Week 3 - Other Classes of Drugs & Behavioral Addiction

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00:03

Hello, and welcome back, everyone, I see a lot of familiar names. So thanks for joining us, again. I'll probably give a couple more minutes for folks that are joining and connecting to audio. But as a reminder, this is supposed to be as engaging and interactive of a session as possible. So we'll be going over some practice questions that are pre-planned. But if you have follow-up questions, or if you are reviewing the material, and you came up with some additional questions about the lectures, feel free to ask them. You're able to unmute yourself here and just speak out. Or if you don't feel comfortable with that, you can also throw anything into the chat. And I'll be monitoring and reading that out loud.

00:40

It looks like most folks that were in the waiting room have joined with audio now. So go ahead and get us started. Again, welcome everyone. My name is Giulia and I will be here to support you. And we're here today with two of our expert faculty members. Dr. Annie Levesque- covered our other classes of drugs lecture, and then Dr. Faye Chao, who talked about behavioral addictions. And they're both committee members. So we have a stacked cast today. So I'll turn it over to Dr. Levesque first introduce herself.

01:11

Hi, thank you, Giulia. I'm Dr. Annie Levesque. I work at Mount Sinai West Hospital in New York City. I do Addiction Medicine here. And yes, today, I will be answering a few questions about other classes of drugs. So should I just share my screen now?

01:28

Yes. And just before we completely get into the questions, I'll turn it over to Dr. Chao, just to introduce herself.

01:40

Oh, hi, I'm Faye Chao. I'm an addiction psychiatrist. I work in the VA system. And I will be talking about- well, I already talked about behavioral addictions- there will be answered questions about that after Dr. Levesque is finished.

01:57

Alright, feel free to share screen whenever you're ready.

02:05

While you do that, I will encourage folks if you feel comfortable and you're able to jump on and turn your camera on, it makes for a much more engaging session.

02:16

So I guess let's let's begin. Okay, so the first question is, so I'll just, I guess read the question and then everyone can feel free to answer in the chat. Right. Okay. So a 14-year-old presents to the emergency department after his mother discovered him inhaling the gas from the propellant of a can of whipped cream. Chronic use of the particular inhalants most often used in whipped cream canisters is most likely to result in which of the following: A- microcytic anemia; B- inflammatory bronchitis; C- proteinuria; or D-sensorimotor polyneuropathy? I'll give you a minute to answer.

03:18

All right, so the answer here is D: sensorimotor polyneuropathy. So the drug the person is using here in this scenario is nitrous oxide. So the colloquial term for this drug would be whippet or the people also talk about laughing gas. Also, whipped cream dispensers contain some compressed nitrous oxide that is used as a propellant. And so people... often they will pierce the end of the bottle and then they will either inhale directly the gas that comes from it, or sometimes they'll capture it in a balloon and then inhale it from- from the balloon. So nitrous oxide has an impact on vitamin B12. So it converts vitamin B12, into an inactive form. So when people use it repeatedly, they... they eventually develop B12 deficiency symptoms. And especially if people already have a borderline level or a low level, they're more likely to develop that sort of complication. So we can see in people using nitrous oxide any sort of symptoms that we could see with B12 deficiency and neuropathy is one of those complications. So the neuropathies, we see with B12 deficiency will be symmetric, symmetrical paraesthesias, more often, more likely to happen in the lower extremity than the upper extremities, and we'll often see gait problems with that. So the correct answer was D. Microcytic anemia, choice A is not correct. We can see anemia from B12 deficiency but usually we're talking about megaloblastic anemia, so macrocytic and not microcytic.

04:57

So let's move on to the next question. A 24-year-old bodybuilder presents to your clinic because he is experiencing severe adverse effect of using anabolic steroids. In anabolic steroid use, the term pyramiding refers to: A- taking anabolic steroids in increasing doses in cycles alternating with drug-free periods. B- combining anabolic steroids with amphetamines. C- taking anabolic steroids until toxicity develops. Or D- taking several anabolic steroids simultaneously. We'll, again, give you a minute to answer.

