Ask The Expert - Neurobiology of Addiction - Beyond the Basics - Webinar Transcript

Welcome to the National Criminal Justice Training Center webinar Ask the Expert: Neurobiology of Addiction-- Beyond the Basics, presented by Dr. Anjali Nandi. My name is Greg Brown, and I will be moderating for you today. Before we begin the presentation, there are some items I need to go over.

Today's presentation is part of a webinar series for the Bureau of Justice Assistance Comprehensive Opiate, Stimulant and Substance Abuse Program in the Indian Alcohol Substance Abuse Program for Coordinated Tribal Assistance Solicitation Purpose Area 3. Grantees, non-grantees, focus on responses to alcohol, substance abuse, and related crime. This project is supported by a grant awarded by the Bureau of Justice Assistance, Office of Justice Programs, US Department of Justice. The opinions, findings, conclusions, or recommendations expressed in this webinar are those of the contributors and do not necessarily reflect the views of the Department of Justice.

I'm pleased to introduce you to our presenter, Dr. Anjali Nandi. Dr. Nandi is an associate with the National Criminal Justice Training Center of Fox Valley Technical College. She's also the chief probation officer for the 20th Judicial District for the state of Colorado. Additionally, Dr. Nandi is a published author, having co-authored nine books.

Justine Souto will be joining us as a panelist today. Justine is a program manager at NCJTC. She oversees the Tribal Justice System Planning Project, which helps grantees plan and develop responses to address justice-related issues. She has experience working with tribal justice systems, grant management, and interpersonal communications.

My name is Greg Brown, and I will be moderating this webinar for you today. I'm a program manager for NCJTC, and prior to coming to NCJTC, I worked in probation for about 30 years. Thank you everyone for joining us today, and Anjali, the time is now yours.

Excellent. Thank you so much and welcome everyone. We have a really exciting session today. I'm excited because this is an Ask the Expert session, meaning it really relies on your questions. We have delivered multiple webinars on this particular topic. And some of the feedback that we keep getting is oh my gosh, we want some more, we have very specific questions. And so this whole session is really going to be driven by your questions.

I will just start by laying some foundations. And my hope is that by the end of this, you'll have a deeper understanding of addiction in general, some understanding about the brain and the impact on the brain, and then how we make some decisions regarding the treatment of addiction, how do we help prevent relapse, and what are some effective strategies to really support long-term behavior change. But I'm going to say again that this is a lovely small session compared to what we usually have on these webinars, so I'm really hoping that you will stay engaged by putting in questions into the question answer box, and making sure that your questions get answered. So I'm really looking forward to this.

So just to really lay a foundation-- and I think you all know this, because many of you have attended multiple webinars that we've done on this topic-- but addiction is primarily a brain disease, meaning it is not a question of someone not being strong enough or having enough willpower to be able to overcome an addiction. Yes, we do make a choice to start drinking or to start using, but once we have developed a true addiction, we actually have had brain changes, brain and body changes, that then perpetuate the addiction. And it re-prioritizes in our brain how important our substance of choice is.

So it's a chronic illness, it's not just something that we can deal with in an acute sort of fashion, it recurs. And it's something that oftentimes, not for everyone, but often can be something that we relapse into. So meaning that I can try and make some changes, and then for some of us, we will slip back. So that's sort of a normal process. Again, it doesn't happen to everyone, but just something to know, so that when you have folks on your caseload, or you're working with people who have addiction and they do relapse, you know that it's not because they're not trying hard enough, or those kinds of common things that come up in our brain.

It's also characterized by craving, and really paying attention to, kind of, where is my next fix coming from? And we call that seeking behavior. And this is as a result of some brain changes. And then we persist in this behavior despite some pretty significant negative consequences. And interestingly enough, increasing the negative consequences is really not helpful to prevent addiction. And we'll talk about what is helpful. And then we call a behavior an addiction when the behavior is harmful. So by some measure, it is creating harm, and it falls into certain criteria, and these criteria are diagnosable.

So let's just really quickly talk about the brain. We have sort of the center of the brain, which is our limbic system. Now limbic system has something called the nucleus accumbens, the amygdala, the hippocampus, all of this forms, sort of our limbic system or our lizard brain. It's our old brain. It is in charge of reward, but it's also in charge of quick reaction, impulse control, those kinds of things.

And then we have our frontal cortex. And the frontal cortex is our thinking brain, our executive functioning. And unfortunately, what happens when we get addicted to substances is the substances really prioritize attention in this limbic system and create a disconnect in the transmission of information between the limbic system and the frontal cortex. So essentially, you end up with a limbic system that's a little bit of a rogue system. It's really focused on impulse control, and has a hard time kind of putting the brakes on, because the brakes are provided by the frontal cortex. So we end up with a go pedal, but not really a brake pedal, so to speak.

So when we talk about addiction, it's helpful to understand what exactly is happening. Meaning why is it that we can get so strongly addicted to substances like cocaine and meth and heroin and alcohol, and have such a hard time with those substances, but not get addicted to other things like exercise-- or maybe some of us are addicted to exercising. But what is the difference? And can we really understand it? And food is such an easy example to use, because I think many of us can understand this craving for food, and this need to eat. And yet, it's not even in the same ballpark in terms of the impact that something like cocaine has, versus something like chocolate has.

So on your screen, what you're seeing is dopamine. And dopamine is a neurotransmitter that is implicated in addiction. It's not the only neurotransmitter, but it's a really important one. Because dopamine is impacted tremendously, no matter what the substance of choice is. So essentially what you see on your screen is you have a neuron that's sending a signal to the next neuron. And in the middle you have something called a synapse. And in the synapse that you have neurotransmitters that take the electrical message, convert it to chemicals, and then fit into receptor sites. So at the bottom, you'll see dopamine receptor sites.

What happens with drugs is they do several things. When we take in drugs from outside-- so we call it exogenous-- they mimic dopamine. So they essentially flood this synapse with a ton of dopamine. And so our body doesn't exactly know what to do, where we've never experienced this much dopamine in our lives. In fact, drugs can increase dopamine by about tenfold, meaning 10 times the amount of dopamine that we have ever experienced in our lives. And that will happen here, right in the synapse. Drugs can also impact receptor sites, meaning they can reduce the number of receptor sites or plug the receptor sites. So there's a lot of these changes that happen in the brain as a result of ongoing use of substances.

So exogenous dopamine is dopamine coming from the inside. It has a huge impact, much, much bigger, something that we can never create naturally. And natural dopamine is called endogenous dopamine, meaning dopamine that we are creating. It's also helpful to understand that craving, craving for alcohol or craving for different drugs, is significantly more than craving for food, for example, or even water. And in different webinars, we've spent some time talking about that.

