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ASAM Practice Pearls Transcript

Kratom and 7-OH: *What Clinicians Need to Know*

Dr. Stephen Taylor: Hello, colleagues and friends, and welcome to ASAM Practice Pearls, where we turn clinical expertise into everyday addiction care, one conversation at a time. I'm your host, Dr. Steven Taylor, and today we are going to talk about a topic that's been getting a lot of attention, and that's kratom.

Kratom has been used for centuries in Southeast Asia for pain relief, energy, and opioid-like effects, but it has only recently become more popular globally in the past decade or two. It can now be easily purchased in many places, including smoke shops, gas stations, and convenience stores, and is used recreationally and for pain management, anxiety, and even opioid cessation. Yet there's very little research that supports these uses.

So, what is the truth about kratom and how is it affecting the field of addiction medicine, and what do clinicians need to know to safely assess and manage patients who are using it?

Well, we happen to have Dr. Kirsten Smith and Katie Hill with us to help us explore these questions. So, without further ado, let me introduce our guests, our experts today. Dr. Kirsten Smith, please say hello to our audience.

Kirsten Smith: Hello, and thank you so much for having us, Dr. Taylor.

Dr. Stephen Taylor: And Katie Hill, would you please say hello to our listeners?

Katie Hill: Of course. Hello, my name's Katie Hill. Great to be here today. Thank you.

Dr. Stephen Taylor: I'm really, really excited to have you both here, as you can tell. So, thank you so much, and we're going to jump right in. My first question, for both of you, is that there are so many different types of kratom-derived products on the market. So, when a patient tells us that they are using "kratom," what do we need to know? What questions should clinicians be asking to better understand, assess, and treat their patients' kratom use?

Katie Hill: It's a great question. So, kratom could mean so many things to this patient, and really, not all kratom is created equal. So, providers must do a little digging to get to the bottom of things and meet the patient where they're at and understand the nuance of the patient's specific kratom use.

So, in Southeast Asia, it's called *mitragyna speciosa*. In its indigenous setting, men are either chewing raw leaf material or brewing fresh leaves into what we call decoctions, and these products are consumed throughout the day. It's usually conceptualized similarly to the way we have a cup of coffee here in the United States. And to get kratom to the United States, these leaves of the kratom plant must be picked from trees, dried, and pulverized into a powder. So instead of consuming fresh leaves and

decoctions, Americans are really taking that, powdered kratom, and mixing it into water or juice, putting it into capsules, brewing it in teas, things like that.

So, the first products on the market were extracted whole-leaf products that came to contain all the parts of the plant or were like a little shot or a chocolate bar or some easy product. And then products we saw just had mitragynine, which were the most studied diploid that came out to the market, and now the next step has become 7-OH products, which are synthetic products.

So, people are calling kratom in the United States, that powder that they mix into teas, all the way to something that looks more like a synthetic or extract product. But often it's all sold under the name kratom, so it can get a little confusing. It's a pretty diverse product market.

Dr. Stephen Taylor: Absolutely. Dr. Smith?

Kirsten Smith: Yeah, I'll just add on to what Katie said. So I think the main thing I would urge clinicians to remember is, not only what kind of kratom – so I typically would ask people, kratom leaf products, which could be that powder or encapsulated powder or teas, maybe, or kratom extract, which is much, much more concentrated. So, it's many more alkaloids per serving, which I think is important for toxicity or even things like developing potential tolerance or dependence symptoms.

But oftentimes people will have combination products. So, they'll say, "Well, I'm taking kratom," but really their kratom product is also mixed with things like kava or kana or even caffeine or CBD or stuff like that. So, when someone says kratom, they could be talking about a kratom product that actually has some other constituents that are really important to know about.

Dr. Stephen Taylor: In a time when we are increasingly experiencing people who aren't really sure what they're using and think they're using one thing, but in fact maybe using something else, it strikes me that that's exactly the situation with folks that we may encounter, who come in saying that they're using "kratom." Is that fair to say?

