Anxiety and Depression in Adolescence

*The fact that we can recall adolescence better than other periods and that this is a time of change in many brain regions are two pieces of evidence that the brain is likely to be especially plastic at this time. Another indication comes from statistics on the average age of onset of serious psychological disorders. The adolescent brain is extraordinarily sensitive to stress. – Laurence Steinberg*

Researchers believe that brain changes in adolescence increase a teen’s vulnerability to depression and anxiety, and play a role in the severe gender disparity in these disorders.

- ▶ Depression and bipolar disorder affect 14.3% of youth age 13-17<sup>26</sup>
  - 11.7% of the adolescents met criteria for major depressive disorder or dysthymia, a less severe but more persistent depressive disorder
  - There is a nearly two-fold increase in mood disorders from 13 to 18, from 8.4% to 15.4%



- ▶ Anxiety disorders are the most common mental health disorders of childhood and adolescence. Different kinds of anxiety affect young people at different times in development. Phobias and separation anxiety affect primarily young children; social anxiety develops later, as peer relationships become more important.<sup>27</sup>

## SECTION 2: Mental Health and Substance Abuse Risks in Adolescence

- ▶ Nearly one in three adolescents (31.9%) will meet criteria for an anxiety disorder by the age of 18.
  - Specific phobia: 19.3%
  - Social phobia: 9.1%
  - Separation anxiety: 7.6%
  - PTSD: 5.0 %
  - Panic disorder: 2.3%
  - Generalized anxiety disorder: 2.2%
- ▶ **Gender differences in depression and anxiety**
  - Anxiety and panic disorders change from equal female-male prevalence to a 2:1 female-male prevalence after puberty.<sup>28</sup>
  - Adolescent girls are more than twice as likely to experience depression than boys, 15.9% vs 7.7%. There could be a brain reason for this: the brain regions thought to be affected in depression have high concentrations of sex hormone receptors, which could explain why there is a gender disparity in depression.<sup>29</sup>



15.9% of girls age 13-17  
have depression



7.7% of boys age 13-17  
have depression

- ▶ All anxiety disorder subtypes were more frequent in girls than boys
  - Social phobia: 11.2% females, 7.0% males
  - Specific phobia: 22.1% females, 16.7% males
  - Panic disorder: 2.6% females, 2.0% males
  - PTSD: 8.0% females, 2.3% males
  - Separation anxiety: 9.0% females, 6.3% males
- ▶ **Anxiety and depression are on the rise.**
  - Social, political, and environmental causes are likely implicated in an increase in the number of teens each year who have had a depressive episode, up 37 percent between 2005 and 2014.<sup>30</sup>
  - High school students today have more anxiety symptoms and are twice as likely to see a mental health professional as teens in the 1980s.<sup>31</sup>

## ADHD

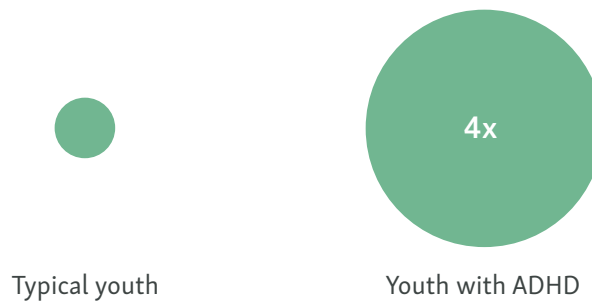
*By adolescence, most youth start pushing for more independence, taking more risks, and challenging adult authority. The teen brain is wired to test limits, in an evolutionary press to separate from parents. Yet children with ADHD often carry this natural tendency to extremes. – Stephen P. Hinshaw and Katherine Ellison*

In the teen years, ADHD is linked to impulsive behavior that can result in dangerous risk-taking. Research suggests this is caused by slower development of certain brain regions — and that if teens receive appropriate support and intervention they can cope with the disorder and have few lasting negative effects in adulthood.



## SECTION 2: Mental Health and Substance Abuse Risks in Adolescence

- ▶ Teens with ADHD are at risk for school failure, accidents, injury, and even trouble with the law.
  - More than 25% of youth with ADHD repeat a grade, compared with 7% of peers.<sup>32</sup>
  - Compared with peers, teens with ADHD are 35% more likely to be arrested, and 25% more likely to be jailed.<sup>33</sup>
  - Newly licensed drivers with ADHD are 36% more likely to get in a car accident than peers without ADHD.<sup>34</sup>
  - A study of health insurance records showed that severe injuries like broken bones are three times more likely in adolescents with ADHD, and that were much more likely to have multiple injuries over time.<sup>35</sup>
- ▶ Studies show that the pre-frontal cortex — which is implicated in the development of impulse control — matures later and is less active in children and adolescents with ADHD relative to typically developing peers.<sup>36</sup> Thus, ADHD appears to result in part from slow development of brain systems that naturally inhibit impulsivity.<sup>37,38</sup>
- ▶ Analysis of a long-term study comparing girls with ADHD to their typical peers suggests that 22% of girls with ADHD-combined type made at least 1 suicide attempt by the age of 17-24. That's four times higher than the control group, at 6%. Rates of non-suicidal self-injury (e.g., cutting) were also far higher.<sup>39</sup>
- ▶ Females with ADHD had a 2.5 times higher risk for major depression at adolescent follow-up (65% compared to 21% of controls).<sup>40</sup>
- ▶ Youth with ADHD are 4 times more likely to develop a substance use disorder.<sup>41</sup>