Another piece that's helpful to understand is that because we are using substances externally, it creates significant changes to the way our bodies metabolize and even produce neurotransmitters. And because of these changes, it is helpful to sometimes use medication in addition to counseling in order to treat someone who has a substance use disorder. And we call this, when we use particular medications to really help with craving and help with long-term sobriety, we call it Medication Assisted Treatment.

And just to be clear this medication, is because of a substance use issue. I'm not talking about medication that's provided for mental health reasons. This is specifically medication that's used in a combination with counseling to support somebody with long-term sobriety. And we have a lot of research on the use of MATs with treating opiate addiction and alcohol addiction. Just so you know, MATs are FDA approved for both alcohol use disorders and opiate use disorders. There are several different drugs that have been approved. So for alcohol, you may have heard of campral or antabuse or naltrexone. For opiate use disorders, buprenorphine or suboxone, methadone, naltrexone. Those are some examples, maybe you've heard of some of these in your work.

So let's talk about a couple of different skills to be paying attention to. We've talked about medication for a second. Let's talk about the conversation that we have in order to prevent relapse. Oftentimes, relapse is driven by something that happens a long time ago. And by a long time ago, it could be a week ago or it could be several months ago, but it oftentimes starts with something off, a lifestyle imbalance is what we call it.

So after the lifestyle imbalance, there's a cascading effect that results in us being presented with a high risk situation. And then if we have no coping responses, we result in a relapse. And we spent a whole webinar breaking this down and talking about it in a lot of detail. But what really it means is we pay attention to restructuring people thinking every step of the way. And by that, I mean we're really trying to help people identify some unhelpful thinking that perpetuates their addiction. So examples of unhelpful thinking might be, one is not going to hurt me, I can get away with it, I deserve to use, It's not going to be that bad, I'm not going to get caught.

Those are some of the thoughts that get us into trouble. And I know colloquially sometimes we call it stinking thinking, or we have different ways of talking about it. But essentially it's attending to those thoughts, noticing the difference between that, what the feelings are, stopping the thoughts and challenging them, and even working on replacing the thoughts and then managing the discomfort. So we call that emotional tolerance. Managing the discomfort around experience and craving, or just really, really wanting a substance, but knowing that I probably shouldn't, and how do I tolerate the stress that comes with that, the anxiety, the discomfort? And again, we spent some time on that, but if you have questions, please don't hesitate to put it in the question and answer box.

Emotional management is such a big piece of developing the skills to manage addiction, and all that comes with it. And it starts with a little bit of emotional awareness. Like, oh, this is the feeling. This is naming the emotion. This is what's happening for me. Tolerating it, which is what I just talked about. And then noticing, how does this emotion drive my action? Should it? Shouldn't it? Do I I need to kind of take a breath. And if I do need to, what are some self-regulating techniques that I can use, whether it's breathing or grounding or feeling my feet on the ground. What are some techniques for really managing my emotion?

When we're talking about addiction, we also need to develop some social skills, and really continue to support that. Because developing strong social support is one of the key ways of preventing relapse in the long run. And unfortunately, when we get mired in addiction, we end up changing our social environment to an environment that supports our use. And so there's some change that has to happen sometimes. And I'm not saying for everyone, but sometimes, there's a change to social support. In fact, in one of the research studies, social support, positive, pro-social, sobriety supportive social support was one of a strong predictors of relapse prevention. So something that's really important to kind of pay attention to.

And so when we're talking about social skills, we're talking about awareness of others. Empathy, whether it's understanding them cognitively or understanding the emotion that they're having. And then relationship management skills, whether that's having conversations or being able to navigate conflict, feedback, being assertive, saying no, which is boundaries. How do I say no when a friend is asking me to engage in high risk behavior? So those are some of the skills that are really important to be paying attention to.

And then, of course, whenever we talk about addiction, we have to talk about motivation. And the reason we do this is because dopamine, which we've talked about already, is implicated in us having levels of motivation to even get out of bed, or learn something new, or try something differently, or even continue through a struggle, meaning persist through something that's really difficult. So building motivation is incredibly important when, let's say, I've been using substances for a while, and so I'm used to getting dopamine from the outside. My body stops producing dopamine. And so one fine day when you say to me, I'm sorry, you need to stay sober now, I have no dopamine that's being produced by my body. And therefore, no motivation at all.

And so while my body tries to figure out its production of dopamine again, I need support from the outside in building motivation, which is why it's so important that we support people with motivation. And maybe you've heard of motivational interviewing. It's extremely helpful in attending to people's motivation. But essentially what building motivation means is you start by identifying, what exactly are we talking about? Making sure that people are uncomfortable and want to make a change, exploring their ambivalence, that kind of feeling two ways about it. Utilizing friction, and that means making what you want to happen stronger, and what you don't want to happen more difficult.

So I'll use a very silly example. If I'm trying to clean up my eating, and I don't want to eat cookies, and I know that I have cookies in the house, increasing friction would be putting the cookies really high up, like on the top shelf. Because I'm a short person, I'm only 5'4''. And so anything that's above 5'4'' or 5'6'', I have no clue that actually exists in the world.

So utilizing friction means making things that I want that are not good for me even more difficult to obtain. So I put it on the very top shelf. That means that I have to now get a stepstool from the garage, et cetera, and it's just a bit too difficult. And so then I reach for something healthier. So that's a very silly example, but an example of utilizing friction.

Building motivation is also about getting the clients to argue for change. Using reward, sometimes natural rewards, talking with clients about what feels like rewards for them, or even extrinsic rewards, like gift cards. Or if you have no funds, just even praising the person, drawing up a certificate for them. We do that a lot when we're low on funds, and we can't afford to give anything to the client, we just mock up a certificate for them for two weeks of sobriety, et cetera. And they get so excited. So we celebrate their successes. So those are some things to pay attention to.

So I feel like I've raced through what could have been probably three hours worth of content, but I really just want to get to the questions. So Greg, could you help facilitate some of the questions that are coming from the audience, please?

So now we're going to begin the question and answer portion of this webinar. We had a bunch of questions that came in as part of registration, so I'm going to start with one of those. So one of the questions was, what is the time frame for the brain to heal to the point to sustain recovery? Are there parts of the brain that cannot be healed?

That's a great question. So-- and I hate to provide this answer, but it depends. It depends on how long you have been using for. Because the longer you've been using-- and let's say you've been using a particular substance, whether it's meth or cocaine or heroin, let's say you've been using it not only for a really long period of time, but also quite intensely, then you've done some pretty significant changes to the brain. Is it recoverable? Yes, absolutely. It just takes a lot longer than somebody, let's say, who's been using for three years.

There's a website by Daniel Amen-- whose last name is A-M-E-N-- that has these really cool pictures of the brain that shows somebody who's been using meth consistently for three years, and then at one year sobriety, at two year sobriety, et cetera. And you can see these changes in the brain, and how it's coming back to normal, which I think is really cool. And I share this information when I'm working with clients so that they feel some hope as well. So that they know that, yes, it is possible to recover, it is possible to change, it just takes a little while.

