The Role of Psychedelic Agents in Treatment of Mood Disorders and Addictions

A Clinical Conversation with Scott Shannon, MD, and Robert Rountree, MD

Scott Shannon, MD, has been a student of consciousness since his honors thesis on that topic at the University of Arizona in the 1970s under the tutelage of Dr. Andrew Weil, MD. MDMA-assisted psychotherapy became a facet of his practice before this medicine was scheduled by the Drug Enforcement Agency in 1985. He has published four books on holistic mental health including the first integrative psychiatry textbook for this field in 2001. His pediatric mental health textbook was published in 2014. He is a past president of the American Holistic Medical Association and a past president of the American Board of Integrative Holistic Medicine. In 2010, he founded Wholeness Center, in Fort Collins, Colorado. This innovative clinic provides cross-disciplinary evaluation and care for all mental health concerns and has become a national leader in ketamine-assisted psychotherapy. Dr. Shannon serves as a site principle investigator and therapist for the phase 3 trial of MDMA-assisted psychotherapy for post-traumatic stress disorder sponsored by the Multidisciplinary Association for Psychedelic Studies (MAPS). He has also published numerous articles about his research on cannabidiol (CBD) in mental health. Dr. Shannon founded the Psychedelic Research and Training Institute (PRATI) to train professionals in ketamine-assisted psychotherapy and deliver clinically relevant studies. Dr. Shannon is an assistant clinical professor of psychiatry at the University of Colorado-Children's Hospital in Denver, Colorado. He lectures globally to professional groups interested in a deeper look at mental health issues, safer tools, and a paradigm shifting perspective about transformative care.

Robert Rountree: Tell us a little bit about your childhood. Where did you grow up? What did you most like to do when you were a kid?

Scott Shannon: I grew up in upstate New York. My dad worked for General Electric, and then he was transferred to Phoenix when I was 12. Moving from rural upstate New York to urban/suburban Phoenix was a dramatic shift. I loved to spend time in nature, in the forest. Once I moved to Phoenix,

that shifted to basketball. We played outside most of the year, even in 100°F heat.

Dr. Rountree: So, what led you from being a basketball fan to pursuing a career in medicine?

Dr. Shannon: There was a psychology class—well, actually, it is an interesting story. As a junior in high school, I was helping a friend study for a psychology class, and I was reading a textbook and asking him questions, and I said, “Wow, this is kind of interesting.”

I went to a Jesuit all-boys school in Phoenix, and approached the teacher of the class, Mr. Kassel, and asked whether I could get in the class. It was toward the end of the first semester. And he said, “Well, this is a full-year course, and there is background material you need in the first semester.” He said, “Well, why don’t you try studying a bit and taking the first semester final? And if you show that you put in some effort, I will let you in the second semester.” I said, “Wow, that’s great.”

So, I got the textbook, read it, looked at it, began to do some exploring. I took the final, and I got one of the highest grades on the final. Then, I went back to him to enroll in the class, and he refused to let me in. I think for some reason I threatened him. I am not sure. That experience lit a fire under me, and made me even more determined to learn.

I actually ended up getting a job in the library, the Phoenix Library, so I could have access to more books on the topic. By the end of junior year, I knew I wanted to be a psychiatrist, and I was deeply interested in consciousness. So, my direction was set at that point.

Dr. Rountree: Do you remember what was happening in society at that time? More specifically, what was the national feeling about the exploration of higher consciousness and human potential? Was that something that was really starting to be of interest?

Dr. Shannon: It was the early ’70s. The psychedelic movement and early consciousness explorations had just taken off at that point. It was prominent in the lay and cultural consciousness. I became intrigued by that, but mostly about the brain, the

mind, mental health, and mental illness. All of it just felt really exciting, interesting, and curious and, in some ways, terra incognita. It was unknown territory. And that really intrigued me.

Dr. Rountree: Was there anybody in particular that moved you in that direction? Any mentors or sources of inspiration?

Dr. Shannon: I had a mentor, Vaughn Huff, who was head of the honors program at the University of Arizona. He introduced me to a seminar on parapsychology and consciousness that really intrigued me. That is how I got interested in alternative medicine via Edgar Cayce at the time.

When it came time to propose my honors thesis, I went to my advisors, and they were all studying rats in mazes. The psychology department was very behavioral at the time. They thought I was from another planet. They suggested that I go visit this doctor out in the desert—Dr. Andrew Weil. He was little known at the time. He became an advisor on my thesis, and then a mentor and a friend. I ended up going to medical school in Tucson, so that relationship just continued to develop. By the time I entered medical school, he was very involved in many elements of my development.

Dr. Rountree: So you and Dr. Weil go way, way back.

Dr. Shannon: Way, way back. I was an undergrad, and I think he had just finished a Fulbright Fellowship, where he traveled around Central and South America, and that resulted ultimately in his book *The Marriage of the Sun and the Moon*.¹ It is a great book on the connection between nature and consciousness. He had just published *The Natural Mind*,² which explored the relationship between consciousness and drugs, particularly cannabis.

Dr. Rountree: Were the kind of ideas that you shared with him in your school considered pretty far out, or was that way of thinking taking hold?

Dr. Shannon: Our interest in altered states and natural medicine was strong. Dr. Andrew Weil was such an incisive thinker, so very reasonable but provocative, and he engaged a lot of medical students. I would say by the end of my medical school term, at least a quarter of our class was really interested in these topics. But because there was no support for these topics in postgraduate and residency training, for many people it fell away as just a lapsed interest.