- ▶ The symptoms of ADHD often attenuate after adolescence, though risks can remain, particularly for girls.
  - 50% of adolescents with ADHD will no longer have severe emotional or behavioral problems by their mid-20s.<sup>42</sup>
  - Young adults with ADHD, unless they develop anti-social personality disorder, are at no increased risk for incarceration in adulthood.<sup>43</sup>



Half of adolescents with ADHD will outgrow severe symptoms

- ▶ A recent follow-up study of girls with ADHD in their late 20s found that 42% had unplanned pregnancy, vs. 10% of comparison group, regardless of whether ADHD symptoms persisted into adulthood.

## Psychosis and Intervention

*The gene variant that contributes to schizophrenia is the same gene that, in all likelihood, is used by the brain to prune synapses and thus enable cognition and adaptive learning. – Siddhartha Mukherjee*

Late adolescence and early adulthood are the peak years for the onset of psychotic disorders, including schizophrenia and bipolar disorder. The complex genetic, environmental and neuroanatomical causes are just beginning to be understood.

- ▶ 100,000 young people each year experience first episode psychosis, with peak onset between 15 and 25 years of age.<sup>44,45</sup>
- ▶ Genetic research into schizophrenia suggests that the disorder is linked to the process of pruning in the developing brain. There are higher levels of pruning-related proteins in the brains of individuals with schizophrenia, and the onset of schizophrenia matches up closely with when pruning is occurring in the part of the brain linked to schizophrenia. Adults with schizophrenia have been shown to have fewer connections between neurons in these brain areas than typical people.<sup>46</sup>
- ▶ **Early Treatment for First Episode Psychosis:** While traditional treatment for psychotic disorders involved only medication, treatment that includes other services, provided within two years of the first psychotic episode, has been shown to reduce the risk of recurring episodes by 50%.<sup>47</sup>
- ▶ 52% of those with a first episode psychosis make a full or partial functional recovery with early intervention, vs. just 15% receiving typical treatment.<sup>48</sup>



## Suicide and Self Injury

*A threat of suicide should never be dismissed, even from a kid who cries “Wolf!” so many times it’s tempting to stop taking her seriously. It’s important to respond to threats and other warning signs in a serious and thoughtful manner. They don’t automatically mean that a child is going to attempt suicide. But it’s a chance you can’t take.*

*– Nadine Kaslow*

Suicide among adolescents is a serious public health issue that takes more lives worldwide each year.

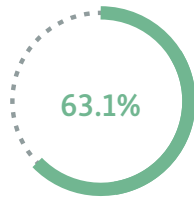
- ▶ **5,000 adolescents in the United States die by suicide every year.**
- ▶ **600,000 youth get medical attention for self-injury each year in the US.**
- ▶ Suicide is now the leading cause of death for girls 15-19 worldwide<sup>49</sup>

Suicide is often preceded by a mental health disorder. Although depression is commonly linked to suicide, in teens different disorders like ADHD and anxiety are also a risk.

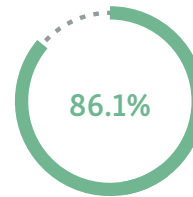
- ▶ Aggression and **impulsivity** are traits highly related to suicidal behavior in adolescents.<sup>50</sup> The younger a person is, the more impulsive aggressiveness contributes to suicide attempts.

## SECTION 2: Mental Health and Substance Abuse Risks in Adolescence

- ▶ The most prevalent lifetime disorders among suicidal adolescents are depression, followed by impulse control disorders, substance abuse, psychosis and anxiety.<sup>52</sup>
- ▶ 73.2% of suicidal adolescents have been engaged with the mental health system and received treatment.<sup>53</sup>
- ▶ The first year of suicidal thinking presents the highest risk and the most important target for intervention. 63.1% of adolescents who plan suicide transition from ideation to plan within first year of onset of ideation; 86.1% of those who attempt suicide transition from ideation to attempt within a year.<sup>54</sup>



63.1%  
of suicide plans develop within  
a year of first suicidal thoughts

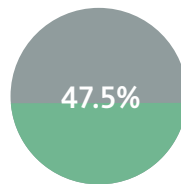


86.1%  
of suicide attempts occur within  
a year of first suicidal thoughts

Reducing the incidence of teen suicide requires understanding the progression of adolescent mental health disorders, and identifying young people at risk of suicidal thoughts and actions who are already engaged with the mental health system.

**Non-suicidal self injury (NSSI)** is a separate phenomenon from suicidal ideation and attempts, but research shows that they are related.