Kirsten Smith: Yes and no. I think there are roughly two consumer eras in America with respect to kratom use. So, the first generation, which I'd say start maybe 2001, which we don't have good data before 2007 or 2006, but folks that were really driving the importation, like it was really, a consumer bottom-up demand driving supply. And those consumers really, I think, knew what they were taking, like intention and purpose, and a lot of effort was put into acquiring kratom.

And I think the ones that are still using kratom to this day, who've been using for over a decade, I think they really understand what they have been purchasing and generally what they're taking.

I think there's a newer consumer demographic that might be younger, and they've just been exposed to what Katie was talking about, these branded products that don't look anything like what organic kratom typically looks like. And they're not

necessarily as aware, and they might not be as intentional in their use. It could be a little bit more like carefree, spur-of-the-moment use. So, I think that's the difference.

Dr. Stephen Taylor: That's helpful to know, thank you. We often hear kratom referred to as an opioid. Is that accurate, or does it just have opioid-like properties and effects?

Kirsten Smith: So, myself and Dr. David Epstein and Dr. Stephanie Weiss wrote a review paper a couple of years ago, where we discuss the pharmacology and the polypharmacy aspects of kratom, the botanical, and that includes both whole leaf and extract.

So, even extract products typically are not isolated. They typically have several dozen alkaloids. And some of these alkaloids absolutely have opioidergic activity. Mitragynine has a weak, partial agonist mu-opioid receptors, but it also has alpha anergic activity and some serotonergic activity. And then there's some downstream dopaminergic activity for several alkaloids.

And then the second most abundant alkaloid in kratom is paynantheine, which no one talks about as much, and it's not as well studied. That is a highly selective mu-opioid receptor agonist. And while the bioavailability is fairly decent compared to some other alkaloids, it's more weakly binding. But you have things like functional potency, equivalent to morphine in certain animal studies, and then you have many other alkaloids that have no opioid activity.

So, when you take all of this together, there's two things to remember with kratom, and again, I'm just talking about kratom leaf and extract. A. Yes, there's opioid activity. B. Is this acting like a typical opioid? No. And part of the reason for that is we have not seen respiratory depression, but it is not behaving like a typical opioid in any way, shape, or form. And when I say "it," I mean any of the alkaloids within kratom.

Dr. Stephen Taylor: Interesting. So, there's been a lot of news about 7-OH products. Can you explain what 7-OH is and how does it differ from traditional kratom products?

Kirsten Smith: So, the first thing I would want clinicians to understand is that 7-hydroxymitragynine, which, when we say 7-OH, that's what we're referring to. There's the actual molecule, and then there are products. And these are two different things. So, when we see route studies in which 7-hydroxymitragynine has been investigated, those route studies are not using the products in commerce. And that's important because that's a purity difference. So, a lot of what we know about 7-OH is really looking at a more purified compound than what is in a lot of products, and not all products are regularly tested.

So, to answer your question more directly, 7-hydroxymitragynine, or 7-OH, is confusingly both a alkaloid in kratom leaves, but it's found in very trace amounts, sometimes below the level of quantification, and it's also an active metabolite of the most abundant alkaloid in kratom, mitragynine.

And so, when people ingest kratom leaf or extract products, they're going to have mitragynine in their system. The liver and small intestine will break that down, and then 7-hydroxy will be the first metabolite that is formed.

And then mitragynine pseudoindoxyl is a secondary metabolite. But, with respect to the products, these have been, essentially a conversion of mitragynine into 7-hydroxymitragynine has been made using extracted mitragynine from the native leaf material. And so, it's essentially a semisynthetic product.

And some of the products tested have had residual mitragynine in them. And I think that's important when we talk about testing or assessment. Therefore, it is very dramatically different from kratom products because in kratom products, 7-OH is either found in very trace amounts or not at all.

Dr. Stephen Taylor: That's an important distinction. Thank you for that. Katie, did you have something to add to that?