And for some people, to even get their dopamine levels back to normal, it could take a minimum of six months, and sometimes several years, for them to have returned to normal levels of dopamine. So and just to really sharpen that point, there might be some of us on the call, and I'm an example of this, I am a high dopamine person. Meaning just naturally, my body produces a lot of dopamine. I wake up really early in the morning, I work out early in the morning, and I tend to get very self-motivated. I'm very lucky that my body produces a whole bunch of dopamine and so it's very hard the high dopamine people to understand why other people cannot get self-motivated.

So we require a ton of empathy to be able to understand this, but some people's bodies just don't produce enough dopamine. And they don't produce any dopamine at all, or some pretty low levels of dopamine if they've been addicted to substances. And so when their bodies are not producing sufficient dopamine, it's very tough for them to get motivated, to learn. You might notice that you have clients who are not coming into sessions, or to their appointments with you. Or you tell them something one week, and then the next week, they've forgotten it already. And that those are all low dopamine indicators. And it just takes time, and a minimum sometimes of six months, to just get our dopamine functioning again.

And then in terms of building this connection back with the brain, with the limbic system and frontal cortex, there are several things that help with that. One of the strongest things is having a strong supportive relationship with another professional. So that could be you, anybody who conveys that I care, you're important, and I'm here to support you. That relationship really helps build the connection between the limbic system and the frontal cortex. And then some of these cognitive behavioral skills that we're talking about, cognitive restructuring. I had a slide on restructuring thinking and emotional regulation. All of that helps rebuild the brain, and then how long that takes is really individually driven.

Thanks, Anjali. We've got the couple focusing on medical assisted treatments. What's the typical length of treatment time on a MAT, and is there an MAT for methamphetamines?

They're working on an MAT for methamphetamines. We don't have anything FDA approved just yet. I do know of some providers that are experimenting with certain doses of drugs that are similar to amphetamines, however, nothing is FDA approved. So let's cross our fingers and hope soon that we have something that we can utilize and rely on, because it's such a struggle for a lot of our clients who are addicted to meth.

And then the other part of the question was how long does one stay on MATs? So how it works is you usually have an on ramp period, a period where you get dosed really regularly so that you have a certain level of whatever the medication is in your system. You then stabilize, and then the person slowly works with you to come off of it. Now this whole process of stabilizing and then slowly coming off of it could take anywhere between one to two years.

However, we shouldn't be rushed to get people off the medication. Because if they're living stable, sober lives while on the medication, then let's not rush to destabilize it. Because coming off the medication can start to destabilize. And I know that some of you are probably thinking, well, wait, then we've got them addicted to a different substance. We're just switching one drug for another drug. But let's think about this.

I have a thyroid issue, and I have to take thyroid medication. And I have to take it every day. And at no point are you going to say, well, you should probably wean off that drug at some point, because you are now addicted to that drug. No, it is helping my body function. Remember, the definition of addiction is the behavior is harmful in some way. Me taking my thyroid medication isn't harmful. And so it's a helpful concept to just be thinking about is if somebody is taking their medication on a regular basis, and it's helping them live strong, sober, supportive lives, what's our rush to get them off of it?

So ideally-- and I'm probably really upsetting people on the call by maybe saying this-- but ideally, those decisions are made between the provider and the client, with you informing the provider and the client if you have worries, like is the person diverting the medication, or other things that are worrying you about it. So again, a minimum of anywhere between a year to two years. But a maximum of who knows? It depends. It depends on what's most supportive to the client. Justine, I noticed you come off mute.

Hi, yes. Thank you, Dr. Nandi. I appreciate your review from previous webinars, too, and I'm really enjoying these questions. You just commented about it being between the provider and the client about when they come off of these treatments. And wouldn't that be a good part of their healing process, to be able to have that kind of control over whether they feel or how they feel comfortable or uncomfortable taking more substances in order to treat the addiction? And I would think that that would be very therapeutic, in a way, to really help them to process and make good decisions for themselves.

I think you're absolutely right, Justine. It's a very empowering process for sure. Very helpful and very empowering, yes.

Thanks guys for the great discussion. Another question. What makes addiction a disease versus a choice?

Great question. And it's such a complex question. So the initial use is absolutely a choice. Nobody has a gun to my head the first time I start drinking beer, for example. Nobody has a gun to my head the first time I decide to start using. So that is a choice, and I absolutely acknowledge 100% that's a choice. And it is a choice to use the second time and the third time and the fourth time. But then, using creates certain brain changes where it's not a choice anymore. And that's the rub, that's the line.

We sometimes call this line a shift in homeostasis. Homeostasis is whatever is normal, what I experience as normalcy. And normal is, when we're addicted, normal becomes with the drug versus without the drug. Also, there are changes that happen to my frontal cortex. And my frontal cortex is about making conscious choice where that gets diverted to the limbic system, meaning the limbic system gets prioritized, and impulses get prioritized as well as survival.

And unfortunately, one of the changes that happen when I get addicted to a substance, is that I view the substance as incredibly important for my survival, more important than anything else. More important than food, water, sex, relationships, my family, more important than anything else. That part is not a choice, that is what the drugs do to the body.

Now I know that this began as a choice. So when you say what makes this a choice versus a brain disease, it's that yes, I initiated as a choice, but now certain things have changed, and it is now problematic, where choice is now out of my hands. And so maybe you're thinking, well, given that it began as a choice, we should just punish you, because you made bad choices in the beginning. But if we slow that process down and talk about cardiac health, or let's talk about type 2 diabetes. Those started as unhealthy choices, as well.

So for example, I could have a genetic predisposition for cardiac issues. Just if I could have a genetic predisposition for addiction, as well, by the way. So again, we're starting in neutral ground. Let's say I have a genetic predisposition for cardiac disease, for example. And Greg and I, we both on a regular basis go out to eat. And Greg makes some positive choices. When we go out to eat he eats vegetables, he eats a healthy, balanced meal, his plate looks lovely and colorful. And mine looks like burgers, fries, with a side of bacon. By the way, some of my favorite foods right there.

And on a regular basis, I indulge in those foods, I smoke, I get stressed all the time, I don't exercise, et cetera. All of those are choices, they began as choices. And yet over time, I'm going to develop type 2 diabetes, or I'm going to develop cardiac issues. But in society, we then don't say, well, that's kind of your fault. I'm sorry, we're not going to help you, or we're going to stigmatize you. We don't do that in society.

We say, oh my gosh, let's support you, let's provide you medication, let's get you on some kind of program. But slowly, we recognize this these are all behavioral health issues. Cardiac disease, type 2 diabetes, they're behavioral health issues just like addiction. And that's been a huge shift in the past 10 years, is the worldwide community, the worldwide medical community, recognizing that addiction is actually a behavioral health issue, not just how we've criminalized it unfortunately. So Greg that was a really long-winded answer.

