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Joshua D. Feder, MD
Editor-in-Chief

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Learning Objectives

After reading these articles, you should be able to:

1. Advise child and adolescent patients and their families for positive outcomes during the COVID-19 pandemic.
2. Assess the impact of air pollution on children's mental health.
3. Identify and treat psychotic disorders in children and adolescents.
4. Summarize some of the current findings in the literature regarding psychiatric treatment for children and adolescents.

Helping Families Through the COVID-19 Pandemic

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Dr. Feder has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

The coronavirus has called on skills that few of us learned in our training. But you don't need to be an epidemiologist or mental health expert to take some basic steps that will make this pandemic easier for your patients and families.

Telepsychiatry

Telehealth is becoming the norm, not the exception, and many private practices have shifted to phone and video mode. There are two ways to go about this. Some providers use a video app that is compliant with HIPAA, while others host visits

Highlights From This Issue

Management of psychosis in children and adolescents may require failures before patients develop insight into their illness.

Care of families in the face of the global pandemic demands attention to parents' and to one's own self-care.

Child psychiatrists can have a helpful impact on mental health problems associated with particulate matter pollution.

through less secure software. In March 2020, the federal government announced a temporary relaxation of HIPAA restrictions, so that nearly any video software—including Skype, Google Hangouts, and FaceTime—can be used for telepsychiatry

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Q&A
With
the Expert

Differentiating Psychotic Disorders: Does It Matter? Jonathan Stevens, MD, MPH

Chief of Child and Adolescent Psychiatry and Chief of Outpatient Services at The Menninger Clinic in Houston, TX.

Dr. Stevens has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

CCPR: Tell us a little about what you do and where you work.

Dr. Stevens: In my role at The Menninger Clinic, I am responsible for developing and supervising personalized mental health care services for people receiving outpatient care. We diagnose and treat people who live in or travel to Houston seeking the highest-quality mental health care.

CCPR: You co-authored a primer on psychotic disorders in children and adolescents (*Prim Care Companion CNS Disord* 2014;16(2):PCC.13f01514). My big question is about the practicality of focusing on differences between the various DSM-5 psychotic disorders, including bipolar disorder and trauma syndromes and such things as autoimmune encephalopathies.

Dr. Stevens: Psychotic symptoms can occur in the context of numerous psychiatric disorders other than schizophrenia. You just mentioned a few, but I would also add depression, anxiety, ADHD, post-traumatic states, and



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Expert Interview—Differentiating Psychotic Disorders: Does It Matter?

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autism spectrum disorders; psychosis can also be secondary to a wide variety of medical conditions. There may be differences in the expression of psychosis based on the primary diagnosis. For example, pediatric patients with bipolar disorder often experience hallucinations and delusions but can also have the clinical characteristics of mania, of depression, or of both. In children with hallucinations related to psychological trauma, patients or their parents may report nightmares and trance-like states. (*Editor's note:* Careful diagnosis voids confirmation bias. See our page 3 table on psychotic illnesses to help you think about differential diagnosis.)

CCPR: We talk about anxiety along a spectrum and depression along a spectrum. What about psychosis along a spectrum?

Dr. Stevens: I tend to think about psychosis along a chronological or developmental spectrum rather than a spectrum of symptom severity. Often, prior to the onset of psychosis, youth who go on to develop schizophrenia show nonspecific, irregular, or unusual social and cognitive development. In retrospect, we refer to this as the prodrome, or the period linking premorbid functioning to the psychotic “break” or full psychosis. Clinically, patients may show social withdrawal or behavior that is apathetic, eccentric, or suspicious. These prodromal symptoms are often misdiagnosed as part of a depressive disorder.

CCPR: How do you unpack all that?

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This CME/CE activity is intended for psychiatrists, psychiatric nurses, psychologists, and other health care professionals with an interest in the diagnosis and treatment of psychiatric disorders.

Dr. Stevens: It's difficult. Many researchers are interested in the possibility of diagnosing schizophrenia in children during this prodromal period. Two research groups have developed criteria and structured interviews to aid in diagnosis of prodromal psychotic symptoms: the Comprehensive Assessment of At-Risk Mental States (CAARMS) and Structured Interview for Prodromal Syndromes (SIPS) (Fusar-Poli P et al, *Psychiatry J* 2016;2016:7146341).

Unfortunately, these complex instruments have limited usefulness in clinical settings.

CCPR: What about patients who report visual phenomena or unusual experiences?

Dr. Stevens: As a rule, a complaint of visual hallucinations makes me suspicious of an underlying delirium or potential medical cause. Your question highlights the importance of completing a thorough medical workup when distinguishing between primary and secondary psychotic disorders. Although there is no generally agreed-upon medical evaluation that every patient with psychosis should undergo, screening tests should be ordered based on a patient's personal and family history, as well as on one's clinical suspicion of conditions. Regarding patients who describe atypical or unusual experiences, there may be red flags that cause me to suspect a symptom is not psychotic.

CCPR: Can you give us an example?

Dr. Stevens: Like adult patients, some children and adolescents may complain of symptoms that seem to suggest psychosis but are not the genuine article. If very rare symptoms are reported, if there are no supporting signs of schizophrenia except “voices,” or if the patient says “Let me tell you about my delusion” or “I have been so paranoid about my boyfriend cheating on me,” then I am generally reassured.

CCPR: I've had kids describe nighttime phenomena, like seeing things out of the corner of their eye, and it makes me wonder about illusions or non-hallucinatory phenomena.

Dr. Stevens: Me too. The younger the child, the more commonly I hear these descriptions. My differential of this complaint includes a child's normal nighttime fears, illusions, or active imagination. Five to eight percent of children endorse isolated psychotic symptoms. To put that in perspective, that's 10 times more than the rate of schizophrenia (van Os J et al, *Psychol Med*

“Outcome studies of child-onset psychosis indicate that the long-term function of patients is poor compared to those with adolescent-onset or adult-onset psychosis. This makes me inclined to intervene with medication in these early-onset cases. In general, the earlier that chronic psychosis or schizophrenia develops, the worse the prognosis.”