- ▶ People who engage in self injury say it helps them feel better, that it reduces unwanted feelings and increases wanted feelings.<sup>55</sup> Studies demonstrate that physical pain may interfere with or obscure the physiological signs of emotional pain, a phenomenon known as **“pain offset relief.”**
- ▶ In a large study of adolescents, 46.5% reported hurting themselves within past year, most frequently: biting self, cutting, hitting self, burning skin



47.5%  
Adolescents that report hurting themselves

- ▶ 60% of these (28% overall) reported moderate to severe NSSI
- ▶ Self-injurers hurt themselves on average once a month<sup>56</sup>
- ▶ NSSI behaviors still may increase risk of suicide by reducing the individual’s fear of pain and injury over time, removing a barrier to completing suicide.<sup>57</sup>

## The Adolescent Treatment Gap

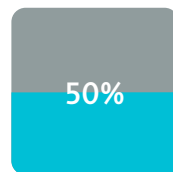
*Many youth with mental disorders, even severe and impairing disorders, have never received treatment for their conditions. Among those who have received care, treatment is often quite limited. – Kathleen Merikangas et al*

Most adolescents with mental health disorders never even begin treatment.<sup>58,59</sup>

- ▶ **40%** of youth with ADHD go untreated
- ▶ **60%** of youth with depression go untreated
- ▶ **80%** of youth with an anxiety disorder go untreated

When they do begin mental health treatment, many adolescents do not complete their course of treatment (whether medication, psychotherapy, or both):

- ▶ Individuals with major mood disorders have a non-adherence rate of 50%<sup>60</sup>



of people with severe mood disorders do not finish treatment

- ▶ In one large longitudinal study of ADHD, among the 87% of children who were medicated at some time in their lives, 27.9% had stopped taking medication by the age of 11 years and 67.9% had stopped by age 15.<sup>61,62</sup>
- ▶ Between 33 and 44% of patients with psychosis adhere poorly to their medications, making them 6 times more likely to be readmitted to hospital.<sup>63</sup>

These statistics are unfortunate given that effective, evidence-supported treatments work well when the full course is followed, as described in the following section.

## Treatments That Work

There have been definitive, federally funded clinical trials of medication and psychotherapy treatments for common child and adolescent mental health disorders including anxiety disorders, depression, and ADHD. Summaries of these studies' findings are below.

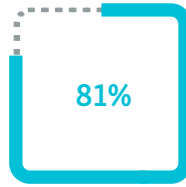
### **Anxiety Disorder Treatment**

A trial of treatments for youth with anxiety disorders showed that a combination of cognitive behavioral therapy (CBT) and antidepressant medication (a selective serotonin reuptake inhibitor, or SSRI, called sertraline, or Zoloft) is the most effective acute or short-term treatment.<sup>64</sup>

## SECTION 3: Interventions in Teen Mental Health

After 12 weeks:

- ▶ Combination therapy was effective in 81% of participants
- ▶ CBT alone was effective in 60% of participants
- ▶ Medication alone was effective in 55% of participants



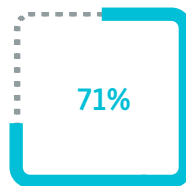
Combination therapy effectiveness for anxiety

### Depression Treatment

The trial of treatments for adolescents with depression showed that a combination of antidepressant medication (fluoxetine, or Prozac) and cognitive behavioral therapy (CBT) is more effective than either fluoxetine or CBT alone.<sup>65</sup>

Rate of improvement after 12 weeks

- ▶ Combination therapy: 71%
- ▶ CBT alone: 43.2%
- ▶ Medication alone: 60.6%



Combination therapy effectiveness for depression

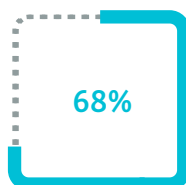
### ADHD Treatment

Stimulant medication significantly reduces ADHD symptoms for most young people

- ▶ 70% get a benefit from a single stimulant medication.<sup>66</sup>
- ▶ 85% get a benefit when more than one stimulant medication is tried.<sup>67</sup>

The best results for adolescents with ADHD come from combined approaches to treatment using medication and behavioral therapy.<sup>68</sup> In a trial of ADHD treatment:

- ▶ 68% of participants receiving combined medication and behavioral therapy had an “excellent response”
- ▶ 56% receiving medication alone had an “excellent response”
- ▶ 34% receiving behavioral treatment alone had an “excellent response”



Combination therapy effectiveness for ADHD

### Psychosis Treatment

Intervention relatively early after a first episode of psychosis with a combination of medication and other services has been shown to reduce the risk of recurring episodes. The treatment that has been shown to be successful, called Coordinated Specialty Care, involves a combination of services coordinated by a group of professionals working with the patient and the family.<sup>69</sup> They include:

- ▶ Lower doses of antipsychotic medication.
- ▶ Cognitive behavioral therapy for psychosis (CBTp)
- ▶ Family education and support
- ▶ Educational and vocational rehabilitation

### Specialized Psychotherapies

CBT-based behavioral psychotherapy has proved effective for a wide variety of adolescent mental health disorders. This approach is particularly effective when young people receive specialized therapies developed to treat their specific disorders or symptoms and that are validated through research.<sup>70</sup> In adolescents, more is better: one study found that five or more treatment sessions led to small/moderate effects, while nine or more sessions resulted in moderate/large treatment effects.<sup>71</sup>