Katie Hill: Yeah, and I can just add that what 7-OH is, is it's, you know, similar to the alkaloids in the kratom plant in that it has activity at the mu-opioid receptor. It's entirely selective is one of its key differences of the mu-opioid receptor. That's kind of why people are incredibly interested in it right now.

But just to harken back to the original question of, you know, when people are asking, "Is it an opioid?" It's not our classical opioid. It's still an atypical opioid just because it's highly selective. It still does not participate in G protein signaling, and it does not recruit beta arrestin, which is important to know because of how it reacts with respiratory depression in humans.

So, something to keep in mind. Thinking about how we classify 7-OH as an opioid and thinking about its impact in humans.

Kirsten Smith: I just wanted to add one more thing because I think it really is important to highlight the state of what we know and what we don't know. Even now, there are publications that would suggest it's a partial agonist, and there are others that would suggest it's a full agonist.

So, whatever it is, it is absolutely not typical in many respects, and the pharmacology of 7-OH is just very, very different, in terms of the clinical pharmacology versus what we see in vitro. And I think some of the hype with this is, well, it's like "legal morphine" or "gas station heroin." We've heard that term with kratom and 7-OH, and I think it's a very unhelpful and confusing sort of terms, because the bioavailability of 7-OH is very low. It's about 2.7%.

And so, in human beings, who only take 7-OH orally, after first-pass metabolism, there's really not a lot getting through the blood-brain barrier. And it's kind of apples and pineapples to say, like, this is morphine. Because functionally it's just not acting that way, even though we do see opioid-like properties to it.

So, it's not to say that those aren't there and that there aren't side effects or potential adverse effects that are opioid like, but rather it's a very nuanced situation.

Dr. Stephen Taylor: And that is really important because that brings us right to my next question, which is, given that nuance, given the fact that it's not simply understood as an opioid, what should clinicians know about addiction potential, rewarding properties, and behaviorally reinforcing effects of these compounds?

Kirsten Smith: I think sometimes it's easy for people to forget that there's a lot of things with rewarding properties that have the potential for the development of physical dependence or addiction that have no opioid activity whatsoever.

So, the opioid part of this is, I think, more relevant for maybe some physical dependence aspects and toxicity. But at the end of the day, if a substance has rewarding properties, we all know that there's some proportion of people who are exposed to it that will develop a substance use disorder.

And we're not reinventing the wheel here. Kratom and 7-OH are not, in any way, magical compared to any other substance with rewarding potential. There are people who are going to love it. There are people who are going to hate it. There are people who are going to try it and never try it again.

And so, that, I think, is deeply important in understanding novel substances. But at the end of the day, we know that there are going to be people who develop a use disorder, and there are going to be a lot of people who don't or who moderate use.

I really want people to be reminded of the boring side, which we don't see represented in surveys that are self-selected, to maybe more beneficial effects or case reports, which are self-selected, to more adverse events. And Katie probably has some thoughts, too, on that.

Katie Hill: Yeah, I was going to say that, you know, when we're talking about addiction potential, most of the research that we've published to date has really been focused on the kratom products, kind of these whole-leaf products.

I can say that, for the work that we've published on kratom, the work has demonstrated that adults who consume kratom, approximately 25%, meet criteria for kratom use disorder using DSM-5 criteria, modified for kratom. Most of those qualified for a mild use disorder.

And it's typically driven by the pharmacologic criteria, such as tolerance and withdrawal. And most of the research demonstrates that symptoms related to kratom use disorder are associated with the dosing and the frequency and the amount. But the research on 7-OH is still underway.

Kirsten Smith: Everything Katie said is on point. I want to make it really clear that the data that have been published thus far on kratom indicate that tolerance and withdrawal do develop for most consumers who use on a regular, daily basis, multiple times a day.