Jonathan Stevens, MD, MPH

Psychotic Illnesses: A Snapshot					
	Symptoms	Prevalence	Sex Differences	Usual Age of Onset	Developmental Considerations
Brief Psychotic Disorder	1 or more of: •Delusions •Hallucinations •Disorganized speech •Disorganized behavior or catatonia 1–30 days, no other diagnoses & return to pre-morbid function	•Accounts for 9% of first-onset psychosis •Higher in developing countries	Twice as common in females	•Any age starting in adolescence •Average onset is in 30s	Visual hallucinations more common in children than adults (up to 50% in some cohorts)
Delusional Disorder	1 or more delusions lasting for 1+ month, never met criteria for schizophrenia	0.2% (persecutory is most common)	•Roughly equal •Women more jealous	May occur in younger age groups, though more prevalent in older adults	Consider normal magical thinking in differential
Mood Disorders (BPD, MDD) With Psychotic Features	Primary mood disorder meeting criteria for MDE or mania with psychotic symptoms	•1% general population for bipolar disorder •Rarer in childhood •10%–20% of adults have MDD at some point in their lives	•About equal for BPD •MDD is 1.5–3x more common in females from teens onward	•BPD mean onset at 18 with 2nd peak in middle age •MDD onset increases markedly in puberty and peaks in 20s	•BPD in children and adolescents: judge irritability and agitation against own baseline •Delusions and hallucinations tend to be mood congruent
Neurodevelopmental Disorders (ASD, IDD, Communication Disorders)	Overlapping symptoms: perceptual abnormalities, thought disorder, catatonia, deficiencies in reality testing	1% prevalence of IDD and ASD in general population	Males more likely to be diagnosed with mild (1.6x) and severe (1.2x) IDD than females	Onset is in the developmental period, though diagnosis may be delayed until academic or social impairment becomes apparent	•High risk of psychosis and misdiagnosis as well as sensitivity to medication •Genetic syndromes increase risk of psychosis (ie, DiGeorge syndrome)
Personality Disorders (Borderline Personality and Cluster C PDs)	Psychotic symptoms with less functional impairment than primary psychotic disorders; possibly transient in crisis or magical thinking	•Varied rates in community, inpatient samples •15% of adults have at least 1 PD	Borderline PD more common in women	May emerge in adolescence and progress through young adulthood, though may not always be recognized until adulthood	•Diagnoses in children/adolescents often change over time •BPD frequently diagnosed in adolescent females
Schizoaffective Disorder	Mood episode & 2 or more psychotic symptoms AND psychotic 2+ weeks apart from mood episode	0.3% of general population	More females	•Early adulthood •Older patients may be more likely to have depressive type presentation	•Youth may be more likely to have bipolar type presentation
Schizophrenia	2 or more psychotic symptoms present for a significant portion of time in 1 month & 1 symptom for over 6 months	•Childhood onset schizophrenia is very rare (1/10,000) •1% of general population	•Roughly equal •Males: More negative symptoms, longer duration	•Typically emerges in late teens and mid 30s •Early/mid 20s peak in males •Late 20s peak in females	•Premorbid social & motor problems •Earlier onset has poorer prognosis •1/3 of adults report their illness started before age 18
Schizophreniform Disorder	2 or more psychotic symptoms, at least 1 month & less than 6 months	•0.2% in developed world •Higher in developing world •2/3 transition to schizophrenia	Roughly equal	•8–24 for males •24–35 for females	Youth: attenuated symptoms and provisional diagnosis may be provided initially
Substance/Medication Induced	Typically acute onset, often resolves after withdrawal, may persist for weeks or longer	•7%–25% of first-episode psychosis attributed to substance/medication use •Prevalence unknown	Unknown	Occurs at any age, though elderly may be particularly vulnerable due to polypharmacy and medication exposure	Cannabis-induced psychotic symptoms may persist in heavily using adolescents for up to 1 year following cessation, in some studies
Traumatic Disorders	Traumatized youth may report hallucinations in PTSD	•US lifetime prevalence is 8.7% •Prevalence lower in children and adolescents	More common in females across the lifespan	Can occur at any age	Children and adolescents: limited ability to express symptoms, which may be nonspecific

Expert Interview—Differentiating Psychotic Disorders: Does It Matter?

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2009;39(2):179–195). My explanation is that children's conception and description of their internal world and experience is less formed than in adulthood.

CCPR: Can you talk about early treatment of psychosis?

Dr. Stevens: The notions of early intervention and perhaps even prevention of schizophrenia are at the forefront of early-onset psychosis research. However, the current literature does not support clear treatment guidelines for these vulnerable patients. Outcome studies of child-onset psychosis indicate that the long-term function of patients is poor compared to those with adolescent-onset or adult-onset psychosis (Stevens JR, 2014). This literature makes me inclined to intervene with medication in these early-onset cases. In general, the earlier that chronic psychosis or schizophrenia develops, the worse the prognosis. On the other hand, higher premorbid intelligence, having more positive than negative symptoms, and having family members cooperate in treatment improves the prognosis.

CCPR: Are you are saying there are times when it is better not to watch and wait?

Dr. Stevens: I am more proactive in treating patients who display high-risk behaviors—aggressive or assaultive behavior, or self-injuriousness or suicidality. For example, I recently evaluated a 12-year-old referred by his school counselor for “disruptive behavior” in the classroom. However, on exam, he appeared disorganized, unkempt, and internally preoccupied. He admitted to bolting from the classroom, but at the command of a demeaning voice that was not his own. He went on to tell me about other voices that bothered him most of the day, every day. He was assaultive toward peers, but his episodes of hitting and kicking were haphazard and seemingly unintentional. In my office, he laughed inappropriately and was poorly socialized. His mother was visibly concerned and told me he hadn't been like this a year ago. She described him as hyperactive and “the class clown,” but not aloof or withdrawn.

CCPR: So how did you treat it?

Dr. Stevens: In this case, the boy had no clear mood symptoms. He carried a historical diagnosis of ADHD, but clearly his presentation had become much more impairing and concerning for an early-onset presentation of psychosis with worrisome chronicity. Given the child's presentation and elevated risk of harm to others, I prescribed a low dose of aripiprazole. By the next visit, about two weeks later, he showed dramatic, global improvement.

CCPR: What about psychotherapies for people with psychotic disorders?