- ▶ **Dialectical behavior therapy (DBT)** is an evidence-based form of cognitive behavioral therapy for teenagers and adults who experience significant trouble managing their emotions, thoughts and behaviors. Patients participating in DBT learn how to practice mindfulness — being fully in the present moment, focusing on one thing at a time without judgment — along with new problem solving skills. DBT has been successfully adapted for teenagers and young adults dealing with self-injurious and suicidal behaviors, depression and anxiety, eating disordered behaviors, and drug or alcohol abuse.
- ▶ **Interpersonal psychotherapy for adolescents (IPT-A)** is a time-limited treatment (12-16 sessions) originally developed to treat adult depression that has been adapted for adolescents. IPT-A addresses common issues involving romantic relationships, communicating with parents and effectively interacting with peers. The treatment primarily includes individual therapy sessions, and may also include some sessions with parents to learn about depression, address parent-child relationship difficulties and help support their child's treatment.
- ▶ **Exposure and response prevention (ERP)** is a kind of cognitive behavioral therapy for disorders like phobias and OCD, that works by helping children and adolescents face the things that trigger their anxiety in structured, incremental steps, and in a safe environment. This allows them to experience anxiety and distress without resorting to compulsions, with the support of the therapist. Through facing their triggers they learn to tolerate their anxiety and, over time, they discover that their anxiety has actually decreased.
- ▶ **Trauma-focused cognitive behavioral therapy (TF-CBT)** is a short-term, component-based trauma-specific intervention consisting of psychoeducation and parent training. Together with the therapist and the help of parents, children and adolescents learn relaxation, affective modulation, and cognitive coping skills; work through the trauma narrative; practice processing the trauma; and develop skills for enhancing future safety and development. The components constitute three treatment phases: stabilization and skill building, exposure to and cognitive processing of the trauma, and fostering safety and future development.
- ▶ **Cognitive behavioral therapy adapted for psychosis (CBTp)**. Broadly, CBT works by helping patients examine how they think about a situation, how they act based on their thoughts, and how their thinking and behavior together affect how they feel. In the case of CBTp, the therapist's goal is not to get the patient to question the reality of delusions or hallucinations, but to reduce the damage they can do. CBTp helps a person experiencing delusions (ideas that are not true) and hallucinations (hearing or seeing things that no one else hears or sees) change the way he thinks about and responds to these experiences, making them less distressing and less impairing.

## Helping Adolescents Help Themselves

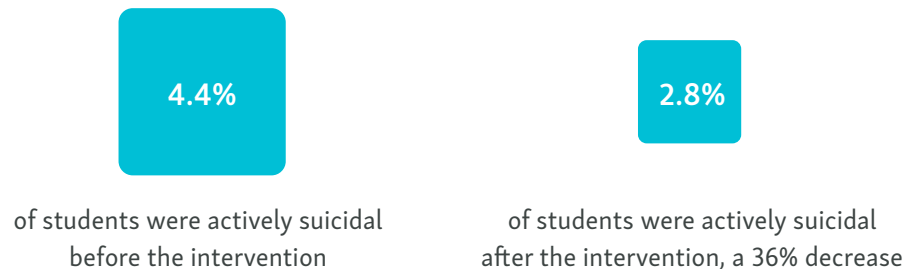
*Adherence, therapeutic alliance, motivation for behavior change, and expectancies are common factors that cut across all pediatric psychiatric treatments. They can be harnessed to improve pharmacotherapy effects. They may even have independent treatment effects of their own. – Alessandro De Nadai et al*

Personality traits and challenges that cut across disorders are called “common factors” in adolescent mental health. These include the ability to stick to treatment (adherence), the quality of the supportive therapeutic alliance of family and professionals around him or her, the willingness to address problematic thoughts or behaviors (motivation for change), and the expectation that treatment will be helpful. Research shows these factors can be leveraged to get young people into treatment, improve effectiveness of treatment, and even directly affect symptoms.

### School-Based Approaches

We can have a wide-ranging impact on attitudes of entire school communities, and reduce impairing and even dangerous mental health symptoms.

- ▶ The University of Alberta **Empowering a Multimodal Pathway Towards Healthy Youth (EMPATHY)** program ran in public schools from 2013 to 2015 and was offered to more than 6,000 youth in grades six through 12. Researchers found the percentage of the total school population who were actively suicidal decreased from 4.4 per cent to 2.8 per cent, in a follow-up study 15 months later. Rates of anxiety, depression and thoughts of self-harm also saw significant declines.<sup>72</sup>



- ▶ The **Mental Health & High School Curriculum Guide (The Guide)**, a Canadian initiative, is a school-based mental health literacy program that educates adolescents about mental health and targets stigma. The curriculum includes information on specific disorders, and encourages a dialogue about seeking help and finding support. In a study of 534 students in 24 high schools in Canada, the 11th and 12th graders who were taught the curriculum improved significantly in positive attitudes toward mental illness and knowledge about mental health.<sup>73</sup>
- ▶ An implementation of The Guide in Washington state shows it is effective in the United States as well. Some 400 students and 40 teachers trained in the program saw a **32% increase in student mental health knowledge and 68% improvement in mental health attitudes**.<sup>74</sup>



### Motivational Interviewing

Teenagers often resist treatment, dismissing it as something their parents want, rather than they want. Techniques designed to encourage teenagers to feel positive about treatment and to see treatment as relevant to their own goals has been shown to improve adherence to treatment and lead to better outcomes.<sup>75</sup>