05:42

Some A's coming in through the chat. And just as a reminder, folks, if you have follow-up questions, feel free to throw them into the chat or to unmute yourself or raise your hand, and we're happy to address them as we go.

05:54

Thank you for clarifying. So yes, many A's in the chat. So the answer is indeed A. So this is a very testable question. When it comes to anabolic-androgenic steroids, just knowing the few definitions... So the terms that are often questions are pyramiding, stacking and cycling. So, so here we're talking about pyramiding. So often people do that in order to avoid being caught on a drug test. So the idea is that they start with a low dose, and then they gradually increase the dose until the levels peak a few weeks prior or several weeks prior to competition, and then they will taper to those. And the idea is that they want to be drug-free when when they go to be drug-tested. So that's the concept of pyramiding.

06:44

The other definitions that would be good to know is stacking, which is the use of combinations of multiple anabolic steroids at the same time, so that would be the choice D in this in this scenario. And then the last term, it's

07:00

not described in those multiple choice, but it's cycling and it's the use of steroid combinations for weeks to months with absence period before resumption of difference, different period of comb- in or combination. So the idea is that they will use a combination of steroids, then stop for a while, then use a different combination. And the goal for people doing that is to avoid becoming tolerant to a certain drug or a certain combination.

07:30

Okay, so next question. Supportive management or talking-down of most acute reactions to LSD: A- should be accompanied by a mixture, an injection of diazepam or Valium; B- should only be attempted in a hospital or emergency room setting; C- can usually be accomplished without medication, or hospitalization; or D- is not indicated for these reactions to LSD. So everyone can vote.

08:08

Give you a few more minutes, a few more seconds. So I see A, C, B, okay, so a few different answers here. Um, so the correct answer is D. So for for most hallucinogens, so including LSD, the type of experience that people have depends a lot on the person's psychological state before using the drug, but also on the external environment. So- so taking the drug in a safe environment and with people that are supportive can really minimize the risk of having a bad experience. And at the same time, if someone has an addictive experience, so or if they have something that I can, which we call a bad trip, it's possible to reason with them and to calm them down. So with hallucinogens, reality testing is relatively preserved. So that means that the person is able to understand that the experience that they're having is actually the result of the drug they're using. And so it's possible to reason with them and to talk to them to calm them down. So this is really the first step and it doesn't need to be done in a hospital. And if that doesn't work, and the person is really agitated, and really anxious, then we can think about benzodiazepine. But it is usually not the first intervention to try. And it again, doesn't need to be done in a hospital. LSD intoxication- it rarely needs acute medical care, other than when a person is really agitated and is a danger to themselves. But the sort of physical consequences of LSD intoxication don't usually need accute

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medical support.

09:58

Okay, so next question. The 48-year-old man comes for consultation after seeing light trails behind moving objects and having the feeling that he could smell colors around him. His symptoms first appeared one day after he began lifting weights to relieve work-related stress. He says that he has usually, sorry, he says that he has used LSD, cocaine, ghb, kava kava, and toluene in the past. Which of the following drugs is most likely responsible: A- cocaine; B-LSD; C-ghb, or D- kava kava. Again, you can put your answer in the chat.

10:45

C and D...

10:52

C... B... Okay, so, again, different answers. So the correct answer here is B- LSD. So the symptoms that the patient is reporting here is called synesthesia. So it refers to a crossing of sensory streams. So people often describe things like smelling colors, like in this case, or tasting sounds, or seeing smells or you know, things like that. It can happen with any hallucinogens, or any classical hallucinogens, meaning the ones that activate the 5-HT2A way receptors. In this case, the timing is not clearly explained. So it's not clear if this synesthesia is happening when the person is acutely intoxicated, or if it happened after the acute intoxication is done. If it was to happen after the acute intoxication, we would call it a hallucinogen persisting perception disorder, or HPPD. That's what people often call flashback. So it's when a person re-experienced the perceptual symptoms of

hallucinogen intoxication after the intoxication has stopped. So it is it can happen up to one or two years after the last use, which is which is quite long. And it's usually not related to the dose or the number of exposure.