Dr. Stevens: We can't treat schizophrenia spectrum disorders with antipsychotic medicine alone. Fortunately, a variety of psychotherapies can be helpful—though I don't necessarily administer them all myself. I typically employ supportive techniques to shore up my patients' defenses and then refer them to my colleagues for techniques like cognitive behavioral therapy (CBT) for psychosis. I find that CBT helps patients to evaluate evidence for beliefs or think through explanations surrounding their perceptions; it can thus help to alter dysfunctional behaviors.

CCPR: What about addressing the environment?

Dr. Stevens: Psychosocial interventions can alter the environment to minimize undue stress, which increases vulnerability to psychotic episodes; interventions can also match the level of stimulation to the patient's level of alertness and overall functioning. And it's important to note that several studies of adults with psychosis support the usefulness of psychoeducation to decrease medication noncompliance and relapse rates (Xia J et al, *Cochrane Database Syst Rev* 2011;(6):CD002831).

CCPR: How about situations where patients are using cannabis or other drugs?

Dr. Stevens: There are environmental risks for the development of schizophrenia or aggravating psychosis. It's pretty clear that “the grass is not greener,” as data from longitudinal studies have shown that regular cannabis use predicts an increased risk for schizophrenia and symptoms of psychosis (Hall W and Degenhard L, *World Psychiatry* 2008;7(2):68–71). Cannabis use during early adolescence, coupled with suspected genetic vulnerability and changes in brain development, together are correlated with risk for the development of schizophrenia and cognitive decline. However, the direction of the effect has been called into question. Some suggest that individuals with psychosis use cannabis to alleviate their psychotic symptoms or to improve their mood. Others, however, suggest that cannabis causes or exacerbates psychotic symptoms.

CCPR: I've had people use the antipsychotic to get rid of their paranoid symptoms so that they can keep smoking weed.

Dr. Stevens: This is where a personalized approach lends itself to a difficult real-world situation. In a clinical trial, a patient wouldn't be allowed to smoke cannabis to improve sleep. In the clinical world, quetiapine has several clinical uses. You might say, “This medicine could help with the psychosis and make it so you won't have to smoke a bowl or use a dab pen to fall asleep. Let's see if you cut down your smoking and your psychosis goes away, then you might not have to be on medicine.” I find that most teens don't want to be on pills for any reason. A short-term trial on an antipsychotic might be reasonable.

CCPR: Do you find some medications more effective for specific kinds of psychotic disorders?

Dr. Stevens: I use personalized approaches because prescribing according to algorithms alone fails to fully account for diverse presentations of psychosis. Starting with risperidone for a medication-naïve patient is fine, but the outcomes are often partial and symptom reduction insufficient. Moreover, many children, more so than adults, struggle with side effects. Weight gain, metabolic syndrome, and increased cardiovascular risk shave years off the lives of patients with psychosis. Increasingly, I find pharmacogenetic testing to be helpful for patients before initiating medicine or for those who struggle with adverse medication effects.

CCPR: Tell us more about how you use pharmacogenetic testing.

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Air Pollution and Child Psychiatry: The Practical Aspects

Jess Levy, MD. Child and adolescent psychiatrist, Cleveland Clinic Foundation, OH.

Dr. Levy has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

While many of us have seen articles linking tobacco smoke to ADHD, most of us have not been thinking about air pollution as a relevant clinical factor. Air pollution is a leading cause of health problems globally, and it is also linked to psychiatric problems in children and adolescents.

Understanding the problem

Air pollution refers to the mix of harmful particulate matter, gas, and vapor in the air. It can be categorized by setting (indoor vs outdoor; rural vs urban), source (man-made vs natural), and toxicity. Harmful gases include ozone, nitrous, and sulfur gases (collectively referred to as smog) produced by vehicle exhaust, industrial emissions, and the burning of carbon fuel. Particulate matter (PM) refers to microscopic solids and liquids. Various forms of PM can be released into the air from roads and construction sites, as well as solid products formed from chemical reactions in the atmosphere. Smaller particles are more harmful given their propensity to enter deeper airways and trigger inflammation.

Air quality is also impacted by local climate and geography. Patients who live or attend schools near highways or in cities may be impacted by automobile pollutants. Mountains can trap pollution over a city (eg, Los Angeles, Salt Lake City, and Mexico City). Arid climates and drought worsen air quality. Forest fires are a major source of air pollution—soot and ash are smaller particles that disperse widely.

Chief indoor culprits of air pollution are cigarette smoke, carbon monoxide, household products, pesticides, carbon monoxide, mold, and building materials such as asbestos.

How air pollution affects our patients

Compared to adults, children have a less developed respiratory epithelium, are more likely to get respiratory infections, often spend more time outdoors, and may be less concerned about hygiene. Once exposed to potential pollutants, the body

mounts an inflammatory response, including cytokines IL-1 β , IL-6, and TNF α . These inflammatory mediators can be neurotoxic and affect several areas of the brain, including the prefrontal cortex and the hippocampus (Brockmeyer S and D'Angiulli A, *Transl Neurosci* 2016;7(1):24–30).

A recent study from California showed that teens exposed to more fine particulate matter (PM_{2.5}, or particles with a diameter of 2.5 microns or less) had higher levels of autonomic reactivity (a physiologic marker for anxiety) and higher self-reported levels of anxiety and depression (Miller J et al, *Psychosom Med* 2019;81(7):641–648). Likewise, a British longitudinal study demonstrated associations between air pollution exposure at age 12 and depression and conduct problems by age 18 (Roberts S et al, *Psychiatry Res* 2019;272:8–17). There is also emerging evidence around climate change or eco-anxiety occurring in kids and adolescents.

Researchers suggest a link between increased exposure to air pollution and decreased global IQ and psychomotor development, plus increased utilization of special education services in males. CNS damage may occur through various mechanisms: neuroinflammation, oxidative stress, glial activation, and white matter injury. Drawing specific conclusions is difficult due to heterogeneity of studies. For instance, some studies included exposure to indoor air pollution, including secondhand smoke. Furthermore, it is not clear if there is a critical period where exposure to air pollution is more detrimental to the child (Suades-Gonzalez E et al, *Endocrinology* 2015;156(10):3473–3482).