Thanks, Anjali. I thought it was great. So thank you for that. So next question. So if a pregnant woman uses meth while she's pregnant, does that child come into the world with a brain disease, or similar kinds of issues related to addiction?

Yeah, unfortunately, this is really, really tough, that when we use when we're pregnant, the substances that we use pass through and into the unborn child. So you've probably heard of fetal alcohol syndrome, when a pregnant mom drinks, you've probably heard of kids being born addicted to substances. For example, I recently had a case where the baby was born addicted to heroin.

And it was pretty heartbreaking, because when the child is born addicted to heroin, yes, there have been some brain changes and some changes in the production of their own neurotransmitters. And so we're trying to get this baby weaned off of the substance, and the baby's so uncomfortable, not as a result of anything that the baby did. No fault of the baby's, and yet the baby is screaming in agony, because we're trying to wean this baby off of heroin.

Now can babies recover? Absolutely. And they can recover faster than us adults. Their brains are developing in crazy fashions. I mean, the time period of between zero to three, the amount of brain development that happens just between zero to three is incredible. I mean, if our brains continued to develop at that pace, our brains would be the size of houses. So luckily, the brain slows down after that. But we're very, very lucky in that our babies can make a lot of progress really, really quickly. But yes, it is incredibly heartbreaking, but when a mom uses while she's pregnant, it definitely has an influence on the baby.

Thank you. So can you provide some empirical evidence on that addiction can be genetic and predisposed? And another kind of related question is, can you talk a little bit more addiction in Native Americans?

Yeah, so let's just clarify about genetics. There is not an addiction gene. So I want to be really clear about this. There isn't a gene that I pass down, like eye color or earlobes or height or whatever. There isn't an addiction gene. There are predispositions to addiction. So meaning that if my parents or grandparents were addicted to substances, I will be predisposed to developing an addiction only if I use. So this is the tricky thing, that just because my parent was addicted to substances, doesn't mean I'm going to be addicted. I have to start using, and then I have to start using on a regular basis.

But now, if I start using on a regular basis, I have a higher likelihood of getting addicted to the substance than somebody who does not have a genetic predisposition. So that's the difference. There is no addiction gene, meaning it doesn't just turn on and boom, I'm addicted without even doing anything about it. That's eye color. I hope that the example is making sense. I mean, I didn't have to work hard or work any to have the color of eyes that I have. That's genetically driven. Or the size of my hands, or whatever it is. The height, or the lack of height that I have.

But with addiction it's just a predisposition, just like cardiac disease. It's a predisposition. It's not a predetermination, it's a predisposition. So yeah, that's just the clarification there. So I do have to work at it. And we do have a lot of control over whether we develop an addiction or not. That's the choice piece. But then once we're addicted, then it's a whole different route once we're addicted and once that's changed.

And so the second part of our question was related to addiction among Native Americans, is that right, Greg?

Yes. And I think, are there unique things that we need to pay attention to or be aware of?

Yeah. So there are several. And Justine, I'm going to bring you into this conversation in a second. But there are several things to pay attention to. One is the genetic predisposition. And unfortunately, the rates of addiction among the Native American population is higher than the general population. And so you do have this genetic predisposition. Which again, does not mean that therefore, everybody is going to grow up to be addicted to substances. Not at all. It just means that we have to take even more responsibility here. We have to be even more careful knowing that there is this predisposition.

So for example, for me, I have some cardiac stuff in my genetics, in my history. So with my parents. And so I just have to be really, really careful. That's it. It doesn't mean that it's determined my life or any of that. I just know that I have a bigger responsibility. So that's one piece.

The other is this complicating and confounding factor of generational trauma and historical trauma. And the only reason I bring it up is because trauma has very, very similar impacts on the brain, interestingly enough, that addiction does. So the trauma has the same sort of separation of limbic system and frontal cortex, enhancing of the limbic system, disconnection of the frontal cortex. And so it increases this impulse control issue. And so when you have that going in, meaning I have less control over my impulses, it increases the likelihood that I'm going to get addicted to substances. It doesn't determine it, but it just increases it.

Now does the Native American population also have so many protective factors? Absolutely. The tribal community has such an incredible array of strong support, spirituality, community connection, connection to the Earth, all of these things that profoundly protect you and buffer you against developing an addiction. So I just want to paint a full picture there, and not just a one-sided picture. Justine?

I appreciate that perspective, Dr. Nandi, and I'm glad you brought up the historical trauma aspect. And the reason being, if that predisposes us to have a heightened sense of fight, flight, or freeze, that anxiety, or that being prepared to deal with something else traumatic, then wouldn't it stand to reason that we also become conditioned to use coping mechanisms that have been taught to us by the previous generation?

And an example might be somebody who uses alcohol to forget about the sexual abuse that they encountered while they were at boarding school, and they're stressed, and they have been traumatized and victimized. And they use the alcohol to forget. So now they're self-medicating. So the children that they raise, they learn that we don't talk about our problems. We hide them, we stuff them, and we can use substances to self-medicate and protect ourselves. So I think that also contributes to that cycle of addiction. Something that was a tool, a coping mechanism, that was an unhealthy choice, that really leads you down to that path of addiction.

Yes. So Justine, you're absolutely right. And the pieces that you're bringing up are twofold. One, do we learn some of these behaviors? And according to social learning theory, most of our voluntary behaviors are learned. But the good news is, they can be unlearned and they can be changed. And we learn from the people around us. So if the modeling around us is, like you said, we stuff our feelings, et cetera, we tough it out, whatever, that's what we learn.

But if the learning is something different then we develop some healthier coping mechanisms. So that's one of the pieces that you brought up. And then the second piece is, does trauma increase the likelihood that we respond with fight, flight, or freeze? Yes, 100%. So trauma, very similar to addiction, prioritizes the limbic system, which is our fight flight response. And so we tend to be slightly more reactive, we tends to be a little more on guard, on edge. And without paying attention to that and developing some skills and utilizing our support, it's very easy to go down that route. So I appreciate that you brought that up.

Thanks both of you, great discussion. Here's a question from someone in the audience. It's a peer support specialist. And the person says, genetic predisposition, historical, generational trauma, play a big role in the substance use disorders in their community. They also started talking about non-drug-related issues related to socioeconomic disparities. And I wondered, Anjali, if you wanted to talk a little bit more about the environmental factors that might contribute to the disparities between some populations.

Yes, I would love to. And yay, peer support specialists! There's so much research that supports the work that you are doing. So thank you. And peer support specialists and peer recovery specialists, essentially what their role is, these are folks who have lived experience in the addiction world, oftentimes in the criminal justice world, sometimes, at least in the field that I work, and are of huge support to our clients, partnering with them and supporting them out of the system, both of addiction and criminal justice. So thank you for the work that you do.