I had gotten very depressed in medical school because it was nothing like what I thought it would be. By the time I graduated, I just really needed to be done with formal training as quickly as possible. I ended up doing a psychiatric internship at a Columbia program in New York, and then came back to Arizona to work with Gladys McGarey in setting up a rural holistic clinic. And because of Dr. Weil's influence, I got involved in methylenedioxymethamphetamine (MDMA)-assisted psychotherapy. I was doing that as part of my general practice in the early '80s, before MDMA was scheduled in 1986. To this day, it is almost impossible to do research on any Schedule I agent.

Dr. Rountree: So, you were a really early adopter of using psychedelic drugs in a therapeutic context. Or is there a better term for that category of mind-altering drugs that are not like conventional antidepressants or antipsychotics?

Dr. Shannon: It is a new paradigm, but it is also an old paradigm. I think it has its roots in shamanic medicine and shamanism. You are using an agent as a catalyst for deeper emotional change and transformation in medication-assisted psychotherapy.

MDMA, psilocybin, LSD, or even ketamine can be in that category of transformational tools, even though they are in different categories as medications. MDMA is an entheogen or an empathogen. It is not a classic psychedelic, whereas LSD and psilocybin are classic psychedelics. Ketamine is a dissociative anesthetic. But they all share an ability to have a profoundly altered interaction with yourself and reality.

Dr. Rountree: Were you doing that research before your psych residency, or during?

Dr. Shannon: That was before. That was as a general practitioner. I was working in a general holistic clinic learning acupuncture from Gladys McGarey while learning about homeopathy and Jungian depth psychology. I was just deeply curious. I actually ended up delivering a lot of babies while working at a county hospital. I hired a nurse midwife, and she and I did all the county deliveries for a year and a half at this rural remote hospital. I loved the magic of childbirth.

I found it all very intriguing. I was doing home deliveries, but realized at some point while driving in to the hospital at 70 miles an hour at three in the morning that this was not the lifestyle I wanted, and I really missed the mind and all these elements around consciousness. So, I went back to the Columbia program in Cooperstown, New York, did my psychiatry residency, and during that time I got interested in the creativity of children's mental health. I chose to do a child fellowship at the University of New Mexico, where I was able to dig deeper into Jungian psychology. It was one of the two programs in the United States that had any affiliation with Jungians at all. And we actually had a Jungian child analyst, one of two or three in the world, Mara Sidoli, who worked in Santa Fe, who we studied with. But there were also Jungian analysts in Albuquerque. I think because of my program's strong cross-cultural emphasis, the Jungian work really tied in well, and it fit well with my interests. So that was very synchronistic for my development.

Dr. Rountree: Did the predominant psychopathology model at that time place as strong an emphasis on pharmacology as it does today?

Dr. Shannon: Particularly in the area of children, it was really a transitional time. I think the adult field had gone through that transition somewhat earlier. But with children, there was really this emphasis on relationship, connection, family, and systems work. I think pharmacology had not

penetrated quite as much by then. We worked in a children's psychiatric hospital. We got to work with kids who were hospitalized for six and eight months, and that just does not happen anymore. Today, it is a three, five-, seven-day stay, medicate them, and move them on.

Dr. Rountree: Are you dismayed by what has happened in current child psychiatry as far as the tendency to immediately put every troubled child on multiple drugs?

Dr. Shannon: Yes, I am and always have been. I am upset about it for a couple of reasons. One is that the evidence is really inadequate. And two is that the safety concerns are rising. For instance, there is a recent study out of the state of Tennessee Medicaid population where they looked at 250,000 children on atypical antipsychotics that are being widely used in pediatrics now, and they found that the death rate was three to four times the control death rate.³ These are children who are dying not from suicide, but from the metabolic and cardiovascular illness caused by the medications. To my mind, that is just intolerable and unacceptable.

Dr. Rountree: Do those drugs even help? What are they doing to the child's mind and body?

Dr. Shannon: Well, they work for a short period of time, and that is the issue. There was quite a period of time when I was managing children who had been severely abused in residential treatment centers, and we found that these children would arrive heavily medicated out of a state hospital, and then in about four to six weeks, they would start their regression again. The medication would wear off in effectiveness, but it also rendered the child incapable of learning. We pretty quickly moved to a model that was more built on relationships and dietary changes and a lot of other things that were more sustainable in the long run.

Dr. Rountree: When you say "we," do you mean the people you were working with? Was this in your training, or was this in your practice?

Dr. Shannon: This was in the setting of a residential treatment program in Colorado. After my child fellowship, I moved to northern Colorado, where I have been for the past 30 years. Once there, I worked in a number of settings, including long-term residential treatment centers for severely abused children leading teams of dedicated staff.

Dr. Rountree: You landed in Fort Collins and opened a private practice?

Dr. Shannon: Well, I actually landed in Greeley, which is nearby. We lived in Fort Collins, but I liked the work environment better in Greeley. I was invited in to develop a child/adolescent treatment program at a freestanding psychiatric hospital where I was given the freedom to be creative. After doing that for a few years with a concomitant private practice, the medical director left, and I was called in to be medical

director. I did that for about four years, and at that time was learning acupuncture and brought acupuncture into the hospital setting. This was probably during mid-'90s.

Dr. Rountree: Their arms were open wide to letting you do that?