Still, asthma is common, linked to air pollution, and associated with a host of mental health problems, including internalizing problems. A 2019 study reported that air pollution is responsible for up to 33% of incident asthma cases (Khreis H et al, *Eur Respir J* 2019;54(4):1802194). The connection between asthma and psychiatric disorders seems bidirectional: Youth with asthma may become more vigilant of their health, confuse breathing

difficulties with symptoms of anxiety or anxiety attacks, or be more stressed by increased demands for self-care (Pateraki E et al, *J Clin Psychol Med Settings* 2018; 25(1):20–31). Some inhaler formulations may also have side effects that mimic the symptoms of anxiety. Conversely, psychiatric comorbidity correlates with poorer asthma control and increased ER visits (Richardson L et al, 2006; *Pediatrics* 2006;118(3):1042–1051). Although asthma symptom burden is associated with worse anxiety and depression symptoms, the good news is that treating mental health seems to improve asthma control, although the literature does not explicitly establish this connection.

Secondhand smoke exposure increases asthma prevalence and severity, and predicts a child's tobacco use (Farber H et al, *Pediatrics* 2015;136(5):e1439–e1467). Other challenges include the long-term risks of cancer in people exposed to secondhand smoke, and the risk of house fires.

Addressing air pollution in clinical practice

There are many things we can do to help our patients in this space.

Assessment

Inquire about wheezing or shortness of breath, especially when a patient describes paroxysmal anxiety symptoms or problems during aerobic exercise. It is important to think about other modifiable risk factors for asthma, including adolescent smoking, vaping, and possible exposure to secondhand smoke by peers or family members. Communicate with the child's primary provider, who can order pulmonary function tests and refer to a pulmonologist if necessary. For patients with known asthma, inquire about how asthma affects their mental health and support compliance with treatment.

Management

Address the impact of the child's mental health condition on the child's physical state (eg, depressed and/or not complying with medical treatment), as well as the impact of the environment on the child's condition (eg, increased fatigue during a

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Air Pollution and Child Psychiatry: The Practical Aspects

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temperature inversion with reduced air quality).

Consider how children perceive the threat of air pollution. They may feel powerless and overwhelmed in the face of large-scale environmental problems. Fears of pollution may compound trauma in those affected by forest fires, for example. We also know that parental stress impacts a child's functioning, and studies suggest that adults who perceive their air is unhealthy are more likely to report feeling ill, headaches, and respiratory symptoms, regardless of the actual air quality (Orru K et al, *Int Arch Occup Environ Health* 2018;91(5):581–589).

Explore children's worries about air pollution, especially those living in communities impacted by temperature inversions and forest fires. Help them develop healthy, pro-social attitudes and behaviors about their environment.

Since parental anxiety exacerbates child anxiety and symptoms, address parents' mental health care so they are more responsive to their children.

Education

Counsel parents who smoke to quit or smoke outdoors and provide motivational interviewing or referrals to additional support for those who are ambivalent.

The Environmental Protection Agency provides prevention, technology, measurement, and science information that can be helpful to families, such as an overview of the current air quality index data (www.epa.gov/technical-air-pollution-resources). The CDC provides links to air quality forecasts to help families and schools figure out which areas may have better air as well as protective measures to minimize ozone and wildfire smoke exposure (www.cdc.gov/air/default.htm). For families living near high-traffic areas or construction sites, encourage them to play and commute in areas with less exposure to pollutants, if possible. When appropriate, encourage families to take vacations in areas with better air quality. For patients who are especially vulnerable to air pollution,

consider wearable sensor technology (Ryan PH et al, *Sci Total Environ* 2015;508:366–373). For indoor irritants and toxins such as allergens and smoke, some home furnace systems are said to scrub the air, and air purifiers may be helpful; electrostatic devices purport to pick up indoor particles, such as those blown in from regional fires. It is unknown how well these consumer products prevent respiration of particulate matter, so buyer beware.

CCPR VERDICT: Current acute reductions in the use of polluting energy sources underline the impact of air pollution on our patients' mental health. You won't fix all the problems related to air pollution during a med check appointment, but we recommend routinely asking about indoor and outdoor sources of environmental pollutants and helping your patients and families minimize these exposures.



Expert Interview—Differentiating Psychotic Disorders: Does It Matter?

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Dr. Stevens: Recent advances in pharmacogenetic testing allow for more precise or targeted pharmacology for children and adolescents struggling with psychotic disorders. For example, genetic variants in the dopamine-2 receptor can make an individual youth 35% less likely to respond to an agent and might explain a history of prior treatment failures (Zhang JP et al, *Am J Psychiatry* 2010;167(7):763–772). Antipsychotic-associated weight gain is related to genetic variants in the melanocortin-4 receptor or the serotonin-2C receptor. Certain variants in these genes are associated with 2 to 3 times increased risk of clinically significant weight gain during atypical antipsychotic treatment.

CCPR: Marketed tests may not check these, and we need to differentiate metabolism from clinical efficacy, but with all the marketing, it's good to hear about the potential utility for pharmacogenetic testing. Do you use metformin?

Dr. Stevens: Metformin is one agent I use to moderate antipsychotic-associated weight gain. Other agents, such as phentermine or topiramate, I use less frequently. There's a lot more room for development of agents that could alleviate the metabolic burdens of antipsychotic medicine.

CCPR: How do you talk to patients and families about medication?

Dr. Stevens: I explain that treatment of psychotic symptoms is similar in many ways to the treatment of infection with antibiotics—the clinician needs to choose the proper medication at a sufficient dose and then await therapeutic results while monitoring for potential side effects. I try to convey that efficacy differences of antipsychotics in adolescent-onset schizophrenia seem to be relatively small, except for clozapine in treatment-refractory patients; however, side effect differences across antipsychotics are relatively large and predictable. (*Editor's note:* The COVID-19 pandemic demands careful planning of clozapine lab follow-up.)

CCPR: How does this discussion with patients and families unfold over time?