So yes, I totally hear that these are some big issues in the communities that you work with, both the trauma piece and the genetic piece. I'm glad that we're paying attention to that. And I got so excited to thank you that I completely forgot the question, Greg. I know there was a question at the end.

Socioeconomic disparities that might impact different populations.

Yes, yes, OK. So I get so overexcited sometimes. It's my high dopamine problem. So unfortunately, there exists something called the toxic stress of poverty. Meaning living in a system where there is oppression, there is lack of access to resources, there is this feeling of, I'm not sure where my next meal is coming from, and I'm not sure whether I'm coming or going, those kinds of things. And I'm not saying that all communities suffer from this, but if your socioeconomic status is highlighted by these experiences, then you start to experience what's called the toxic stress of poverty, which is essentially trauma.

And it changes again, the way our brains work, and prioritizes the limbic system. It's very similar to experiencing actual trauma or historical trauma. And unfortunately increases your susceptibility to getting addicted to substances. It's one of those adverse childhood experiences. So I just want to be clear, I'm not saying that being poor is a problem. I'm saying that when there exists poverty, coupled with-- or that poverty translates to no access to resources, chaotic, I'm not sure where my next meal is coming from, no support in the community, oppression, lack of opportunities, those kinds of things, then yes. It results in what we call toxic stress.

Thanks, Anjali. Can you talk a little bit about addiction, the brain, and the differences between men and women and addiction?

Sure. Ultimately, it impacts all of us as human beings, whether we're men, women, or any place on the gender continuum, or even off the gender continuum. So it impacts us all, and it impacts us all very similarly. What's interesting though is pathways into addiction. Oftentimes, women's pathways into addiction differ slightly from men's pathways into addiction.

For women, it's about trying to manage some kind of stress. It's a coping mechanism. And again, not always. So I could have women on the call who are looking at the screen thinking, no, that's not the case at all. But we're just talking general trajectories. And in the research, the general trajectory is using substances as a coping mechanism, versus what men tend to say is experimentation and social use. So the trajectories into addiction sometimes are a little bit different.

Of course the havoc that it wreaks in people's lives are very, very similar, no matter what your gender is. And then the ways out are also interesting. And we're finding that with women in particular, they need overall and ongoing support, because they frequently have families. They need childcare sorted out. They need strong supportive relationships. Oftentimes when they come to us, they're actually in relationships where they're using with their partners. So attending to all of those relational issues, there's oftentimes an overlap of intimate partner violence. So attending to all of those issues, I think, becomes really important.

And then the last piece-- and this is just a really minor kind of thing-- is that we metabolize some drugs a little bit differently depending on our gender. For women, we tend to metabolize most of the alcohol that we consume in our liver. For men, they start to metabolize it sooner, and it starts in the stomach of men. So that's part of the reason why, just in general, again, these are generalizations, men can drink slightly more than women, because they're metabolizing the alcohol just a little bit faster. But again, in the end, it doesn't really matter, because if I drink enough and on a regular basis, I can develop the ability to catch up with somebody else. So ultimately, these things disappear. But because there was a question on the gender differences, I'm trying to cover all of these aspects. Justine, what are some of your thoughts?

Oh my gosh, my mind is racing. This is such a good conversation. A part of this talking about gender and even race, I have read this book by Gary Howard called *We Can't Teach What We Don't Know.* And it's related to multiracial schools. And so this, to me, it does speak to a propensity of depression, and social anxiety, and things that could lead to the use or misuse of substances. And it talks quite a bit about that poverty aspect. And even of just feeling less than, simply because of the color of your skin.

So I feel like-- not to dwell on the negative-- but I do feel like that's a challenge for young people. Even if they have strong supports in their home, if they experience this in the classroom while they're growing up, that can be quite challenging. And I can remember many instances when I was growing up and going to a public school where I've really felt just worthless, and unworthy, and how that could contribute to anxiety and depression in itself.

Yeah, I think you're bringing up the whole emotional world, the social-emotional world that our teenagers in particular are struggling with. And especially in the time of COVID. I mean, I don't know if our listeners are tracking some of this, but the impact that its had on teens, this social isolation, is pretty problematic, and has resulted in such a spike in symptoms of anxiety, symptoms of depression, this unworthiness that you were talking about, Justine. Gosh, I mean, I see it with my teenager, too, the impact is really heartbreaking.

Thank you. And like I said, I don't want to focus on the negative, but you can't combat things if you don't look at all of the facets that contribute to the disease, that could contribute to addiction.

Yeah. Yeah, most definitely. Yeah, it's so complex. It's not a one line pointing to the addiction, there's so many influences that leads to this path. But what it also means is therefore, there have to be so many influences to get us out of this path. And that to me is the exciting thing, meeting people where they're at, and trying to figure out what was your trajectory into this problem, and how do we create a really individualized, supportive way of helping you get out of this process?

I really appreciate that. I've learned once, I've seen a video on-- it was like a periodic table from chemistry, but it was a periodic table of substances. And I remember looking at that and hearing how if you have an addiction, let's say to heroin, you have a propensity then to become addicted or to crave these other substances within that area of the periodic table.

And I remember being just so struck that, oh my goodness, coffee, like caffeine, is in that periodic table. And so is nicotine. And I think about that, no wonder so many people, if they give up drinking, for example, that they have to have their cigarette in their hand. And it makes me wonder, then how much of our mechanisms that we use to cope then contribute towards the cravings, I guess, or generating that.

Yeah. Justine, if I can just pause you there for a second. You're absolutely right that it's really important that we pay attention to the kinds of coping mechanisms that we're using. And in the long run, are they healthy or not? At the same time, I want to relieve pressure a little bit, and say, ultimately, at least my orientation is harm reduction. So if we're moving from heroin to cigarettes, I'm OK with that. I know it's not the best, and I know that continuing to smoke nicotine is not helpful. It's not healthy. It creates a whole bunch of other issues, and actually increases the likelihood of relapse.

So I totally acknowledge all of those things. And in the grand scheme of things, I would much rather move a client from heroin to nicotine, and then slowly work on the nicotine. So in the grand scheme of things, this harm reduction approach.

Absolutely. Well, and I was just going to say, too, that the addiction is like one thing if you look at the medicine wheel concept that we've talked about in the past, in that realm of physical, intellectual, spiritual, and emotional selves, the physical and the addiction is just one piece. And if we can contribute towards getting somebody physically healthier and well while supporting them emotionally, spiritually, intellectually, they're so much more that people can gain in their recovery process and their recovery journey than just that physical aspect of their addiction. That's only one part of their selves, their whole selves. And it doesn't have to define who they are for the rest of their lives.