Dr. Shannon: They credentialed me in. In a rural environment you were known more by your work, then by a philosophy. I was the second physician in Colorado to be credentialed with acupuncture privileges in a hospital setting.

Dr. Rountree: Were you finding acupuncture to be helpful for mood disorders?

Dr. Shannon: I found it most helpful for treating substance abuse. We would have people coming into the hospital in acute withdrawal from cocaine, methamphetamine, and heroin. You could apply a few acupuncture needles, using the NADA (National Acupuncture Detoxification Association) detox protocol, and see incredible results. People would go from screaming, rabid, and aggressive to sleeping within 15 minutes. It was quite impressive.

Dr. Rountree: Wow. You can't help but wonder why that approach is not the standard of care.

Dr. Shannon: Well, I think there are now 1000 programs around the world that have adopted the NADA program, mostly detox centers. I think it is not so much about effectiveness, it is just not in our paradigm. That is the bigger issue.

Dr. Rountree: So, the individuals who approve the standards just cannot wrap around the concept?

Dr. Shannon: Well, you need an advocate, really. I was an advocate for it in our system, and I had credibility and a position of authority, so I could bring it in. But in other hospitals, if you do not have a physician or, in this case, a psychiatrist who really advocates for it, can teach about it, and help people to understand the benefits of it, then it is just going to be ignored.

Dr. Rountree: Weren't you one of the first graduates of the medical acupuncture course started by Dr. Joseph Helms?

Dr. Shannon: I do not know whether I was one of the first. When I was in Arizona in the '80s, Brian Berman went through the program with Helms, and that inspired me. It took until 1993 before I got around to it. I then went back and did a refresher course maybe 10 years ago. Actually, Gladys McGarey and her husband, Bill McGarey, brought in acupuncturists and taught the first medical CME course on acupuncture in the late '60s in Phoenix. Acupuncture was one of those things that was extremely pivotal in changing my understanding of human health.

Dr. Rountree: Was that based on the systems biology, as in the perspective of Traditional Chinese Medicine systems?

Dr. Shannon: Yes, that idea of systems biology and the five-element theory looks deeply at the cross-symptomatic foundations of imbalances and how, by treating one issue, a number of other issues could resolve that were seemingly unrelated.

Dr. Rountree: Do you think that course does a good job of communicating those concepts? Is that a training you would recommend for other doctors?

Dr. Shannon: Yes, I think it is a great course. I found it really helpful, positive, and practical. Joe previously worked through UCLA and now he teaches through Helms Medical Institute (<https://hmieducation.com>).

Dr. Rountree: You have been in practice for a long time, during which I am sure you have witnessed a dramatic evolution in thinking about how mood disorders should be treated. I am wondering what your perspective is on why so many people are affected by mood disorders, especially children. What is going on in our society? What do you think is the reason that more and more people are so profoundly unhappy or have really serious mood disorders, including anxiety, depression, and psychotic disorders?

Dr. Shannon: It is definitely a phenomenon. I think it is multifactorial. On one level, we have overstimulation, lack of sleep, and an inadequate diet that is overprocessed, with less vitamins and minerals, particularly magnesium, and less omega-3 oils.

I think we have a culture that is overstimulating, that is, increasingly disconnected, in which people often live very isolated lives. I think there is a lack of activity and exercise, a lack of contact with nature. I think we have too much obesity and inflammation in our bodies in this country.

And so really, in terms of my course of studying the human mind, the first probably 20 years was looking at psychology, depth psychology, and systems thinking. Then the next 10 years, which was more in the heyday of integrative medicine and the early onset of functional medicine, was understanding how our biology affects our mental health, whether it is inflammation, the microbiome, food sensitivities, etc.

In the past 10 years, I have really come to understand that there is a strong spiritual vacuum that exists in most people's lives and in our culture. That is what drew me back into psychedelics. I think, better than any avenue that I have encountered, perhaps other than long-term meditation practice, psychedelics really help to open up a spiritual perspective to reconnect with our whole being, the whole person, and the whole planet.

Dr. Rountree: That is an interesting point, because it brings you back around full circle. You started doing that work in the beginning, and then you dove into the medical trenches where you delivered babies and took care of ad-

dicted people and attended to the entire gamut of medical conditions. And now you have ended up exploring the psyche again. I believe the word you used in your lecture at the recent Scripps Natural Supplements Conference in San Diego was "psychonaut."

Dr. Shannon: Yes, it has felt like that. A psychonaut is someone who is drawn to and enjoys exploring the inner realms. I think I have always been a psychonaut. I have been a 40-year practitioner of meditation and have enjoyed long-distance running, quiet time in nature, and other forms that I think lend themselves to that exploration.

Psychedelics are really intriguing to me, and it is really my current focus. In the past nine months, we set up a nonprofit called the Psychedelic Research and Training Institute (PRA-TI) here in Fort Collins, and we are focused on delivering training to physicians and practitioners. Currently, it is ketamine-assisted psychotherapy, but that is really our best stand-in and proxy for psychedelic medicine at this point.

We are doing training and helping people to roll out a business in psychedelic medicine. We have been funded by philanthropists to deliver a program to help therapists interested in psychedelic medicine learn the practicalities of setting up and running a clinic.

We are engaging in CBD research. We published four articles in the past number of years, and are looking to undertake cannabis research as well. And we are also involved in MDMA research. I am one of the site principle investigators for the phase 3 study of MDMA-assisted psychotherapy.

Dr. Rountree: Do you get it through an IND?