There are outliers, but I think that that's the one thing that's hard to dispute at this point. The symptoms have consistently been mild to moderate. Severe cases – and I think this is important when we talk about addiction, the DSM-5 doesn't use the term

addiction; actually, they say severe presentations can be characterized by some as addiction. We refrain from using that term because of ambiguity and a lot of other things.

And so, I think, that is important to highlight that severe substance use disorders are not common because what we've seen is a lot of highly functioning people. So, they might meet a mild use disorder based on the tolerance and withdrawal, DSM-5 symptoms, but we don't have a lot of really severe disordered use.

And I think with 7-OH, the jury is still out. The data that are in hand, that we collected as part of the survey and qualitative interview study, I think it's going to kind of show there are people who are using it for a lot of reasons, and they're developing tolerance, as well as potential withdrawal. We didn't have as much withdrawal data just because a lot of people were still using it, or they'd only used it a couple of times, so they didn't develop that part.

And then with respect to use disorder, I don't think it's any exception. I think there are going to be a proportion of people who develop use disorders. The case report literature on 7-OH to date – there are four or five actual publications, with I believe 14 or 15 patients across the publications, in which a substance use disorder or withdrawal syndrome is discussed. And I encourage everyone to look at these because they're very ambiguous and fraught with a lot of assessment issues and testing issues. But the short version is that, interestingly, what we have seen is not many cases. But when withdrawal was assessed for 7-OH, it was mild, and in some cases moderate. We didn't see severe withdrawal.

Now I'm surprised by that, frankly, and I think we are going to see some severe withdrawal, but we just don't have it yet. And the interventions have been, you know, buprenorphine. And a new case report series that was just put out actually looked at methadone and the use of that, which is pretty interesting. But all but two patients had a history of opioid use disorder. And so, I think, it makes sense maybe that the provider would've gone to methadone.

But I encourage the listeners out there to write case reports on use disorder related to kratom and 7-OH because, you know, we don't have tons of them. We really do need more.

Dr. Stephen Taylor: You've highlighted the complexity of this issue and the need for more research and more data, and that is extremely important for our listeners to take into account.

But another issue, that I know our listeners are curious about, is what about the toxicity? When someone is acutely intoxicated, with or under the effects of kratom, what does that look like? What should clinicians expect to see? Why might it, or might it not, fit into a typical opioid toxidrome?

Kirsten Smith: The polypharmacy and the complex pharmacology we talked about earlier with kratom makes it such that there's not a clear, consistent, or yet identified toxidrome. I know that sounds odd, but we don't have a toxidrome for kratom to

date. We do have seizures that have been associated with kratom. We do have self-reports from people of dizziness or GI upset, things like that. Actually, some of the reports sound more like a stimulant overdose than an opioid overdose.

Now that said, there are also some reports out there that do talk about using naloxone and seeing some response with that. And sure, of course, if you administer naloxone, if there is any opioid activity happening, that's going to be antagonized. But again, it's just not been well documented.

So, the problem with a lot of our case reports is there's a lot of confounding factors. There's a lot of co-exposures with other substances or complex health histories. So, all of that to say, we don't yet have a great toxidrome.

I think mitragynine in rats, at least, and we do see that really, really, really high doses, not comparable to what humans take, have resulted in seizure-like behavior and death. So that's something to go on. But the ceiling effect for, let's say, respiratory depression, as Katie mentioned earlier, the beta arrestin pathway is not getting recruited. We don't see this typical opioid toxidrome emerging.

So, I think, at the end of the day, if you have naloxone, you might as well use it. But the serotonin activity is something that I think gets overlooked, and I would encourage clinicians to think about what an excess of that might look like.

And so, I think, we just have a lot to learn still.

Dr. Stephen Taylor: We have had members of ASAM actually bring up a number of 7-OH-related concerns. And I wonder if you would like to address some of these. I know one of them is this whole question of, well, what do we do about withdrawal?

And you sort of touched on that briefly, but I'd like you to address that directly and, you know, withdrawal from 7-OH, and also what about overdoses?