Yes. Very true, very true. Just to summarize some of what Justine said, we do need to look at the whole person. I think Justine's point cannot be made strongly enough. We have to look at the whole person. And I can talk about cognitive behavioral techniques, sure. That's one part of the person. Social support, that's another part. Their spirituality, that's yet a different part. Nutrition, all of these things we really have to pay attention to. Justine, I can see your screen with the resource wheel.

Yes, and this is just part of what I thought about processing with clients about how they can make themselves more whole, and how they can come to understand that there are aspects of themselves that need to be nurtured, and developed, and taken care of. And you talked about the opportunities that a person has as they develop, as they grow up, as I have that exposure to positive influences in all of these realms, was something that greatly helped me to be able to give me a sense of strength in my own identity, and to walk away from that family history that I have for alcoholism.

And I look at the people who I've tried to help who have been addicted to various substances, and so much of their healing and recovery is not even about the chemical addiction, but it really can be about these other aspects of self and discovering their value, their worth, and their potential within these different realms.

Yes. Yeah. I think it summarizes so beautifully the complexity here. So thank you, thank you for bringing that in.

Great discussion, guys. We have a question. How addictions lend themselves to victimization, and in companion to that, how to help survivors make the connection between addictions and violence and abuse? And I think putting themselves in higher risk situations and who their peer groups are, that's where that question's going, Anjali and Justine.

Yes, so there are a lot of relationships here, correlations. So just to be clear, they don't cause each other, but if you have one, the likelihood that you'll have another goes up. So by that I mean, addiction, if you're addicted to substances, the likelihood that you will also put yourself in risky situations goes up. It doesn't cause it, and it doesn't mean you for sure will, it just means that it increases the likelihood.

So unfortunately, when there's addiction involved, the likelihood of intimate partner violence goes up. You probably have seen that in your work, as well. The likelihood of teenage pregnancies, the likelihood of getting involved in the criminal justice world, the likelihood of losing your job, all of these things increase, the likelihood of all of these problematic issues. And because of these other problematic issues that increase, we try and cope with them, like Justine was talking about earlier.

And if, unfortunately, the only way we have learned to cope is by using substances, then we're back in this cycle of stress and using more, but now my using is creating more stress, but the only way I know how to deal with the stress is to use, and so on and so forth.

Great. Thank you. We have a question. Can you talk briefly about the connection between juvenile substance abuse and delinquency? And the person says, I find it hard to explain this in the juvenile system without getting weird looks from the judicial staff.

Yeah, gosh. So this is a complex picture. Adverse childhood experiences are highly correlated with entering the criminal justice world. Now, adverse childhood experiences include chaotic households, living with people who are using substances, divorce, a whole host of things. And if you would like a webinar on adverse childhood experiences, we have one recorded, or you could just google adverse childhood experiences, and you'll get a ton of information. But unfortunately these experiences are linked to a higher likelihood of entry into the system. They're also linked to a higher substance use and when people engage in substances, in substance use, it further impacts their impulse controllability, and they get themselves into trouble in the criminal justice system. So there you have your little link.

Unfortunately, we tend to criminalize addiction. We tend to view it as engaging in bad behavior that needs to be punished, versus engaging in behavior that we probably could have predicted based on your brain development. So adolescents, for example, are going through some pretty complex brain development. And I'm not saying we excuse the behavior, but I am saying we work pretty hard to provide support versus punishment. So unfortunately, just punishing the teens is really unhelpful. We have to be able to provide some support so that they can learn skills that are then going to be incredibly helpful for their future, as well. So I love that you are championing-- whoever the person who just asked this question-- thank you for championing our voice in the criminal justice world so that people understand to not criminalize behaviors.

Thanks, Anjali. So a couple of companion questions. Can long-term, short-term drug use cause disorder to heighten or get worse, such as bipolar within someone? And then there's a question related to people self-medicating and substance abuse.

Those are great questions, and definitely related. So it's hard to tell in an individual, whether they had symptoms of mental health issues, and in order to cope with those, they started using substances-- meaning self-medicating-- or whether they started using substances and that exacerbated their symptoms. So what comes before? It's sort of a chicken and egg situation. Ultimately though, it doesn't matter as much, because what we need to do is to support both. We work with them in terms of developing skills to stop their addiction, but we also provide them support with their mental health diagnosis.

So bipolar disorder, for example. The first question was related to, does substance use make symptoms worse? And yes, they can absolutely exacerbate the symptoms. So sometimes when we see people, when we have clients who are addicted to substances, they also have a diagnosis. I am very patient with believing exactly what is going on with the person, until we can start to support them and get them off the substances. Once the substances are off, we then see a more clear picture of what the client is presenting with. Is it really bipolar disorder, or was it bipolar disorder that was induced by substance use? So it really is helpful on understanding what exactly is going on as we start to clear up some of their behaviors.

Thanks, Anjali. We have a question. How do you naturally help dopamine levels rise for people that you're working with?

Oh, I love that question, it's so exciting. Yes. So we can help people's levels of dopamine rise. Not like drugs do, so let's just be clear. And I say that because I had a client yell at me when I was recommending that he go on a hike or get outside and get some sun. He was very, very annoyed with me and said, there is no way that sunshine can make me feel as good as cocaine does. And he was absolutely right. So I just want to put that caveat out there that it's not as good, but it's baby steps, and we're going to get there. So I just had to reassure the client that you are absolutely right, and slowly, your body will return to normal levels of functioning.

So things that help dopamine production. Exercise. Sunshine, so just getting outside. Doing things with the Earth, whatever that might be. Gardening, putting your hands in the mud, skimming stones across the lake, whatever those kinds of-- being outside in nature really supports dopamine production. Social support. Laughing with friends supports dopamine production. Engaging in mildly challenging activities that you will likely be successful in.

So maybe you all would roll your eyes at me, but doing a jigsaw puzzle that's slightly challenging, but not so challenging that you're going to throw the pieces at the wall, where you can be successful. So a jigsaw puzzle, or a Sudoku puzzle, or whatever kinds of puzzles that you enjoy doing that are slightly challenging, but you will be successful at the end, produce a whole bunch of dopamine.

Mindfulness activities. Meditation is one of them, but it doesn't have to be meditation. It could be walking meditation, it could be gardening, it could be fishing, it could be whatever activities-- the zen coloring books that they sell a lot of these days. Any activity that allows you to focus on one thing at a time supports dopamine production. And then also making sure you're getting enough protein in your diet. Protein supports to the production of our neurotransmitters. So it'll help sort of rebuild our dopamine. Sleeping enough, making sure that we're getting a minimum of seven, eight hours of sleep a night, is incredibly helpful, as well. So those are some examples of natural ways of producing dopamine, replenishing dopamine.

Thanks, Anjali. The next question is kind of a proximal distal behavior question, and the person would like to better understand what we can expect of our participants who may have neurological and addiction issues.