12:14

And another interesting thing about HPPD is that it can be triggered by another drug use. So for example, someone used LSD in the past and now today they're using cannabis, but it will feel as if

12:26

they're using LSD again. So the correct answer well was LSD. Cocaine usually is a stimulant, it usually doesn't cause any perceptual symptoms like that. GHB, is a GABA B receptor agonist. It causes more like sedation and then kava kava is also more of a sedative agent, so would not cause hallucinations.

12:56

Okay, next question. Which of the following statements is most true about tolerance and a patient taking repeated daily doses of LSD: A- no tolerance develops; B- tolerance develops in three to four days; C- tolerance develops in- two to three weeks; or D- tolerance develops in two to three months.

13:27

Our answers in the chat... I don't see any yet... so A has two people answering A. So actually, the correct answer is- is B- so two to three days. So most- most classical hallucinogens, again classical hallucinogens, I mean, those that link the 5-HT2A or serotonin receptors, they induce a rapid tolerance. Usually it happens within a few days of repeated use. So- that- the hypothesis on why it happens is that it may cause a desensitization of the receptors and it can also cause a decrease in the density of the serotonin receptors. And because of that mechanism, it it also causes a cross tolerance between the different classical hallucinogens because they all act on the same receptor. So if there's a decrease in density or decrease in sensitivity, it will affect the- the effectiveness of all different hallucinogens. What we'll see is that frequent use after a few days will lead to little or no intoxication. Which might be one of the reasons why we don't often see people using hallucinogens daily. It's more of a sporadic use sort of pattern of use.

14:56

Okay, so next question. What is the most likely reason why there are few cases of inhalant overdose seen in emergency departments: A- the prevalence of inhalant use is very low in North America. B- parents and teachers are reluctant to call for emergency help in cases of inhalant intoxication because they're concerned with the stigma associated with this form of substance use. C- acute poisoning requiring emergency treatment with inhalants is very unlikely because they do not have a pronounced effect on the brain and D- recovery from inhalant intoxication is so rapid, that transportation to the emergency department is rarely needed. You can write your answer in

15:50

B and a D and an A, great again, very different answers. So here we were looking for D. So recovery is so rapid that transportation is rarely needed. I have to say B might be true. I mean, I'm not sure how to verify that there might be concerns from parents and teachers about stigma. But that's not the main reason. So inhalants are very lipophilic. They're very lipophilic drugs, so they are quickly absorbed in the lungs, and they also rapidly cross the blood brain barrier. And on top of it, they also have a very short half-life. So- so the period of intoxication is very rapid. And so for that reason, unless the- the intoxication would be extremely severe, people are rarely taken to the emergency room because it's resolved very quickly. And for that same reason, family and friends are less likely to witness someone intoxicated and less likely to seek medical care. So what we often see is multiple periods, multiple episodes of- of use within a day that are very short lived. So the choice A is also false. It's not the most prevalent substance used, but it's still significant, and especially in the 12 to 17 year old group. The only substances that are used more often in that age group are alcohol, tobacco and cannabis, but it's still a very prevalent drug in that age group. And then C is also false. There are a lot of complications in the brain from from what- the complications are more likely to occur with chronic use. So, but- but there may be a lot of acute complication from inhalant use. So for example, it can lead to respiratory depression, arrhythmia, cardiac arrest, but there are also some impact on the body.