Dr. Stevens: True informed consent is ongoing discussion over several visits. In the first visit or when starting a new medicine, I discuss common initial side effects of antipsychotics such as drowsiness, dry mouth, nasal congestion, or blurred vision. Caregivers can usually manage the short-term adverse effects by adjusting the dose and the timing of administration. They might be able to avoid sedation by using less-sedating agents and by prescribing most of the daily dose at bedtime. Then we discuss weight gain as an intermediate-term risk. I believe in using the lowest dose of medicine possible to decrease the risk of side effects, but even with the best of intentions, treatment-interfering side effects such as extrapyramidal symptoms, akathisia, or prolactin elevations may occur.

CCPR: Thank you for your time, Dr. Stevens.

Helping Families Through the COVID-19 Pandemic

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legally (www.tinyurl.com/s3v9h9t). There are some real advantages to telemedicine. You get to see your patients in their home environment, “play” with a child’s familiar toys, and coach parents without overshadowing them with your physical presence or the trappings of your office. Do stay mindful of the risks involved, including not knowing who else is listening on the other end.

Assessment and follow-up

If you usually check blood pressure, pulse, height, and weight and you can’t for the time being, think through the potential harms vs benefits and document your thinking in the medical record. Consider home blood pressure, pulse, height, and weight measurement. Often we forgo vital signs for stable patients who are away at college until they return on break. But growing children may need more careful follow-up, especially if there are medical problems or medication side effects. If unable to perform a necessary exam yourself, carefully weigh having patients seen somewhere else. Some things can be done on video, such as coaching patients through an Abnormal Involuntary Screening Exam.

Prescription refills

Medication shortages are a particular risk for our patients during a pandemic. When possible, multi-month prescriptions may be appropriate. Think about whether this is safe for patients who might misuse medications or are at risk for overdose, and document your thinking, including your advice to lock up supplies of medications.

Insurance challenges

Reimbursement for telehealth care is rapidly evolving. Many insurers are reimbursing phone visits during the outbreak. In March 2020, Medicare, and to a lesser extent Medicaid, vastly expanded coverage for telemedicine; most, if not all, commercial insurers are following suit (www.tinyurl.com/tjwsqsk). Check with your patient’s insurance company, or ask the patient to call them. If you are denied by an insurer, there are many ways to proceed. One is by going through your professional organizations—for example, the advocacy arm of the American Academy of Child and Adolescent Psychiatry (govaffairs@aacap.org). You can also call your congressional

representative; find yours by using your residential ZIP code at www.house.gov/representatives/find-your-representative. Tell the staff that you’re a constituent—and that you need insurance reimbursement for online care. You can also call your state’s insurance commissioner’s office.

Online therapy resources

When families cannot obtain in-person therapy services, there are many online resources that can be helpful. While completion rates of online therapy programs are sometimes low (Fleming T et al, *J Med Internet Res* 2018;20(6):e199), we have a few favorites to share. www.profectum.org has a free online Parent Toolbox for families to support children and teens with autism and related challenges. The government of Australia has online CBT programs for anxiety and OCD (www.cci.health.wa.gov.au/Resources/Overview). And Albert Ellis’ book on rational emotive therapy, *How to Control Your Anxiety Before It Controls You* (Citadel, 2016), is free to listen to (www.tinyurl.com/y79qq8j). There are also many phone apps to manage stress and promote mindfulness that are currently available for reduced cost. Some of my favorites include 10% Happier (www.tenpercent.com), Headspace (currently free for healthcare people; www.headspace.com), and Calm (www.calm.com).

The importance of schedules

Structured schedules are important for families quarantined at home. Going to bed at a reasonable hour, then getting up and getting dressed in daytime clothes at about the same time every day, is just good sleep hygiene. These steps alone may frame the days better. Here’s a great chapter that includes research on importance of routines: www.ncbi.nlm.nih.gov/books/NBK402020. The day needs to emphasize hygiene and hydration. Time must be set aside for chores and cleaning both ourselves and our things—our new norm. Make time for schoolwork and for different kinds of activities, including movement (think dance, exercise, active games), creative pursuits (arts, crafts, music), and quiet time (reading, anyone?). Don’t forget about proper nutrition. Think about the life skills that kids can be learning while helping out. Finally, avoid too much news watching and be sure to address the news

at the developmental level of the child you’re working with. Some days, structure and scheduling can go very smoothly, and on others productivity and expectations must give way to more generous compassion for ourselves and our families.

Value of play

It is hard to understate the value of symbolic play in helping children, teens, and also adults grapple with the emotional challenges of change, danger, and death (www.tinyurl.com/shq7yvg). Almost every enjoyable activity has meaning to it, so look at what attracts the child. Most sports, even indoor ones like Ping-Pong and billiards, have sublimated aggressive aspects and rely largely on skill; meanwhile, Candyland and other games of chance emphasize embracing things we cannot control. Some games, especially video games, combine both skill and chance, engaging us with the possibility of impacting our fate while knowing we cannot control everything. More complex play emerges with dolls, stuffed animals, writing or telling stories, and art. Parents can be active partners or an attentive audience, depending on the needs of the child.

Sleep is critical

Sleep deprivation makes it hard to manage stress. It also compromises the immune system, making people more susceptible to viral infections. Dim the lights and turn off electronic devices in the half hour before bed. Ideally, children and parents should sleep in a pitch-dark room, but if nighttime fears creep in, there are night lights free from the blue light that disrupts sleep. Check the offerings at www.lowbluelights.com or the Maxxima MLN-16 Amber LED Night Light (available at Amazon).

Supporting parents

This may be the most important thing you do. When parents do better, kids do better. Helping parents stay calm means helping them know that they are not alone in this. Telling them to “face the facts” is likely to create more stress. Telling them “I totally understand” is not true—as Tolstoy wrote in *Anna Karenina*, each unhappy family is unhappy in its own way. Instead, listen and note how hard it sounds, and validate their emotions. Set follow-up so families

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**Cognitive Rehabilitation for Youth
With Psychotic Disorders**
Ian S. Ramsay, PhD



Assistant Professor in the Department of Psychiatry at University of Minnesota.

Dr. Ramsay has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

CCPR: Please tell us a little bit about yourself.