Yeah, that's such a good question, because you're noticing that you might have to adjust your expectations. There are certain things we can expect immediately, and certain things that we need to be really patient about. The things we have to be patient about are abstinence. We have to be super patient about that. Because if somebody is truly addicted to a substance, it's going to take them a while to change their behavior. So we have to engage in some of these baby steps.

But the things that I might be able to expect immediately could be that the person follows through with showing up to their appointments, or calling me, for example. That they show up to-- let's say I'm asking them to be drug tested, that they call in and that they show up to the drug testing appointment. I can expect certain behaviors like that. I can expect them to practice some of the skills that we're talking about and following through.

So of course, the caveat is, do they also have other issues that might prevent them from following through? So an example might be a traumatic brain injury. If somebody has a traumatic brain injury, then I might need to modify some of my expectations, or make some accommodations. So if somebody has a traumatic brain injury, I work really hard on helping the person stay organized, and either using their phone as a reminder system, or if they don't have a phone, providing them with a little calendar, little book, that helps them keep track of where they need to be when. So I start at the basic, at ground zero, really focusing on, what is it, client, that you need in order to be successful, one baby step at a time?

Thanks, Anjali. We have a participant that's asking for some research, and I know that we can include that in the reference document when we send this out afterwards, but they're asking for some research that supports the work that peer specialists do.

Yes. SAMHSA has a bunch of research on peer recovery services, also on peer recovery support specialists. And I'm using those terms because you might need to google them separately. And SAMHSA has a bunch of information out there. If I'm remembering correctly, there was a recent article on the link between having social support via a peer support specialist, and a reduction in relapse. So there's a lot out there, and we can definitely include some links. But I would recommend you reading anything that SAMHSA has published recently on the topic. And SAMHSA is S-A-M-H-S-A. It stands for Substance Abuse and Mental Health Services Administration.

Thanks, Anjali. I think the next question we want to take is, what are some ways that we can assist clients change in their thought processes to help their addictions? Maybe some resources with that.

Yeah. So essentially what you're talking about is how do we help people increase their awareness of their thinking, and then challenge their thinking? And that whole process is essentially cognitive behavioral techniques. And cognitive behavioral techniques are not just techniques that the therapist uses, they are techniques that each one of us can use, and I guarantee that you already use in your own life.

So just this morning, as I was racing to work, I was worried about being late, and I was giving myself a really hard time. I said something like, gosh when am I going to learn to do this better, and I hate always being in-- and I just had to say to myself, stop. It's going to be fine. That is cognitive behavioral technique right there. Stop my thinking, challenge it, and provide a positive reframe. It's going to be fine.

And it helped me so much. I know it sounds so simple and silly, and yet, I was able to calm down. I stopped speeding, I stopped behaving badly on the road. I just took a minute. I chilled out. And we take those skills for granted, you and I. We take them for granted. Our clients don't always know how to grab on to that skill. Partly it could be historical, partly it could be that their brain hasn't rewired in a way that they can learn those skills, or utilize the skills. Yes, they can learn them, but they're not utilizing them. So we have to teach those skills again.

If a client had been in my shoes, maybe the client would have gotten so upset they could have gotten into a road rage incident, for example, or they could have been speeding and then got a ticket and got into even more trouble. So it's those kinds of things that we just need to pay attention to and build those skills. And essentially, what you're talking about are cognitive behavioral techniques. We've done a webinar on cognitive behavioral techniques, as well. And I'm sorry that I keep referencing webinars that we've done, but each of these conversations could be an hour and a half long.

So if you would like any other information about that, you can definitely go to our site. It's ncjtc.org/iasapwebinars. So take a look at that. And then we also have a webinar coming up that's focused on peer recovery support services in tribal communities. So definitely check your inbox for that.

Thanks, Anjali. Can you talk about the link, if any, between marijuana use and schizophrenia, or even other mental health issues?

Yeah. Complex question. So schizophrenia is a thought disorder. And it's an organic thought disorder. What that means is that it's not just a chemical issue, it's the way the brain is functioning that increases the likelihood of seeing and hearing things that are not there. So that's hallucinations, and then believing certain thoughts that don't have a basis in reality, and that's delusions. So schizophrenia is marked by psychosis, and psychosis is experiencing hallucinations and delusions.

Schizophrenia is a tough diagnosis. It essentially means that my brain is wiring in a particular way where reality is different for me. And it's very hard to calm down all of that stuff, that chatter, the chatter that is going on in my brain, it's really, really hard. When I teach in-person classes on co-occurring disorders and mental health disorders, in order for people to understand what it's like to have schizophrenia, I do a particular activity that I'm just going to explain here, because we're not in-person and we can't do it.

Imagine that you are trying to have a conversation with me, but that Justine is next to you, in your ear, having a totally different conversation. So imagine that Justine is going on and on in your ear, and you are trying to focus on me and have a conversation with me. Like imagine how crazy-making that is. And that will give you some kind of a feel for what it might be like to be experiencing schizophrenia. It cannot shut down that part of my brain, that I cannot quiet it down.

What THC does is it quiets our neurons, it slows things down. And why it does is because THC is fat soluble, and we have the strongest concentration of fat, believe it or not, in our brains, around our neurons. They're called myelin sheaths. And so THC sits in the myelin, and it slows down the transmission of these thoughts.

And so people who tend to have-- and this is, again, a generalization, so reference your experience-- people who have schizophrenia will tend to use things like marijuana, and report that it helps them, because it slows down their thoughts. So it's one of the coping mechanisms. Now, are there other medications that will help? Yes, for sure, and medications that are actually designed to do exactly that. But our clients are just trying to seek some comfort, and so they turn to things like marijuana to do so.

And it seems like that would be an access question to medical care, and all of that, too. So again, looking at the issues that come up for people who don't have that, that would be something considered to be self-medicating, obviously, right, Anjali?

Yeah, really good point. I mean, if I don't have any access to care, or I don't have the funds to be able to afford care, and what I do have is access to my garden where I'm growing pot, then yeah, that's my option. Or my cousin, who is selling it to me for pretty cheap, then yeah it does become a question of access, for sure.

Great, thank you. So the next question. It's said that one who is in recovery should avoid people, places, and things associated to their use. There's another saying that since there's no such thing as a geographical cure. Are there strategies to help a person to maintain sobriety when they are returning to the community where they were using?

Yes. OK, but lovely question, because we use these terms a lot. I mean, I just pretty recently said to somebody, there's no such thing as a geographic cure. Just the other day I said to somebody, stay away from people, places, and things. So let's break those down, and then talk about why both are true simultaneously. So we get triggered-- meaning the parts of our brain that really start craving get activated-- when we are exposed to anything that has connection to our substance of choice.