Dr. Shannon: Yes, I have a Schedule I license, and we are in an FDA-approved study. It is amazing how difficult it is to get that FDA approval. That is why there is very little research done on cannabis. We have an interest in publishing on cannabis edibles, because it is a huge area of growth and current use in this country, and there are only six published studies on cannabis edibles in PubMed. This is an area of exploding use. People are using it for sleep, for depression, for anxiety, and for trauma. And we know very little about cannabis edibles. Because of the federal government, it is very difficult to do any cannabis research, frankly.

Dr. Rountree: With the ongoing legal changes, first making medical marijuana legal and then legalizing recreational marijuana, we have seen an explosion in the use of this particular psychoactive plant. What do you believe that profound popularity tells us about what is going on with the public psyche?

Dr. Shannon: The culture has realized that we were deceived by the war on drugs and that many illegal substances have great healing potential with manageable risk. For example, many people find cannabis to be an effective stress reliever. I think we have seen alcohol up close, so we know well the drawbacks that alcohol has. I think there are many people, particularly in the

younger ages, teens, and 20s, who are more drawn to cannabis than alcohol. I think we are also seeing this huge resurgence in Boomers, people of my generation, in their 50s and 60s, who are drawn back to cannabis for not just recreation, but also often for pain control, for sleeping, and for menopause treatment.

And I think there is a growing deep suspicion about big pharma. We are certainly seeing it in psychiatry now, where others are beginning to realize that long-term use of antidepressant medicines or other categories of medicines creates neurotransmitter adaptation and changes that make it difficult for people to get off these medications.

We have got 15 million people in this country on antidepressants for three years or more. That number has tripled in the past 15 years. There are huge numbers of people that would like to get off their antidepressant, but do not believe that they can. They have tried, and it has not been successful. We now see the risks of prescribed medications in better perspective.

Dr. Rountree: Is that because of the antidepressant withdrawal syndrome that I have heard you discuss in your lectures? It seems to be increasingly clear that this is a reproducible physiologic phenomenon. It is not just that the person felt better on the drug and then felt worse again after stopping it—there is actually something untoward going on neurophysiologically when the person suddenly stops the medication?

Dr. Shannon: Yes, that is right. We know that there are postsynaptic receptor sensitivity changes when you are on any of these agents that manipulate neurotransmitters. The body is always trying to adjust and accommodate through homeostatic mechanisms to keep our being stable.

Then this creates this ongoing dance between the medication, the receptor sensitivity changes, and the dose. That is why when someone gets stabilized on a psychiatric medicine, they are not good for the rest of their lives, they are good for a few weeks to a few months, and then they need to come back for their monthly “med checks” to have the dose changed and ultimately to have the medication changed.

When you treat as many people as I do who are undergoing ketamine-based treatment with treatment-resistant depression, you hear all about people who have been on 20 different psychiatric meds over the past 20 years. Some of them have been helped a little. Many of them have been helped not at all. And they have not found good relief. As many as a third of people who are treated for major depression end up having treatment-resistant depression.

Dr. Rountree: When you say treatment-resistant, do you mean resistant to conventional pharmacotherapy?

Dr. Shannon: Yes, they are resistant to antidepressant medication. That is what that implies. What intrigues me the most about this new development in psychedelic medicine—whether we are talking about ketamine, MDMA, or psilocybin—is that we are looking at treatment that may occur once, twice, or three times in the person’s life, and that is it.

We do not have to worry about ongoing maintenance and suppression of symptomatology and postsynaptic receptor sensitivity changes. We are talking about something that is transformative for the person.

Dr. Rountree: That would not be a good model if you are in the business of selling pharmaceuticals.

Dr. Shannon: Yes, big pharma has no interest in this. The way they see it, getting someone on antidepressants is an annuity model of income for them—ongoing maintenance for a long time.

Dr. Rountree: Yes. I saw a guy a couple of weeks ago who had been a very successful businessman. But then he made some bad decisions for which he suddenly lost a lot of money. This threw him into a terrible depression. He saw a psychiatrist who spent about five minutes talking with him before starting an selective serotonin reuptake inhibitors, after which his condition deteriorated. He went back to the psychiatrist and told him, “I am getting worse.” And the psychiatrist said, “Well, maybe you need to increase the dose.” And he just kept pushing it and pushing it with no improvement. The psychiatrist finally ran a genetic test for drug-related SNPs, but the information was not particularly helpful. My client said they just kept going down the exact same path of trying one pharmaceutical after another, despite the fact that he was not responding to any of them.

Dr. Shannon: I see that so much, Bob. This is a very narrow path in modern psychiatry, which is psychopharmacology. When all you have is a hammer, everything looks like a nail. As a result, psychiatry has lost much in the way of interpersonal skills and focus. The biopsychosocial-spiritual model of human existence has been left behind. My profession ignores this whole spiritual realm almost entirely. Psychedelics have such a spiritual power to awaken and there is such a deep spiritual need for people in our society at this time. I think that is why Michael Pollan’s book *How to Change Your Mind* has been so popular and resonant, and why the interest in psychedelics is resurging after 50 years.

Dr. Rountree: One thing I have heard you say about mainstream psychiatric drugs is all they really are attempting to do is suppress symptoms. You said that you want to use something that helps people access their psyche, instead of suppressing their psyche?