Dr. Ramsay: I'm a clinical psychologist at the University of Minnesota. I took a post-baccalaureate position in the psychiatry department at UC Davis, where I worked with Cam Carter's lab studying the neural bases of aspects of cognitive disruption in people with psychotic disorders such as schizophrenia and schizoaffective disorder. Then I pursued a PhD in clinical psychology at the University of Minnesota, where I worked with Angus MacDonald, before going back to California to do my clinical internship at the San Francisco VA and UCSF. Now I'm back in Minneapolis and have a small lab of my own where we study aspects of neuroplasticity in people with serious mental illnesses. We're interested in novel treatments that can target neural mechanisms to improve things like cognition, as well as overall function.

CCPR: What are the cognitive impacts of psychotic disorders in youth? What big-ticket items do we need to be thinking about?

Dr. Ramsay: Aside from the hallucinations and delusions commonly observed in psychosis, deficits in cognition also play a major role. There was a long period of time where researchers were trying to identify the specific deficits that people might show. Unfortunately, these deficits appear to be more generalized. People with psychosis experience deficits across most domains of cognition that we measure, such as working memory and attention, long-term memory, problem solving, processing speed, etc. The exact reasons why are not completely known, but a lot of us are trying to figure it out.

CCPR: How do these deficits affect function at school?

Dr. Ramsay: In young people especially, school is one of the first places where we notice these problems. In our community work, we train teachers and other staff members in schools to identify these early signs of the prodrome. One of the hallmark symptoms that we observe in the period ahead of a psychotic "break" or full psychosis (prodrome) is a decline in academic functioning such that students who seem to have been doing just fine, say in high school or early on in college, suddenly show a rapid decline (MacCabe JH et al, *JAMA Psychiatry* 2013;70(3):261-270). Some of this is related to the cognitive problems that I described, but it can also be related to some of the other symptoms that they could be experiencing such as delusional ideation, auditory hallucinations, or becoming more disorganized.

CCPR: Do you also see children and teens having problems with things like sleep, active daily living skills, or isolation from previous friendships/social situations?

Dr. Ramsay: Yes, these are all things that we consistently observe. The social one is pretty big. A lot of the patients that we see describe a period of time where they began to isolate, and then they often describe a period of time after they've maybe gotten treatment that they're having trouble socializing the way they used to, whether that's being able to track a conversation or to understand people's intentions. We've got a lot of research suggesting people with psychosis have difficulty tracking and understanding facial emotions or intonations (Daros AR et al, *Schizophr Res* 2014;153(1-3):32-37). As you can imagine, it would be very difficult to interact socially if you were having trouble with attention and working memory and were also having trouble understanding the intonation of somebody's voice. We don't have pharmacological treatments that specifically target these things, so the challenge is to address them psychologically.

CCPR: How much do you rely on collateral information from family, teachers, or others? I have a collection of patients who think everything's fine, but their families are really distressed.

Dr. Ramsay: Family support is paramount in this population. We have good evidence to suggest that people's outcomes are better when they have strong, solid family support, and some of that comes down to sheer resources: having a safe place to be, having someone to help manage medications, having financial support. But also, patients' families are our eyes on the ground, and we learn a lot from them.

CCPR: We need families to help—these patients do not have a sense that something is off.

Dr. Ramsay: Correct. We often observe this perplexing lack of insight early on in the illness: individuals who may have experienced a psychosis, even had a hospital stay, claim they don't need support from their psychiatrists or psychologists or other therapists. We often have collateral information that things aren't going as well as they think, though: They're doing a little bit better, but they are continuing to suffer from some of those symptoms.

CCPR: So difficult. How does this play out?

Dr. Ramsay: I have an informal theory about insight in these situations. I call it my "two-hospitalization theory," and it's a pretty unfortunate one, because we don't like to have patients hospitalized. But what I've noticed clinically is that a number of patients require a second hospitalization before they gain the insight and understanding that there is a pattern to their symptoms. In other words, what's happening to them isn't a mistake by the doctors; it isn't because of the substances they were using; it isn't something everybody else is making up. It's really happening, and they begin to recognize that there really is a problem.

CCPR: Switching gears to treatment, we give people antipsychotic medications, and with luck their symptoms get a little better. But then patients complain that the pills are creating cognitive problems. Talk to us about cognitive side effects from the perspective of the professional who receives the patient on antipsychotic medications.

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Expert Interview—Cognitive Rehabilitation for Youth With Psychotic Disorders

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Dr. Ramsay: Yes, I deal with the fallout in these situations. A lot of these medications have a kind of anticholinergic cognitive profile where people describe a certain “fogginess” or sluggishness to their thinking. These are separate from the otherwise organic, cognitive deficits that people experience. We’re not helping people’s cognition. These problems are prominent early on when someone’s on an antipsychotic; but, in my experience, people begin to acclimate over time, and they experience less of that sort of dulling. If they get on a stable regimen with a good routine and can maintain consistency with that, then they can do really well.

CCPR: That’s somewhat encouraging.

Dr. Ramsay: But the point remains that people do have these side effects. We can try to manage them either with dosage modifications or other kinds of mitigation strategies.

CCPR: Can you give us some examples that have worked for you?

Dr. Ramsay: Taking medications at nighttime can help with daytime sedation. I’m also a big fan of long-acting injectable medications, as they seem to have this cognitive profile that might be present early on, but over the course of the month it may not fluctuate as much, which I think is probably a little more comfortable for people. With some of these second- and third-generation agents, we’re having a little better luck keeping people on them and causing fewer anticholinergic side effects.

CCPR: What is your take on rehabilitative programs to help remediate the cognitive impairments associated with psychosis?

Dr. Ramsay: A lot of my research is on cognitive training for psychosis. In the last 10 years or so, I’ve been examining whether computerized interventions might improve aspects of people’s cognition. What we know from the literature and our lab work is that, yes, we can rescue some of people’s cognitive abilities and create positive downstream effects on community or educational functioning and other things that are important in this population (Ramsay IS et al, *Neuropsychopharmacology* 2018;43(3):590–597).

CCPR: That’s hopeful too.

Dr. Ramsay: That said, we’re still trying to figure out how best to personalize these types of interventions, to tailor a training to fit the cognitive profile of an individual patient, to home in on the patient’s specific need. Our field is trying to figure out the optimal way to do that. But what we do know is that brains can change. A number of years ago, people thought that you couldn’t change the brain after it had matured, but we now know that isn’t true. The brain is changing constantly, well into adulthood. In adolescence and young adulthood, there is a critical period where we can capitalize on that plasticity. Our goal is to try to point the brain’s trajectory in an optimal direction. We’re still in the early phases of figuring out how to do that, but it’s a primary goal.