- ▶ Motivational interviewing (MI) is an evidence-based intervention that explores a patient’s resistance to treatment with the aim of encouraging a more positive outlook. MI requires the patient to come up with positive things they can do, so they participate in determining their own treatment and play an active role in shaping it to their own needs.
- ▶ MI leads to improved attendance and more treatment-seeking behavior compared with controls. MI participants attended significantly more therapy sessions and were 20% more likely to initiate treatment (96%) than the active control, befriending participants (80%)<sup>76</sup>

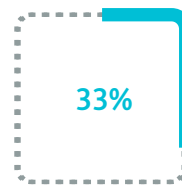
### Positive Expectations for Treatment

Adolescents who expect to see much or very much improvement from treatment improve significantly more than those with lower expectations.<sup>77</sup>

- ▶ In one study, higher pretreatment expectation of a medication’s effectiveness led to greater response. Participants who thought medication would be very effective had a 90.0% response rate, compared to only 33.3% of those who reported expecting medication to be only somewhat effective.<sup>78</sup>

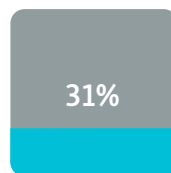


Response rate when attitude towards treatment is positive



Response rate when attitude towards treatment is ambivalent

- ▶ Expectations of treatment effectiveness have been shown to account for up to 31% of symptom improvement in a trial of cognitive behavioral therapy. It also predicts adherence to psychotherapy treatment (CBT homework).<sup>79</sup>



Symptom improvement due to positive expectations of treatment



## Conclusion

Adolescence is a high-risk/high-reward period. We know some basic facts:

- ▶ **The brain develops until 25**, and adolescence is a period of risk and potential defined by the interaction of heredity, environment and biology.
- ▶ **Lifelong mental health and substance disorders often have onset in adolescence.** Adolescents can do lasting harm to the still-developing brain.
- ▶ **We can help adolescents minimize risk and nurture their vast potential.** Adolescence is an opportunity to prevent lifelong impairment by intervening with evidence-based treatments and educational approaches.

How can we help? Our understanding of brain development shows us why adolescence is a risk period for stress, emotional strain and mental health disorders. It informs interventions to help teens. It provides evidence we can mitigate lifelong mental health and substance disorders if we support teens through this period.

Critically, it allows us to talk to teens without blame or shame, speak honestly about our concerns, and help them be partners in taking care of themselves. To help, we've developed a toolkit parents can use to talk about this report. We identify key points and provide suggestions on how to have the conversation.

Parents can't help adolescents all alone, and we must also work on reaching young people where they spend most of their time: in middle school, high school, and college. This report has highlighted promising school-based interventions and literacy programs, and we must take the next step: identifying and implementing effective education on a meaningfully large scale.

To this end, the Child Mind Institute is bringing together a blue-ribbon panel to explore an evidence-based mental health curriculum that will help teens make good decisions, challenges to implementation, and solutions. Members of the panel will hail from diverse fields relevant to adolescent health — education, school administration, patient and teen advocacy, child and adolescent psychiatry and psychology, pediatrics, developmental neuroscience, social work, epidemiology, drug counseling.

The aim of committee will be to identify concrete goals for mental health education curricula and propose common sense, effective solutions to the biggest barrier to adolescent mental health: silence.