Dr. Shannon: Yes. Our current psychiatric medications do not cure anyone. They suppress symptoms. They control symptoms. It is a suppressive model that often requires increased medication use over time. What we are looking at is a model that is more evocative of the psyche and helps people to understand deeper conflicts, deeper traumas, and resolve them.

There was a recent editorial in *JAMA Psychiatry* looking at the data from the phase 2 studies of MDMA-assisted psychotherapy for the treatment of post-traumatic stress disorder (PTSD),⁴ and

they said if this pans out, we may be looking at the first pharmacologically mediated cure in psychiatry, and that we treat people with PTSD with MDMA-assisted therapy for three sessions, and a high percentage of them no longer have PTSD and do not need any kind of ongoing maintenance or pharmacology.

Dr. Rountree: Is that why the title of your recent talk at Scripps—which was excellent, by the way—was “Psychedelics Will Change Mental Health Care”? This is a profound thing to say.

Dr. Shannon: I think they are, and I think we are abandoning the monoamine model, which is that norepinephrine, serotonin, and dopamine mediate all psychiatric illness. If we are only smart enough as psychiatrists, we could cure all these illnesses. That was really the premise and promise of pharmacology back in the ‘80s, when I launched my career. There was excitement that medications such as fluoxetine (Prozac®) and risperidone were going to cure mental illness. By the time we reached the year 2000, we would be routinely curing people with these medications. And really, what we have seen is just the opposite, that psychiatrists are using more and more medications. At one point recently, antipsychotics were either the number-one or number-two drug category in terms of sales in the United States.

And this model does not cure people. We have more mental illness now than we did then. Depression is going up rapidly in children and teen populations. Suicide has risen 30% in the past 20 years. We are really at a crisis point, and no prominent researcher in neuroscience holds the serotonin theory of depression anymore. This is really being rapidly abandoned.

We are moving to a model of network and hubs in brain connectivity. We are moving to a model of the connectome in the brain. This is a model that medications really are not that relevant for, because we cannot target neural hubs with medication. We cannot target specific pathways. We can do that with neurofeedback, we can assess that with quantitative electroencephalograms (qEEGs), both of which I am a big fan of. Psychiatry is really the only specialty in medicine that does not study its target organ at all. And we need to change that.

Dr. Rountree: What do you mean by saying we do not really study the brain? Can you be a little more specific?

Dr. Shannon: If you come in to see a psychiatrist, most psychiatrists will not even order blood work. They talk to you for a bit, sometimes not long enough, just like the patient who you mentioned. Then, based on their experience, subjective impressions, and the Diagnostic and Statistical Manual and some checklists, which are really just simple superficial phenomenological collections, they make a diagnosis and offer a suggestion for a medication. Currently in psychiatry, psychiatrists are more like gardeners than botanists in terms of diagnosis. At this point, psychiatry is the easiest specialty in medicine to be bad at, and the hardest specialty in medicine to be good at.

What I mean by studying the target organ is that we do not assess the brain. There is no routine assessment. If you go in to

see someone, and you think you have a blood disorder, you will order blood tests. If you think you have liver disease, you order liver tests. If they think you have meningitis, you will get a spinal tap. But in psychiatry, there is really no objective testing at all. But we know that qEEGs and brain mapping are really useful at helping identify neural patterns and connectivity.

For example, ADHD is kind of a wastebasket diagnosis as it can be any number of things. When we look at it with a brain map, we see at least six different clear phenotypes that are very different clinically and respond to different treatment recommendations. I think psychiatry has got to move in this direction.

Dr. Rountree: Do you ever get SPECT scans on your clients, like they do at Dr. Daniel Amen’s clinics?

Dr. Shannon: A SPECT scan costs 10 times as much as a qEEG. You cannot have a SPECT scanner in your office unless you have a practice like the Amen Clinics. But the average psychiatrist, the average physician, can have a qEEG system in their office.

The qEEG has a much more refined temporal profile than the SPECT scan. It goes down to milliseconds. The SPECT scan profile is in seconds. And it has about the same temporal or spatial resolution with LORETA qEEG as you do with a SPECT scan, and you do not have any invasive elements. It is a noninvasive test, as opposed to the SPECT scan, which requires the injection of a radioisotope. I could probably list 10 reasons why I think that the qEEG is far more the future of psychiatry than SPECT scanning is.

Dr. Rountree: Do you think qEEG scans are something that general practitioners could use, or is it more of a specialty thing?

Dr. Shannon: I think, for example, if you are a pediatrician, and you are seeing 20% of your practice is ADHD, I think you could make use of it. If you are seeing a lot of depression in your practice, and you want to separate out what is going to respond to medications and what is going to respond to psychotherapy and what is going to respond to other things, I think it has a role. But clearly, for psychiatry, I think it has got to be part of the future.

Dr. Rountree: Do you think every psychiatrist should use this, or some version of it?

Dr. Shannon: I think we need more research on it. I just presented on this at the University of Colorado. We had a program and I presented on the future of pediatric mental health. I presented some of the research that is going on now with real-time fMRI neurofeedback, where researchers are down training the amygdala or other neurologic hubs. They are training specific neural hub connectivity in ADHD. So, I think it is coming. I love the saying that the future is already here: it is just unevenly distributed.

I think psychedelics are part of our future, because they are going to move us from this supportive model to this evocative

model, where we are really honoring and valuing the psyche in a much deeper and more profound way, and honoring our spiritual interconnection with our planet and our community.

Dr. Rountree: What is the age group for whom it is appropriate to use psychedelics? I assume you would not do this in young children?