CCPR: How does this work with children and adolescents?

Dr. Ramsay: As far as tailoring these cognitive training interventions for younger populations—especially adolescents—a major goal is making them accessible and usable. That means making these challenging brain games fun, engaging, and portable. Ideally, individuals would engage in training daily, the same way one might try to exercise daily. With the technology to put these interventions on someone’s smartphone, we are trying to capitalize on the best way to do that. There is also emerging evidence that cognitive training can be neuroprotective for individuals at high risk for developing psychosis (Fisher M et al, *Schizophr Bull* 2015;41(1):250–258). Knowing this, it will be important to deploy these interventions in the right populations.

CCPR: Can you give us some idea of what the therapy looks like? What can we tell our patients about it so that they are better prepared for doing this therapy?

Dr. Ramsay: Most cognitive training programs are computerized and in many cases can even be accessed from a tablet or smartphone. These programs promote neural plasticity and learning by exercising aspects of basic sensory processing and attention. To do this, they use cognitive games—you have to click the right answer on visual tasks, calculations, mazes, concentrating on set shifting, etc—and they adaptively stay at a challenging level by either adding or subtracting stimuli or speeding up or slowing down the presentation of visual or auditory elements. They are challenging, but many people find them fun!

CCPR: What other measures are important to use, such as for educational planning or in guiding families or therapists on providing support?

Dr. Ramsay: In our clinics, we offer supportive employment and education, where a specialist works with patients in the community to identify how to re-integrate them into a job or help them get accommodations at school. The specialists also work with patients to improve their social life. It makes an incredible difference when you have someone working one on one to improve a patient’s functional well-being out in the community.

CCPR: This field is bearing fruit beyond schizophrenia. At UCSD, we borrowed heavily from your field to design executive function programs for organization skills in youth with autism spectrum disorder.

Dr. Ramsay: And beyond that, the brain is developing and changing well into adulthood, and we know that people as old as 80 can functionally change aspects of how their brain operates, which is a very hopeful story.

CCPR: So, you can train an old dog with new tricks. That’s truly encouraging. Finally, what

“My most important advice would be to intervene early. As soon as someone has psychosis symptoms stably managed, it’s beneficial to start exercising cognition again. Most cognitive training programs are computerized and, in many cases, can even be accessed from a tablet or smartphone. They can be challenging, but many people find them fun.”

Ian S. Ramsay, PhD

Research Update
IN PSYCHIATRY

SLEEP

Adolescents and Sleep: Parents Can Make a Difference

REVIEW OF: Peltz JS et al, *Sleep* 2019;zs287

We know that sleep deprivation is an important contributor to mental health problems in teenagers. Studies show that adolescents need around 9.25 hours of sleep for optimal functioning, but most do not get adequate sleep for several reasons. Teens have a developmental drive to stay up later and sleep in longer. They also tolerate less sleep than younger children. Psychosocial factors like early school start times, poor sleep hygiene, nighttime screen exposure, and household culture can add to the problem (Crowley SJ et al, *J Adolescence* 2018;67:55–65).

Parents naturally give adolescents more freedom, but when they ask for guidance about sleep, what should we suggest? Would enforcement of sleep hygiene rules help? This study explores these questions.

Authors recruited 193 adolescents aged 14–17 via schools, parenting groups, and ResearchMatch (a national health volunteer registry). Parents completed baseline questionnaires on sleep-related rules, parent-teen bedtime conflict, and school start times. Adolescents were asked to complete daily sleep diaries (morning and evening) and were asked to rate their energy levels and depressive symptoms for 7 consecutive days.

On average, adolescents took 20 minutes to fall asleep, woke up for 3 minutes in the middle of the night, and slept 7.8 hours, much less than the recommended duration. Almost half of the parents did not enforce rules for bedtimes or for evening caffeine use, and a third had no rules for nighttime screen use.

More sleep correlated with better energy and fewer depressive symptoms ($-0.34, p < 0.05$). Daytime energy predicted ($p < 0.001$) lower levels of depressive symptoms in adolescents, with -0.71 correlation in the group but a more modest -0.25 within each adolescent. Teens slept more when schools started later: 7.3 minutes

more sleep for every 29 minutes later school time, or if their parents enforced bedtime. These were small but statistically significant effect sizes (0.10). Interestingly, parent-teen disagreement regarding bedtime had minimal and insignificant impact on sleep duration. More surprisingly, parents' curfew on media or caffeine intake did not improve sleep duration.

CCPR'S TAKE

Adolescents would likely have more energy and be less depressed if they got more sleep. Despite clear evidence that later school start times help teens' sleep, only 14% of American high schools have altered start times. Later school starting times, including this spring with nearly all students home schooling, would improve sleep duration, and parental enforcement of bedtimes can be helpful. Emphasize these points to your adolescent patients and their parents, and advocate for changes in school schedules.

—Pavan Madan, MD. Dr. Madan has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

Helping Families Through the COVID-19 Pandemic

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know you have them in mind. Providing support to parents will in turn help parents support their children.

Relationships with extended family and pets

The elderly are at high risk, and many are caring for children too. Grandparents can be a source of support and experience. Others are in assisted living or nursing homes and can't receive visitors. Since not all seniors use videoconferencing, this gives kids a creative opportunity to make cards and write letters (properly sanitized, of course).

At this time, we do not think that pets carry or spread COVID-19. Patting and combing a willing pet can be calming. Teaching pets new skills is a great learning experience. For CDC information about pets, see www.tinyurl.com/vrg876v.

Advice for clinicians

It's important to think about self-care as well. Most of us work too hard, and poor sleep and high stress further endangers us. Shut down the phone for 8 hours a night, fight the cravings for fat, salt, and sweets, and cultivate something that cools your head—what's on *your* bucket list of

safe activities? Be gentle with yourself. We need support too and can benefit from the same guidance we provide to others. Also, avoid oversharing your own difficulties with patients' families.

CCPR VERDICT: Many of these changes are good things to do anyway—it took the pandemic to put them in place.