Kirsten Smith: So, in talking with clinicians, it's become clear that there is clearly a withdrawal syndrome with kratom and 7-OH. And I've researched, in a controlled, clinical research unit at Hopkins, kratom withdrawal under direct observations.

So, what it's looking like is similar, in some respects, to opioid withdrawal, but with a lot more restless legs and arms and things like that. And it has been mild to moderate. But I think a lot of symptoms that are actually kind of global, like no matter what you're withdrawing from, there are some symptoms that are kind of universal. And I think irritability is one of them. But the fatigue and restlessness and craving has been a big one, though we haven't seen severe GI upset or stuff like that.

With 7-OH, it's been hard to get data on it. Again, the case reports that we have, have described mild to moderate using the Clinical Opiate Withdrawal Scale or the Subjective Opiate Withdrawal Scale.

And I think we're in a place now that clinicians are going to have to do more out-of-the-box assessment. It is going to take asking patients, "How are you feeling?" "Describe how you're feeling?" and not just relying on the COWS and SOWS, even

though those can still be used, I think we have to get a little bit more creative in how we assess, not just kratom and 7-OH, but a lot of other things that are going to be coming on the pipeline, because it's not going to just end with 7-OH, right? We're just in a different world now.

And so, the one thing I would urge clinicians to do is to start to develop internal protocols and really refine them within the treatment setting because the clinicians are the ones on the front lines. Like, the researchers are way behind the clinicians. And so, we really do need clinicians to work on developing protocols for addressing what the syndrome might look like. Because right now, our assessments are just lacking.

And I've talked to providers, and I've asked them how many cases of 7-OH or kratom do you have on your caseload, and it's not a lot, but it's there, and it's new, and people don't know how to deal with it. But what's unique about kratom and 7-OH is that clinicians are seeing it. They're interested in it because it's new and different, but it's not rising to this level of their caseload where they're like, "this has to be all hands-on-deck, priority."

And so, we're stuck because we see it's important, we see that it's here, but it's not so important that we want to take the time to, like, revamp some of our day-to-day assessments or write up case reports or whatever. And so, clinicians have to be the vehicle for change here, because the researchers are not going to be able to do it. And if this is an important, new phenomenon to all of you, you're going to have to take charge and lead the way.

I think that's what's been so confusing about kratom, and now 7-OH, is we hear this is a public health threat, this is a fourth wave of the opioid epidemic, is what FDA is saying. And if that's really true, well, we go to act like it. And if it's not true, well, then we need to do what we can to ad-hoc help our patients where we can through comfort meds and stuff like that.

Dr. Stephen Taylor: Katie, do you have anything to add to that?

Katie Hill: I totally agree with everything Kirsten said. I think a lot of the work that I do outside of kratom is based on folks that are use of opioids and a whole bunch of stimulants and other things like that. And I think in the field of addiction medicine, the reality of substance use is polysubstance use.

And I think for a lot of patients, coming in with kratom use, they are likely to be using other substances, as well. And so, trying to understand kratom or 7-OH or pseudo or MGM, which is a whole other, semisynthetic derivative of kratom, trying to understand kratom and its derivatives in the context of polysubstance use is really complicated.

And as Kirsten said, we need clinicians and their input to understand how to best treat patients who are coming in using a heterogeneity of products and these derivatives, and especially co-formulations.

We've published some work on the challenges of assessing patients that are coming in, using a variety of products. And it's difficult to assess, you know, if a patient is coming in with a certain symptom. Is it mainly driven by the kava? Is it mainly driven by the kratom? Is it driven by some synergy that we are unsure about?

So, it's tricky to tease apart these questions, especially with folks that are maybe operating out of OTPs or other types of settings. A lot of their patients, that are using kratom, are likely to be using kratom potentially for managing withdrawal or other types of harm reduction type mechanisms. So, their kratom use is going to be in the context within opioid use or things like that.

So, it's an incredibly complicated topic. It's a really interesting field of work, and we're very fortunate to be working in it. But we certainly need clinicians, in their work, on our side.