## Sources

1. Giedd, J. N., Blumenthal, J., Jeffries, N. O., Castellanos, F. X., Liu, H., Zijdenbos, A., & ... Rapoport, J. L. (1999). Brain development during childhood and adolescence: a longitudinal MRI study. *Nature Neuroscience*, 2(10), 861.
2. Paus, T., Keshavan, M., Giedd, J.N. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience*, 9(12), 947–957. doi:10.1038/nrn2513.
3. Casey, B., & Jones, R. M. (2010). Neurobiology of the Adolescent Brain and Behavior: Implications for Substance Use Disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(12), 1189-1201. doi:10.1016/j.jaac.2010.08.017
4. Paus (2008).
5. Hammond, C.J., Mayes, L.C., & Potenza, M.N. (2014). Neurobiology of Adolescent Substance Use and Addictive Behaviors. *Adolescent Medicine: State of the Art Reviews*, 25(1), 15–32.
6. Steinberg, L. (2008). A Social Neuroscience Perspective on Adolescent Risk-Taking. *Developmental Review* : DR, 28(1), 78–106. <http://doi.org/10.1016/j.dr.2007.08.002>
7. Barkley-Levenson, E., & Galván, A. (2014). Neural representation of expected value in the adolescent brain. *Proceedings of the National Academy of Sciences*, 111(4), 1646–1651. doi:10.1073/pnas.1319762111
8. Lenhart, A. (2015). *Teens, Social Media Technology Overview*. Pew Internet and American Life Project. Retrieved from <http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>
9. Sherman, L. E., Payton, A. A., Hernandez, L. M., Greenfield, P. M., & Dapretto, M. (2016). The power of the “like” in adolescence. *Psychological Science*, 27(7), 1027–1035. <http://doi.org/10.1177/09567976166645673>
10. Szwedlo, D. E., Mikami, A. Y., & Allen, J. P. (2012). Social Networking Site Use Predicts Changes in Young Adults’ Psychological Adjustment. *Journal of Research on Adolescence*, 22(3), 453–466. <http://doi.org/10.1111/j.1532-7795.2012.00788.x>
11. Przybylski, A.K. (2014). Electronic gaming and psychosocial adjustment. *Pediatrics*, 134 (3). doi: 10.1542/peds.2013-4021
12. Twenge, J. M. (2017). *iGen: Why today’s super-connected kids are growing up less rebellious, more tolerant, less happy-- and completely unprepared for adulthood (and what this means for the rest of us)*.
13. Royal Society for Public Health (2017). *Status of Mind: Social media and young people’s mental health*. Retrieved from <https://www.rsph.org.uk/asset/AAFB7DC1-35CE-4097-B26321C1667B5333.2D2662B7-A714-4ACB-A94A63BA544A8267/>
14. Centers for Disease Control and Prevention. 2015. Youth Risk Behavior Survey Data. Available at: [www.cdc.gov/yrbhs](http://www.cdc.gov/yrbhs).
15. Twenge (2017).
16. CDC (2015).
17. Johnston, L. D., O’Malley, P. M., Miech, R. A., Bachman, J. G., & Schulenberg, J. E. (2016). Monitoring the Future national survey results on drug use, 1975-2015: Overview, key findings on adolescent drug use. Ann Arbor: Institute for Social Research, The University of Michigan.
18. Squeglia, L., Jacobus, J., & Tapert, S. (2009). The Influence of Substance Use on Adolescent Brain Development. *Clinical EEG and Neuroscience*, 40(1), 31-38. doi:10.1177/155005940904000110
19. Hammond (2014).
20. Ernst, M., Pine, D.S., & Hardin, M. (2006). Triadic model of the neurobiology of motivated behavior in adolescence. *Psychological Medicine*, 36(3): 299–312. doi: 10.1017/S0033291705005891
21. Johnston (2016).
22. Substance Abuse and Mental Health Services Administration (2007). Treatment Episode Data Set (TEDS) 1995-2005: National admissions to substance abuse treatment services. Rockville, MD: Author.
23. Chen, C.-Y., Storr, C. L., & Anthony, J. C. (2009). Early-onset drug use and risk for drug dependence problems. *Addictive Behaviors*, 34(3), 319–322. doi:10.1016/j.addbeh.2008.10.021
24. Kelley, E.A. (2016). Marijuana use in the immediate 5-year premorbid period is associated with increased risk of onset of schizophrenia. *Schizophrenia Research*, 171(1-3), 62-7. doi: 10.1016/j.schres.2016.01.015.
25. Meier, M. H., Caspi, A., Ambler, A., Harrington, H., Houts, R., Keefe, R. S. E., ... Moffitt, T. E. (2012). Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences*, 109(40), E2657–E2664. doi:10.1073/pnas.1206820109
26. Merikangas, K., Hep, J., Burstein, M., Swanson, S., Avenevoli, S., Cui, L., Benejet, C.,...Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication—Adolescent Supplement (NCS-A). *Journal of American Academy of Child and Adolescent Psychiatry*, 49(10), 980-989. doi: 10.1016/j.jaac.2010.05.017.
27. Merikangas (2010).
28. Paus (2008).
29. Merikangas (2010).