To learn more, listen to our 3/6/20 and 4/9/20 podcasts, "Coronavirus and Mental Health—Parts 1 and 2". Search for "Carlat" on your podcast store.

Expert Interview—Cognitive Rehabilitation for Youth With Psychotic Disorders

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practical tips do you have for child and adolescent psychiatrists that might help them to assess and advise their patients and families as a first step toward grappling with the cognitive problems associated with psychotic illness?

Dr. Ramsay: My most important advice would be to intervene early. As soon as someone has psychotic symptoms stably managed, it's beneficial to start exercising cognition again (Loewy R et al, *Schizophr Bull* 2016;42(Suppl 1):S118–S126). In addition to computerized cognitive training, this can also look like starting to read again or even practicing paying attention for longer stretches. It may start with things like reading a newspaper or magazine before returning back to longer novels or textbooks.

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CME Post-Test

To earn CME or CE credit, log on to www.TheCarlatReport.com to take the post-test. You will be given 2 attempts to pass the test. You must answer 75% of the questions correctly to earn credit. Tests must be completed within a year from each issue's publication date.

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- According to Dr. Stevens, how does the long-term function of patients with child-onset psychosis compare to that of patients with adolescent-onset or adult-onset psychosis? (LO #3)
 - a. Patients with child-onset psychosis have significantly better outcomes
 - b. Patients with child-onset psychosis have slightly better outcomes
 - c. Patients with child-onset psychosis have poorer outcomes
 - d. Patients with child-onset psychosis have the same outcomes
- Which medical disorder, triggered by air pollution, can exacerbate anxiety in youths? (LO #2)
 - a. Tourette's syndrome
 - b. Seizure disorder
 - c. Thyroid disease
 - d. Asthma
- Your 12-year-old patient and her family are quarantined due to COVID-19. Her parents mention that she is sleeping during the day and staying up late at night to complete schoolwork and chores. Best practice would be to advise her parents that this relaxed routine and schedule is beneficial to preteens during times of stress. (LO #1)
 - a. True
 - b. False
- A 2019 study found that most _____ don't set clear limits for bedtimes with their teens. (LO #4)
 - a. Grandparents
 - b. Parents
 - c. Mental health professionals
 - d. Pediatricians
- According to Dr. Ramsay, one of the hallmark symptoms in the period ahead of a psychotic "break" or full psychosis (prodrome) in children and adolescents includes: (LO #3)
 - a. Increased self-imposed pressure on performance and/or grades
 - b. School refusal
 - c. Somatic symptoms such as headaches or stomachaches
 - d. Decline in academic functioning
- Due to COVID-19, you and your 16-year-old patient have been participating in telepsychiatry appointments. His parents let you know that their insurance company has denied coverage for your last 2 sessions. Your role in helping families advocate might include advising them to: (LO #1)
 - a. Call their congressional representative to ask for assistance
 - b. Switch to virtual appointments since those aren't billed as a session
 - c. Charge the session as an office visit with the parent as the patient
 - d. Encourage your patient's family to hire an attorney
- In a 2019 study, which factors predicted longer sleep durations in teens ages 14–17? (LO #4)
 - a. Teen-parent participation in recreational activities; phone restrictions
 - b. Less caffeine intake; pet ownership
 - c. Parent-enforced curfew on video gaming and social media
 - d. Later school start time; parent-enforced bedtime
- According to Dr. Ramsay, which statement is true about cognitive training and psychosis? (LO #3)
 - a. Adolescents who receive cognitive training as part of an inpatient vs outpatient program have 25% better outcomes
 - b. Although young children can experience psychotic episodes, cognitive training is not beneficial until the onset of puberty
 - c. Cognitive training can be neuroprotective for the younger population who are at high risk for developing psychosis
 - d. Cognitive training is neuroprotective for the older vs younger population when the brain has stopped maturing
- A 2019 study found that air pollution exposure at a younger age can predispose older teens to _____ and conduct problems. (LO #2)
 - a. Depression
 - b. Obsessive-compulsive disorder
 - c. Pediatric autoimmune neuropsychiatric disorders
 - d. Hallucinations
- According to Dr. Stevens, the rate of children reporting isolated psychotic symptoms is ___ compared to the rate of schizophrenia in children. (LO #3)
 - a. About half
 - b. About the same
 - c. About 10 times greater
 - d. About 25 times greater
- When a child's body is exposed to potential pollutants, the inflammatory response can be neurotoxic and affect which areas of the brain? (LO #2)
 - a. Temporal lobe and amygdala
 - b. Prefrontal cortex and hippocampus
 - c. Temporal lobe and hypothalamus
 - d. Prefrontal cortex and thalamus
- Studies show that adolescents need around 9.25 hours of sleep for optimal functioning. The average sleep duration in a 2019 study of teens ages 14–17 was how many hours? (LO #4)
 - a. 6.8
 - b. 7.2
 - c. 7.8
 - d. 8.2

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Expert Interview—Cognitive Rehabilitation for
Youth With Psychotic Disorders
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Another important point is assessment and tailoring an intervention to someone's strengths and weaknesses. A quick cognitive assessment might reveal that one person has a weakness in attention while long-term memory is just fine. This could make a big difference in how a provider might tailor a cognitive training intervention (as in what types of exercises) and could also help a patient capitalize on current strengths.

CCPR: Thank you for your time, Dr. Ramsay.

Note From the Editor-in-Chief: Psychosis With a Dollop of Corona

This is an odd note to write. Like most publications, we had a topic before the virus happened: interviews with Dr. Stevens on understanding and managing psychosis in children and adolescents, and Dr. Ramsay on managing cognitive problems in psychosis. We also have pieces on air pollution and mental health, and parents' impact on teen sleeping habits. Rapidly responding to current events, we added a pandemic piece and devoted two podcasts to the topic. Catch those online by searching for "Carlat" on your podcast store.

How are you spending your time? 24/7 in a psychiatric ER? Seeing patients online from a mountain lair? Some of my telepsych appointments are a roaring success with kids on the spectrum talking gaming. Others are harrowing—can we hang on and avoid infected hospitals? Stay in touch; we are here for you.

Regards, Josh Feder, MD — jfeder@thecarlatreport.com



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