Kirsten Smith: And kind of just putting a bow on that and coming back to where we started in a way, which is that past month and past year use when we assessed in our preliminary survey, 7-OH also included kratom leaf or extract. So, I think it was like to 28% were using 7-OH as a replacement for kratom leaf or extract. And for some, they were using both. So, if a person comes in and you're asking them about kratom or 7-OH use, and you don't clearly define them, you're going to miss the fact that they're using two different things, right? This gets into a lot of other assessment or treatment challenges.

Dr. Stephen Taylor: Well, one of the things that gets into, that I will talk about, because it's absolutely central to what physicians do and what clinicians, who are practicing addiction medicine, do, is taking a very careful, detailed history.

I mean, I'm hearing that in every single thing you're saying, and yet you haven't used those exact words, but that's key to what you're talking about. And I think that you really highlighted these particular compounds. So, thank you for emphasizing that.

Kirsten Smith: And I think too, because this is not going to change anytime soon. Kratom and 7-OH, whether they stay or go, we are in a new world in which the supplement industry and the internet and dark web have permitted folks who are inclined to just have access to a wide variety of substances that are ever dynamic and changing.

And so, clinicians need to be adaptive and flexible in their assessment methods, and for some, this gets into patient-centered, sensitive, like there's a sensitivity that I think some people have to even calling kratom a drug. So, if you ask a patient, "What drugs are you taking?" Well, some people don't think kratom's a drug, right? So, we really need to broaden assessments to ask about supplements or cognitive enhancers. Things that we might not love those terms, but that's where you're going to kind of get an in with some patients, and also I think be really opening up the door to a whole lot of other things that might not otherwise get talked about.

Dr. Stephen Taylor: So, it's flexibility. It's also innovation and creativity, it sounds like, are other things that I think we need to be considering.

With all this rich material that you have provided to my listeners, what are the main practice pearls or action items that clinicians should take away from this discussion?

Katie Hill: One of the primary runs is, not all kratom products are created equal. When somebody says kratom or even 7-OH, or any of these things, it could mean a variety of things to that person. And it means a variety of things to you as a provider. And you really have to understand that there's a difference of kratom-derived products, and to understand that there's various amount of alkaloids in these products and per serving.

And one of the things that I've known some clinicians to do, for instance, is even ask folks to bring in the products that they're using, so they can actually see and help them read the back. One of the things that's kind of confusing about a lot of these products is in really fine print, it'll say, "One pill, it's scored in fourth," and you're actually supposed to take a fourth of it. And not a lot of patients are actually knowing this. So, understanding that not all products are created equal is a great practice pearl.

Kirsten Smith: There's two pearls I would flag. One is that our urine assays for kratom are really mitragynine. That's what's being tested for. So, if we test for mitragynine and it comes back, but we don't have any other information, there's going to be an assumption that a kratom product was taken. And that could be correct, but it also could be that you have a 7-OH product with high residuals of mitragynine in it, so it doesn't tell you a lot.

So, it goes back to what Katie said about collecting a sample of the product or getting the brand name. 7-OH is highly unstable in blood. So even if you were to collect it, you need to be doing it under optimal conditions, and it is quickly metabolized as well. So that's something for clinicians to keep in mind.

There are some urine assays being developed, but of course, you would have to send out for that. It's going to be costly, it's going to be time-consuming, so all of that to say, take the urine seriously, but don't take it, you know, as like the end-all be-all truth because there's not going to be a replacement for like really good self-report.

And then the other pearl, which is a little bit more complicated with respect to 7-OH, is that whether or not buprenorphine is the appropriate treatment for kratom use disorder. Given the polypharmacy we already talked about, we know it's being used, and for some people, it's effective.

For people with an opioid use disorder history, it's clearly a much more coherent option. I think with 7-OH, we have two things happening. One, a lot of people using 7-OH, not everybody, but a lot, have an opioid use disorder history. I don't think we know how many exactly, but it's certainly not insignificant, and I think that makes buprenorphine a lot more attractive in some ways. And the pharmacology of 7-OH would also kind of suggest buprenorphine.