30. Mojtabai, R., Olfson, M., & Han, B. (2016). National Trends in the Prevalence and Treatment of Depression in Adolescents and Young Adults. *PEDIATRICS*, 138(6), e20161878-e20161878. doi:10.1542/peds.2016-1878
31. Twenge, J.M., (2015). Time Period and Birth Cohort Differences in Depressive Symptoms in the U.S., 1982–2013. *Social Indicators Research* 121(2), 437.
32. Fried, R., Petty, C., Faraone, S. V., Hyder, L. L., Day, H., & Biederman, J. (2013). Is ADHD a Risk Factor for High School Dropout? A Controlled Study. *Journal of Attention Disorders*, 20(5), 383-389. doi:10.1177/1087054712473180
33. Mannuzza, S. & Klein, R.G. (2000). Long-term prognosis in attention-deficit/hyperactivity disorder. *Child & Adolescent Psychiatric Clinics of North America*, 9, 711-726.
34. Curry, A.E., Metzger, K.B., Pfeiffer, M.R., Elliott, M.R., Winston, F.K. & Power, T.J. (2017). Motor Vehicle Crash Risk Among Adolescents and Young Adults With Attention-Deficit/Hyperactivity Disorder. *JAMA Pediatrics*. 171(8), 756–763. doi:10.1001/jamapediatrics.2017.0910
35. Merrill, R., Lyon, J., Baker, R., & Gren, L. (2009). Attention Deficit Hyperactivity Disorder and Increased Risk of Injury. *Advances in Medical Sciences*, 54(1). doi:10.2478/v10039-009-0022-7
36. Dickstein, S.G., Bannon, K., Castellanos, F.X., & Milham, M.P. (2006). Neural correlates of attention deficit hyperactivity disorder: an ALE meta-analysis. *Journal of Child Psychology and Psychiatry*, 47(10), 1051-62. doi:10.1111/j.1469-7610.2006.01671.x
37. Vaidya, C. J., & Stollstorff, M. (2008). Cognitive neuroscience of Attention Deficit Hyperactivity Disorder: Current status and working hypotheses. *Developmental Disabilities Research Reviews*, 14(4), 261-267. doi:10.1002/ddrr.40
38. Casey & Jones (2010).
39. Hinshaw, S. P., Owens, E. B., Zalecki, C., Huggins, S. P., Montenegro-Nevado, A. J., Schrodek, E., & Swanson, E. (2012). Prospective follow-up of girls with ADHD into early adulthood. *Journal of Consulting and Clinical Psychology*, 80(6).
40. Biederman, J., Ball, S. W., Monuteaux, M. C., Mick, E., Spencer, T. J., McCreary, M., Faraone, S. V. (2008). New Insights Into the Comorbidity Between ADHD and Major Depression in Adolescent and Young Adult Females. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(4), 426-434. doi:10.1097/chi.0b013e31816429d3
41. Casey and Jones (2010).
42. Mannuzza & Klein (2000).
43. Owens, E. B., Zalecki, C., Gillette, P., & Hinshaw, S. P. (2017). Girls with childhood ADHD as adults: Cross-domain outcomes by diagnostic persistence. *Journal of Consulting and Clinical Psychology*, 85(7), 723-736. doi:10.1037/ccp0000217
44. McGrath, J., Saha, S., Chant, D., & Welham, J. (2008). Schizophrenia: A Concise Overview of Incidence, Prevalence, and Mortality. *Epidemiologic Reviews*, 30(1), 67-76. doi:10.1093/epirev/mxn001
45. NIMH. Evidence-Based Treatments for First Episode Psychosis. Retrieved from [www.nimh.nih.gov/health/topics/schizophrenia/raise/evidence-based-treatments-for-first-episode-psychosis-components-of-coordinated-specialty-care.shtml](http://www.nimh.nih.gov/health/topics/schizophrenia/raise/evidence-based-treatments-for-first-episode-psychosis-components-of-coordinated-specialty-care.shtml)
46. Sekar, A., Bialas, A. R., De Rivera, H., Davis, A., Hammond, T. R., Kamitaki, N., ... McCarroll, S. A. (2016). Schizophrenia risk from complex variation of complement component 4. *Nature*, 530(7589), 177-183. doi:10.1038/nature16549
47. Fowler, D., Hodgekins, J., Howells, L., Millward, M., ... Macmillan, I. (2009). Can targeted early intervention improve functional recovery in psychosis? *Early Intervention in Psychiatry*, 3(4), 282-288. doi:10.1111/j.1751-7893.2009.00146.x
48. Fowler (2009).
49. World Health Organization. (2014). Preventing suicide: A global imperative. Geneva, Switzerland: Author.
50. Apter, A., Gothelf, D., Orbach, I., Weizman, R., Ratzoni, G., Har-Even, D., & Tyano, S. (1995). Correlation of Suicidal and Violent Behavior in Hospitalized Adolescent Patients. *Journal of the American Academy of Child & Adolescent Psychiatry*, 34(7), 912-918. doi:10.1097/00004583-199507000-00015
51. Brent, D. A., Kolko, D. J., Wartella, M. E., Boylan, M. B., Moritz, G., Baugher, M., & Zelenak, J. P. (1993). Adolescent Psychiatric Inpatients' Risk of Suicide Attempt at 6-Month Follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32(1), 95-105. doi:10.1097/00004583-199301000-00015
52. Nock, M. K., Green, J. G., Hwang, I., McLaughlin, K. A., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Prevalence, correlates and treatment of lifetime suicidal behavior among adolescents: Results from the NCS-A. *JAMA Psychiatry*, 70(3), doi:10.1001/2013.jamapsychiatry.55.
53. Nock (2013).
54. Nock (2013).
55. Nock, M. K., Heilbron, N., Franklin, J. C., Guerry, J. D., & Prinstein, M. J. (2014). Social and Ecological Approaches to Understanding Suicidal Behaviors and Nonsuicidal Self-Injury. *The Oxford Handbook of Suicide and Self-Injury*. doi:10.1093/oxfordhb/9780195388565.013.0012
56. Lloyd-Richardson, E. E., Perrine, N., Dierker, L., & Kelley, M. L. (2007). Characteristics and functions of non-suicidal self-injury in a community sample of adolescents. *Psychological Medicine*, 37(8), 1183–1192. doi:10.1017/S003329170700027X