Dr. Shannon: No. I think right now this is in the adult realm. I think it is coming based on the breakthrough therapy status and what we have seen in our phase 2 results, which are very promising. When MDMA is approved by the FDA for release, then we quickly move into later phase 3 and phase 4 explorations in teenagers for FDA safety data. I think that is coming probably within a year to a year and a half, based on what we are seeing now.

There is testing going on now at Yale and the University of Minnesota on ketamine in teenagers with major depression. I think that is going to be a realm that we will be moving into in the next few years.

Dr. Rountree: We certainly have teenagers who are addicted to all kinds of substances, so what would be the objection to trying an approach that might have a long-term impact, as long as it is done in a controlled environment?

Dr. Shannon: Yes, and we are not using this in an addictive way. In fact, when used therapeutically, ketamine has been shown to be antiaddictive in recent research.

I think it is really this different model that we are looking at—which the core of addiction is often spiritual malaise and a sense of disconnection. There is a book, *Chasing the Scream*,⁵ by Johann Hari, in which there is a chapter titled “the opposite of addiction is connection.”

Dr. Rountree: Wow! This reminds me—not long ago, I saw a wonderful documentary, “Won’t You Be My Neighbor,” about Fred Rogers, who was masterful at human connection. I was blown away at how much insight he had into human nature, especially regarding children. He talks about being deep and simple versus being complex and shallow.

Dr. Shannon: Oh, yes. I saw that movie too. Certainly that is what kids need growing up. We know this from attachment theory and all the things we know about development. When you look at people, at their health at midlife and physical health and mental health, the best predictor we have of that is not their wealth, smoking status, cholesterol level, their education, or anything like that. It is probably their Adverse Childhood Experience score. That measures how much trauma they experienced growing up.

The Harvard Mastery of Stress study of Harvard students in the 1950s, which followed them for ~40 or 50 years, found that the best predictor at midlife of physical health was not smoking, weight, IQ, education, exercise, or any of these things. It was how close you felt to your mother and how close you felt to your father growing up.

Dr. Rountree: That is really profound.

Dr. Shannon: It is profound, and it is also simple. In ways, love is life’s greatest healer.

Dr. Rountree: Mr. Rogers would just be quiet for a while.

Dr. Shannon: Let it sink in.

Dr. Rountree: Let that one sink in... Before we end this part of our discussion, I do want to make sure we talk about the default mode network. That is a really fascinating concept that ties in with what you are saying about patterns of electrical activity in the brain and their relationship with the connectome. Could you help us understand what that network is exactly, and how that plays a role in all that you are talking about?

Dr. Shannon: I think it ties a lot of it together. The default mode network is a collection of circuits and hubs in the brain that sort of is the closest approximation of our ego or self. It has connections with the anterior cingulate, the prefrontal cortex, and a range of other centers in the brain.

Basically, when we wake up from sleep or if we are knocked unconscious and we come back, it is sort of what reboots up to tell us who we are, what we are doing, the kind of things we need to do, what we are worried about, our biases, our prejudices, our preferences, our failures, and our insecurities. It is really our inner narrative. It is our context.

What we now know that when the default mode network is amplified, people become depressed, obsessional, and even totally dysfunctional. And when the default mode network becomes dialed down—which occurs with meditation—it often results in a sense of peace, tranquility, ease, and positive mood.

Dr. Rountree: So you need your default mode network to have just the right amount of functioning?

Dr. Shannon: Yes. You need enough, but once we start becoming more self-referential, self-focused, self-obsessed, and getting locked into obsessional, particularly, negative obsessions about ourselves—such as “I am not a good person. I am a horrible person. I am a failure. Nobody likes me. Look at all these events in my life where I have failed people”—these circuits start running over and over, and they take over our life.

It is kind of like a computer, where you have too many apps running or too many windows open. It becomes a drain on energy, and you cannot do any real work. You are paralyzed.

Dr. Rountree: Can you actually see this when you do a qEEG? Does the brain light up a certain way?

Dr. Shannon: Yes. These patterns become amplified. And the best thing we have seen to down train them is meditation. Dr. Richard Davidson, PhD, at the University of Wisconsin, studied Tibetan monks and found out that these effects were dose related, and that monks who had 30,000 hours of

meditation did it better than monks with 10,000 hours. Actually, if the average person begins to meditate, within a few months you can see the effect on the default mode network.

Dr. Rountree: What happens to this circuitry when a person takes a psychedelic? Is the effect different depending on whether it is ketamine versus LSD versus psilocybin? Do they all have the same effect, or are they all slightly different?

Dr. Shannon: They are slightly different. But one thing that LSD, psilocybin, and ketamine share is they profoundly decrease the default mode network. Ketamine is a little different in that it is dissociating the rest of the brain at the same time. But the default mode network is turned off. Neuroplasticity is enhanced, and mood seems to benefit.

With the classic psychedelics, you are fully awake and conscious, but this filter that you have created for yourself through your lifetime is removed, and you get to see reality and your relationships and your life in such a different way, unfiltered by these distortions that we create for ourselves. It is almost universal.

A person like the Dalai Lama may not be burdened by this overload of the default mode network, but the rest of us have this pretty consistent filter that we evaluate things and see things through. Psychedelics and ketamine really pull that away and give us a brief glimpse of the world, ourselves, our life, and our relationships without that filter.

Dr. Rountree: Do you think that a near-death experience has the same kind of impact?