And so, I think that, that's great, look into that. But the one thing that has come up in some of the interviews I did, a lot of people were really resistant to wanting to go back on buprenorphine. And I think that the fear is if we don't listen to them and hear

them, then we're going to lose them. And so, that is an area that should be really thoughtfully considered in the patient-provider interaction.

Dr. Stephen Taylor: That is so very important. We talk all the time about motivational interviewing. We talk all the time about listening very carefully to the people that we are working with. To try to engage in teamwork to help a person get to the goals that they want to reach. And I think that's being highlighted with what you're saying as well.

I'm going to throw in one more, what I would say is a key takeaway from this discussion that I think I heard you emphasize repeatedly, and that is, clinicians have got to step up. The researchers are a bit behind the clinicians. The clinicians are the ones who are seeing these folks and need to publish what they're seeing and share the knowledge and the experience that they're having so that we all can learn more about how best to help the folks that we are seeing, who are using these substances.

So, I just wanted to add that and then give you both a chance if there's any other key takeaway that you would add to what we've been talking about.

Katie Hill: I think adding just making sure that the case report includes the full clinical picture, making sure that the patient got a full assessment, and then that the treatment was really tailored to the individual's needs and that we really understood the patient.

Kirsten Smith: Yeah, I think we've obliquely hinted at what I'm about to say, but I'm going to say it more directly.

The folks that I've studied who are using kratom and now 7-OH are in many ways diverse. But one thing that I think a lot of them have in common is that they came to kratom and 7-OH with somewhat different motivations. Where there is recreational use, there are some people using kratom to "get high or intoxicated." But a lot of them are not using it for that. And I think that that makes treatment a little bit more challenging, because if the person is really earnestly going to a substance, I want to function, I'm not trying to get intoxicated, I'm not trying to have a mind-altering, really extreme experience, but I'm really trying to go to work and take care of my family and stuff like that.

I think it makes, when a use disorder develop around that a lot more complicated, because it wasn't without some benefit. And the DSM-5 does a great job of assessing disorder, but we as clinicians have to ask about use motivations, benefits, because if that was serving some purpose, and we're going to have them not take it anymore, well then, what are we going to do to help them work on getting that addressed in other ways?

And pain management is a really, really big one. I don't know that there's going to be an easy answer to that, given where we are in this country in terms of pain management and psychiatric health issues. It's just there's a lot of challenges.

I will say that I do think that, in some respects, these are folks that are not always going to be super inclined to go with FDA-approved medications, and whether we agree with that or not, it is something that's come up a lot.

So again, working with the patient to kind of meet them where they're at and reduce harm. Maybe it's not entirely abstinence. Maybe it's about reducing use and accountability. I think it's going to be different for everybody, but educating them on the risks of these products, I think, is another thing that is important to do.

Dr. Stephen Taylor: Dr. Kirsten Smith, Katie Hill, y'all have been fascinating during this episode, and I got to tell you, if nothing else, you have whetted the appetite of our listeners for more information. You've been a wealth of information, and yet, more than anything else, you've raised a lot of questions and piqued a lot of curiosity. So, thank you so much for sharing with us your knowledge and your expertise, and also sharing with us and being honest with us about what you don't know and what nobody knows yet.

So, the most important message I can give our listeners is how you get more information on this. And quite frankly, the way to get more information is so often coming to the ASAM Annual Conference. And once again, that's the case on this topic.

Come to the ASAM 57th Annual Conference in San Diego. There will be two great sessions on this topic. The first is Beyond Kratom: Novel Products Containing 7-OH Pseudo MGM, and Kava, with none other than today's experts as the session presenters. The second is the general session in Understanding the Evolving Drug Landscape from Epidemiology to Clinical Practice. Don't miss out. Register for the conference today.

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