57. Joiner, T. E., Ribeiro, J. D., & Silva, C. (2012). Nonsuicidal Self-Injury, Suicidal Behavior, and Their Co-occurrence as Viewed Through the Lens of the Interpersonal Theory of Suicide. *Current Directions in Psychological Science*, 21(5), 342-347. doi:10.1177/0963721412454873
58. Merikangas, K. R., He, J., Burstein, M. E., Swendsen, J., Avenevoli, S., Case, B., ... Olfson, M. (2011). Service Utilization for Lifetime Mental Disorders in U.S. Adolescents: Results of the National Comorbidity Survey Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(1), 32-45. doi:10.1016/j.jaac.2010.10.006
59. SAMHSA. (2014). Results from the 2013 National Survey on Drug Use and Health. Retrieved from: <http://www.samhsa.gov/data/sites/default/files/NSDUHresultsPDFWHTML2013/Web/NSDUHresults2013.pdf>
60. Scott, J., & Pope, M. (2002). Self-Reported Adherence to Treatment With Mood Stabilizers, Plasma Levels, and Psychiatric Hospitalization. *American Journal of Psychiatry*, 159(11), 1927-1929. doi:10.1176/appi.ajp.159.11.1927
61. Charach, A., Ickowicz, A., & Schachar, R. (2004). Stimulant treatment over five years: adherence, effectiveness, and adverse effects. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 559-567. <http://dx.doi.org/10.1097/00004583-200405000-00009>
62. Wolraich, M.L., Wibbelsman, C.J., ...Wilens, T. (2005). ADHD Among Adolescents: A Review of the Diagnosis, Treatment, and Clinical Implications. *Pediatrics*. 115 (6) 1734-1746; doi:10.1542/peds.2004-1959
63. Verdoux, H., & Liraud, F. (2000). Neuropsychological function and duration of illness in psychotic and mood disorders. *Schizophrenia Research*, 41(1), 273. doi:10.1016/s0920-9964(00)90988-5
64. Walkup, J. T., Albano, A. M., Piacentini, J., Birmaher, B., Compton, S. N., Sherrill, J. T., ... Kendall, P. C. (2008). Cognitive Behavioral Therapy, Sertraline, or a Combination in Childhood Anxiety. *The New England Journal of Medicine*, 359(26), 2753- 2766.
65. Treatment for Adolescents With Depression Study (TADS) Team. (2004). Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression. *JAMA*. 292(7), 807-820. doi:10.1001/jama.292.7.807
66. Spencer, T., Biederman, J., Wilens, T., Harding, M., O'Donnel, D., & Griffin, S. (1996). Pharmacotherapy of Attention-Deficit Hyperactivity Disorder across the Life Cycle. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35(4), 409-432. doi:10.1097/00004583-199604000-00008
67. Hinshaw, S. P., & Scheffler, R. M. (2014). *The ADHD explosion: Myths, medication, money, and today's push for performance*.
68. Hinshaw, S. P., & Arnold, L. E. (2015). Attention deficit hyperactivity disorder, multimodal treatment, and longitudinal outcome: Evidence, paradox, and challenge. *WIREs Cognitive Science*, 6, 39-52.
69. National Institute of Mental Health. (n.d.). Evidence-based treatments for first episode psychosis: Components of Coordinated Specialty Care. Retrieved from <https://www.nimh.nih.gov/health/topics/schizophrenia/raise/evidence-based-treatments-for-first-episode-psychosis-components-of-coordinated-specialty-care.shtml>
70. Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents. *Clinical Psychology Review*, 32(4).
71. Reynolds (2012).
72. Silverstone, P. H., Bercov, M., Suen, V. Y. M., Allen, A., Cribben, I., Goodrick, J., ... McCabe, C. (2017). Long-term Results from the Empowering a Multimodal Pathway Toward Healthy Youth Program, a Multimodal School-Based Approach. *Frontiers in Psychiatry*, 8, 81. <http://doi.org/10.3389/fpsy.2017.00081>
73. Milin, R., Kutcher, S., Lewis, S.P., Walker, S., Wei, Y., Ferrill, N., & Armstrong, M.A. (2016). Impact of a Mental Health Curriculum on Knowledge and Stigma Among High School Students: A Randomized Controlled Trial. *Journal of the American Academy of Child and Adolescent Psychiatry*. 55(5):383-391. doi: 10.1016/j.jaac.2016.02.018
74. SAMHSA. (2017). NITT-TA Center Monthly Update. Retrieved from: <http://www.k12.wa.us/SecondaryEducation/AWARE/pubdocs/2017-01-ProjectAwareSpotlight.pdf>
75. De Nadai, A.S., Karver, M.S., Murphy, T.K., Cavitt, M.A., Alvaro, J.L., Bengtson, M., Stock, S., Rakhshani, A.C., & Storch, E.A. (2017). Common Factors in Pediatric Psychiatry: A Review of Essential and Adjunctive Mechanisms of Treatment Outcome. *Journal of Child and Adolescent Psychopharmacology*. 27(1): 10-18. doi: 10.1089/cap.2015.0263
76. Dean, S., Britt, E., Bell, E., Stanley, J., & Collings, S. (2016). Motivational interviewing to enhance adolescent mental health treatment engagement: A randomized clinical trial. *Psychological Medicine*, 46(9), 1961-1969. doi:10.1017/S0033291716000568
77. Curry, J., Rohde, P., Simons, A., Silva, S., Vitiello, B., Kratochvil, C.,... (2006). Predictors and Moderators of Acute Outcome in the Treatment for Adolescents With Depression Study (TADS). *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(12), 1427-1439. doi:10.1097/01.chi.0000240838.78984.e2
78. Krell, H.V., Leuchter, A.F., Morgan, M., Cook, I.A., & Abrams, M. (2004). Subject expectations of treatment effectiveness and outcome of treatment with an experimental antidepressant. *Journal of Clinical Psychiatry*. 65(9): 1174-9.
79. Lewin, A. B., Peris, T. S., Bergman, R. L., McCracken, J. T., & Piacentini, J. (2011). The Role of Treatment Expectancy in Youth Receiving Exposure-based CBT for OCD. *Behaviour Research and Therapy*, 49(9), 536-543. doi: 10.1016/j.brat.2011.06.001