Maybe you and I have experienced this, and I'm going to use a silly example again. I think about dessert every time I finish a particular meal. Or there's a particular friend that I always go out to dinner with, and we enjoy not just dinner, but we always get dessert. So I have a connection. I see her and I immediately think, dessert. So we have these connections to people, places, and things. And there have been a ton of studies where you put somebody in a functional MRI, and see what's happening in their brain. You flash a picture of the street that they usually get their drugs from, and you'll notice their reward system going on fire.

So do people, places, and things trigger us? Yes, absolutely. But if we remove people, places, and things, what we're left with is our brain. And we still have to heal our brain, meaning we have to do the work. We can't just go hide somewhere. And that's the reason for this geographic cure is not going to work in the long run. Because if I try and use a geographic cure, and run away from wherever I am, but I haven't really supported my brain, I'm going to end up in the same pickle again. I'm going to end up jonesing for substances, I'm going to end up finding people who are using. And again, getting into problematic behavior. So both are true at the same time. And the way out is to make sure that we're developing skills along the way.

Thanks. We have someone asking, is there a way to explain to kids what the brain does on drugs that they'll actually hear and understand?

Yes. With our teens, we explain a whole bunch of things around the brain. I think it's really important for teens to understand, developmentally, what's happening in their brains, and why sometimes they feel crazy. Why sometimes when people ask, what were you thinking, their response is, I wasn't thinking, and why that's normal. It's really helpful to explain that, to explain how brain development happens. And then we just talk about addiction, explaining the brain, but I also show them a bunch of pictures of a brain changing, of a-- Daniel Amen again, I'm using that site again. He has a picture on the site of an 18-year-old weekend use of marijuana, and the impact on the brain, which I think is pretty profound for our teens to see.

So I use a lot of technology. There are a bunch of different things available to explain the impact of drugs on the brain. There's a thing called mouse party, which uses-- it's an animation that uses mice to kind of explain the impacts of drugs and alcohol on the brain. So I use a lot of technology to help people understand. But in my opinion, it's extremely empowering for people to understand what's going on in their brain, and what they need to do about it.

Thanks, Anjali. Why do only some people become addicted, while others using the same drugs do not? And I know you talked about that a lot, but maybe just tying that together a little bit with a couple of takeaways.

Yes. It is such an important question. Why do some people get addicted to substances, and others don't? The answer is not simple. It could be for a variety of different reasons. So if Greg and I both use substances, one of us might get addicted, the other one won't. And it would be about, does Greg have a genetic predisposition? Do I start using substances at a time where I just came off of a trauma experience, and my brain is a little more vulnerable, perhaps, than his? Or am I really stressed, and my chronic stress has created some brain changes? Or am I a teenager, and I've just experienced a bunch of adverse childhood experiences, and I'm now using substances?

So it's really complex in terms of why one person develops an addiction, and what we can do about it. And so the answer is all of it. To pay attention to how do we support our kids from the get-go? And maybe it's not even kids, as Justine pointed out. Or maybe it was somebody in the audience who talked about moms when they're pregnant, how do we support moms who are pregnant, and how do we start there? And then how do we support healthy, stable, nurturing communities?

Because this is a community issue. It's a human issue, it's a community issue. And I think, at least from my perspective, as a society, we need to take responsibility for this, about how are we supporting our fellow human beings in these struggles that we call life? How are we taking responsibility?

Do we have a community where there are things to do for kids in the afternoon and evening, while both the parents are working, for example? Are there ways in which we keep our kids safe in our communities, and offer them other opportunities? Are we modeling positive behavior for our kids? Are we engaging in honest conversations with them around some of these? And are we taking responsibility as maybe as parents, but also as adults, to demonstrate and model some healthy coping skills, but also some healthy ways of engaging with each other that kids can learn from? So it's definitely a complex question, and I'm sorry that it was such a complex answer.

Thanks, Anjali. And I think Anjali and Justine, what are some cool facts that can help us develop a strong sense of empathy regarding addiction?

Well first, I love that you're considering that. I think it's really important for us to have some empathy around it. One of the things that has really helped me is to look at behaviors that I struggle to change. Whether it's simple behaviors, like eating healthier, and how many times I have gotten on a particular kick and then relapsed. And it's so hard for me sometimes to engage in those behaviors. So even if we're not talking about food, even being more patient with my daughter, or whatever it is. And how many times I've relapsed, and how hard those changes are. And that doesn't even compare to how hard it is for somebody who's addicted to substances. So that helps me a lot, that these are human issues. And so empathy really is the starting place.

One final question. If there was one or two takeaways from this presentation that you could say, these are important things to walk away with, and Justine, the same question to you, and then we'll close it out.

If I wanted you to have two takeaways, it would be that one, that we all have responsibility here in the solution, even if we didn't have a hand in the problem, but that we have a hand in the solution. And that empathy, or compassion, or love, or whatever we want to call it, is the place we start. Maybe those are the two things. Justine?

I think for me, the takeaway is that you can restructure people's thinking. You can help them to do that for themselves, and you can empower people so that they can recover.

Thanks, everyone that's going to conclude the question and answer portion of the webinar. In closing, we'd like to share a brief information on additional training and technical assistance opportunities. NCJTC is a training and technical assistance provider for the Coordinated Tribal Assistance Solicitation Purpose Area 3 grantees and non-grantees. Tribal agencies focused on implementing system-wide strategies to address crime issues related to alcohol and substance use in tribal communities.

We are also a TTA provider assigned to assist Tribal Comprehensive Opiate, Stimulant, and Substance Abuse Program grantees, focused on developing, implementing, or expanding comprehensive efforts to identify, respond to, treat, and support those impacted by illicit opiate stimulants and other drugs of abuse. TTA services for both programs include customized onsite and virtual training, regional trainings, conferences, webinars, peer-to-peer support, onsite or virtual meeting facilitation, written resources, community planning, justice system collaboration, and sharing grantee best practices.

For additional information on general TTA services, links to featured offerings, and to request TTA, please visit our program website as shown on the screen for more information. Finally, watch your inbox and our website for upcoming webinars and virtual TTA opportunities in 2021.

Another valuable resource is the COSSAP Resource Center. A screenshot of the COSSAP Resource Center is shown here along with the web link. Featured resources include funding opportunities, COSSAP grantees site profiles with a data visualization tool, information about demonstration projects, peer-to-peer learning, and recording of all previous COSSAP webinars covering a range of substance use disorder related topics and strategies. Of particular significance is the ability to request training and technical assistance or TTAs whether you are a COSSAP grantee or not.

The COSSAP TTA program offers a variety of learning opportunities and assistance to support local, tribal, and state organizations, stakeholders, and projects in building and sustaining multidisciplinary responses to the nation's substance abuse crisis. So for more information on that, you can contact COSSAP at C-O-S-S-A-P @iir.com. So in closing, I'd like to thank you, Dr. Nandi, and Justine, our panelists today for an excellent presentation. Great questions and a great discussion. We want to thank you all for attending the webinar, and hope you have a wonderful day.