Dr. Shannon: I think it is very similar. The results from a near-death experience are very similar to what we see with a mystical experience with psilocybin or ketamine. People often have this profound lasting change in their relationships and spiritual awareness. It is a change in relationship of increased reverence, increased appreciation, increased love for our fellow human beings, a generosity of spirit, and a desire to serve. And this is what we see with near-death experiences. Unfortunately, with near-death experiences, some percentage of the people die, so I cannot recommend it as a treatment.

Dr. Rountree: For sure, it is a risky strategy for expanding one's consciousness. However, many of the people who do come back from the edge of death have something to teach us.

Dr. Shannon: Yes, I think so. And what they tell us when they return is that they had a dramatic shift in their life, their understanding of the world, and how they see themselves. They are not the center of the world, but just a nodal point in an interconnected world. Service, generosity, and love become their central focus, not selfishness, fear, and greed.

Dr. Rountree: Have they actually done studies on people who have had near-death experiences, such as EEGs or functional brain scans? That seems like a fruitful area of study.

Dr. Shannon: There has been a lot of study, of follow-up in the aftermath. Most of these people are often in an ICU or in an accident or something, and so they are not study candidates. There has been one researcher, Dr. Pim van Lommel, MD, out of the Netherlands, and others have done long-term follow-up studies.

Of the people who have had these encounters with death, it looks like maybe 20% of people who come back and survive it have a near-death experience, and there are a number of different factors that happen with that. But the people who actually have the near-death mystical experience, those are the individuals who have the profound life-altering changes in their perception of themselves and the world and their sort of spiritual awakening. People who have been close to death without the mystical elements do not experience these profound shifts in perspective.

Dr. Rountree: It seems like an area that psychiatrists would be very interested in studying.

Dr. Shannon: Yes, and I think that is why psychedelics and ketamine are a much safer stand-in for this mystical phenomenon and in a more predictable way. But people can also get this profound shift going on pilgrimage, with travel to a Third-World country, in meditation retreats, or deep connection with nature. There are many different ways that people have these profound transformational events.

Dr. Rountree: And these transformational events are all impacting the default mode network?

Dr. Shannon: Well, I think they are similar in that they jar people out of their crystallized view and open up a new perspective.

Dr. Rountree: This is profoundly different from the concept of a mood disorder resulting from a deficiency of serotonin or GABA or dopamine.

Dr. Shannon: Well, I think that view is too simplistic. It is not ecologically sound in terms of our biological systems. And I think it also really dishonors our body-mind-spirit, and who we are as people. That is why I am so committed to exploring and researching and supporting this new paradigm.

Dr. Rountree: There is a quote I love from Rumi, the Persian poet. He was roughly translated as saying, "Beat not your drum under a quilt, plant like brave men thy banner in the midst of a desert."

Dr. Shannon: Hear, hear.

Dr. Rountree: Yes, hear, hear. Speaking of drum beaters, when I was in college, I remember reading the works of John Lilly, MD, PhD, and I wondered whether you knew much about his early work on float tanks. One of his early books from the 1960s was called *Programming and Meta-programming in the Human Biocomputer*. It has gone

through many reprints and is still available. The book was a systematic description of his experiments after taking LSD and other psychedelics and then getting into a float tank with complete sensory deprivation. I wonder whether you are familiar with any of his research.

Dr. Shannon: Yes, very much so. Dr. John Lilly is one of my early heroes, starting with his work in communication with dolphins. He was a brilliant physician, and then began work with float tanks and sensory isolation, and then moved on to work with ketamine. He actually developed an abusive relationship with ketamine, but managed to move past that. He became convinced that ketamine had some insights and benefits to offer people. I think his life is a little bit of a testimony that ketamine can be used abusively or inappropriately.

I think all of these things need boundaries around them, and I think that is one thing that ritual and ceremony can do with psychedelics, and really with all of this deeper work. Ritual and ceremony creates context, and it creates a spiritual framework. It helps you use it in ways that benefit ourselves, others, and the planet so that you do not go down an abusive or narrow path.

Dr. Rountree: That is the perfect segue into my final question for you. What is the interpersonal role of a psychiatrist in this new paradigm that you are talking about? In the psychiatry training I took in medical school, the goal of the therapeutic encounter was all about having the therapist act completely neutral toward the client—almost to the point of becoming invisible. The Freudian notion was that you should be a blank slate onto which patients can project their unconscious issues—their anxieties or their neuroses. To that end, I recall an experience I had years ago, when I referred one of my clients to a psychiatrist. Later, when I asked the client what the psychiatrist told him, his quoted reply was, “Your time is up.” That kind of interaction sends the client a message about underlying power dynamics. The message is, “I am okay—I am the one that is healthy, and clearly, you are not.” What I have heard you talk about is an entirely different dynamic. It is about the therapist being a container or a guide rather than the inscrutable sage.

Dr. Shannon: Well, maybe we can make an existential joke about it in that all of our time is up fairly soon. I think one of the simplest ways to say it is that I think we need to be a supportive and inspiring midwife for people reaching the full potential of their body–mind–spirit.

Dr. Rountree: How do you train people to do that? How do you get this concept of spiritual midwifery across to new doctors? Aren’t medical students mostly worried about prescribing the right dose and not harming the client?

Dr. Shannon: That is a good place to start. But I think we need to have an understanding of psychology and supportive psychotherapy, and even depth psychotherapy. That advice relates to the needs of our mind and spirit.

On the body side, I think we need to understand human health, diet, and nutrition, the gut, inflammation, and basic integrative medicine. And on the spiritual side, I think we need to understand each person’s spiritual journey. I think we need to go on our own personal journey ourselves, which we can only take people as far as we have been. My strong hope is that in the future, psychiatry embraces the spiritual midwifery aspect of our healing task.

I like the clinical pearl that we can only diagnose depression in those patients who are more depressed than we are. I think it is really about understanding those interrelated realms, and it is obviously an educational path. I think we are coming to understand that people need to have some sense of their own journey and their own spiritual self to benefit in this realm.

Dr. Rountree: Do you think the residency programs are showing an interest in moving in that direction and teaching their residents how to do that?

Dr. Shannon: I think residencies are a bit caught in the old paradigm. I think there is institutional inertia. But what I see is that young people, medical students, residents, and early career psychiatrists, are really hungry for this information. Psychedelics captivate many of them. I think this is a sign of moving from one paradigm to another, and I think we are at a transition point.

Dr. Rountree: If you were talking with a medical student now or someone getting through residency who wanted to know how to go down this path, what advice would you give? What directions should they go with their training?

Dr. Shannon: Well, I think they need to go through their own psychotherapy. I think they need to have a good understanding of diet and nutrition and integrative medicine. And I think it would be useful for them to understand depth psychology and psychedelic medicine. Most of all they need to understand themselves deeply and embrace their being with compassion. At this point, an excellent avenue to explore this more deeply than meditation or conventional psychotherapy is through ketamine-assisted psychotherapy. That is really where I think the cutting edge is right now in mental health training.

Dr. Rountree: And the good news is that it is legal?

Dr. Shannon: It is legal, and it is available. And it is something that I really recommend to people in terms of furthering their process as a healer in mental health.

Dr. Rountree: I do not mean to knock my fellow professionals, but what I have seen is that many of these ketamine infusion programs are administered by anesthesiologists or other nonpsychiatric specialists. I cannot say that I have found it very helpful for a patient who has a chronic psychologic disorder to just go in and get the ketamine by itself, and let that be the end of the story. The total experience has to be in the context of everything that you are outlining.

To Contact Dr. Scott Shannon, MD

Scott Shannon, MD

Email: scott@wholeness.com

Website: www.pratigroup.org

Dr. Shannon: Yes, that is called ketamine-assisted psychotherapy. This is really a different model than merely an infusion. That is simply a pharmacologic intervention. That is Spravato® (esketamine), the new Janssen ketamine-based medication. That is the old paradigm, where it is about biochemistry alone. With ketamine-assisted psychotherapy, we are using the medication as a catalyst for deeper change and exploration.

Dr. Rountree: If someone wants to follow your research or come and work with you, what is the best avenue for that? Do you have a website?

Dr. Shannon: Our nonprofit is (www.pratigroup.org). We are providing training and seminars for professionals, and that is really what most excites me these days.

Dr. Rountree: Is that an online training, or do they need to come and see you in Colorado?

Dr. Shannon: That is both. We have an in-person program now and we have a number of other different options for learning that we are going to be rolling out soon including distance learning options. We are currently offering a three-day program in ketamine-assisted psychotherapy, and later this year we will be doing two- and four-day trainings in the business of psychedelic medicine through our nonprofit. Our group is committed to speeding the transition to the evocative paradigm in mental health. We need it now!

Dr. Rountree: You are downplaying the fact that you have written quite a few research articles in the peer-reviewed literature as well as several popular books and textbooks. I would certainly suggest to our readers that they track down your many wonderful writings.

Dr. Shannon: Well, thank you, Bob. The one I am most proud of is the textbook on mental health. Actually, my son

Noah, who is a journalist, helped me to write it. It is *Mental Health for the Whole Child*.⁶ I think that provides my best thinking on the body–mind–spirit treatment of kids, teens, and young adults.

Dr. Rountree: Terrific. Well, I do not want to take up any more of your time. I really appreciate you sharing all this information. I think this approach is really profound, and I also believe it is going to change mental health care.

Dr. Shannon: Well, I share that hope Bob. ■

References

1. Weil A. The Marriage of the Sun and the Moon: A Quest for Unity in Consciousness. Boston: Mariner Books, 1981.
2. Weil A. The Natural Mind: A New Way of Looking at Drugs and the Higher Consciousness. Boston: Houghton Mifflin, 1972.
3. Ray WA, Stein MC, Murray KT, et al. Association of antipsychotic treatment with risk of unexpected death among children and youths. *JAMA Psychiatry* 2019;76:162–171.
4. Bedi G. 3,4-Methylenedioxymethamphetamine as a psychiatric treatment. *JAMA Psychiatry* 2018;75:419–420.
5. Hari J. Chasing the Scream: The First and Last Days of the War on Drugs. London: Bloomsbury, 2015.
6. Shannon S. Mental Health for the Whole Child: Moving Young Clients from Disease and Disorder to Balance and Wellness. New York: W.W. Norton & Company, 2013.

Scott Shannon, MD, is the president and founder of Wholeness Center, in Fort Collins, Colorado, USA, an innovative clinic providing cross-disciplinary evaluation and care for all mental health concerns. He is also an assistant clinical professor of psychiatry at the University of Colorado-Children's Hospital in Denver, Colorado, USA. **Robert Rountree, MD**, practices family medicine in Boulder, Colorado, USA.

To order reprints of this article, contact the publisher at (914) 740-2100.