17:51

Okay, so let's move to the next question: A 16-year-old male is brought to the emergency department by his parents for new onset of odd behavior after being left home alone pretty after. He has disoriented time, cloudy in his sensorium and reaching for things that are not there. He has been maintained on a stable dose of sertraline for several months for depression, and his parents wonder if this medication may be causing his problems. He has never behaved like this before and is known to be adherent to his medication as the parents keep and dispense daily. He appears anxious, restless, and sweaty despite no recent physical activity. Physical examination reveals increased deep tendon reflex, ataxia, and these are Tria, but is otherwise normal. Sorry, vital signs demonstrate a heart rate of 124. There was no alcohol in the home. He is not known to use drugs. His routine urine drug screen is negative. All testing and other examination items are negative. Upon further questioning his parent notes unexplained recently declining stock of cough medicine in their home and a recent mail order package arriving for their son, but they have no knowledge of its content. What comorbid drug interaction syndrome could be- could he also be manifesting: A- Cytochrome P450 Interaction, B- Neuroleptic Malignant syndrome; C- anticholinergic delirium; or D- serotonin syndrome. You can put your answer in the chat.

19:43

Two people match D. So it seems like a simple case this time so the answer is D. So I guess if we look at this case, first of all the description of symptoms is compatible with serotonin syndrome. So the mental status change, tachycardia, hyperreflexia, sweats, hyperthermia... those are all symptoms compatible with serotonin syndrome. Sorry, the other clue is that the patient is on SSRI, and he is using cough suppressant. So the cough suppressant medication we're thinking about here is most likely dextromethorphan which is sometimes misused for its dissociative effect. And so,

dextromethorphan also has some- some serotonin effects. So it increased the release of serotonin and it also decreased the reuptake. So people who are using dextromethorphan are at risk of serotonin syndrome, especially if they're also using SSRI, like in this case.

20:51
So if we look at the other choices, it is not due to a

20:54
P450 interaction. It's really due to an excess of serotonin by a combination of two medications. For Neuroleptic Malignant Syndrome, it would be thinking of someone on an anti-psychotic medication. And then anticholinergic could be possible. Like the symptoms could be similar but in anticholinergics delirium we would not see a patient who presents sweaty. The skin is usually very dry with anticholinergic delirium and also hyperreflexia is not common.

21:26
Next question. Abnormal liver function with antibody series: A- usually subsides within the first month of use; B- is more common with injectable steroids; C- is frequently seen with oral steroids; or D- is frequently followed by hepatic personal month.

21:55
One answer for D.

22:06
B...

22:12
So we have a few answers. The actually- the correct answer here is C. So oral formulation of anabolic-androgenic steroids are more likely to lead to liver complication because of first pass metabolism. So- so basically, the liver is more exposed to the substance when it's taken orally. And for that reason, many people prefer using injectable steroids because they know it's less likely to cause liver damage.

22:47
Next,

22:48

Anabolic steroids do not have FDA-approval for which of the following indications: A- metastatic breast cancer; B- hypogonadism; C- diminishing symptoms of hereditary angioedema; or D- improving muscle mass or improving athletic performance.

23:19

Yes, everybody seems to know the answer here. D is correct. So many people use steroids for improving muscle mass and improving athletic performance but it is not FDA indication. So there are a few of FDA indication or FDA approval for steroids... so some of them are hypogonadism, hereditary angioedema, acquired aplastic anemia, or fibro- sort of myelofibrosis treatment. It can be given to help with muscle-mass building but really in cases of muscle wasting due to starvation or chronic infections. It can be used for the treatment of breast cancer. Like in this case, like answer A- metastatic breast cancer and it can also be used for patients who go through gender changes.

24:18

A 15-year-old male high school freshman presents to the emergency department with a blank stare, belligerence, psychomotor agitation, horizontal nystagmus, vertical nystagmus, blood pressure of 160 over 110, ataxia, dysarthria , and diminished responsiveness to pain. He appears to be hallucinating and

24:41

as he is being interviewed, he assaulted one of the attendants. The most likely diagnosis is: A- PCP intoxication; B- atropine intoxication; C- benzodiazepine intoxication; or D- mescaline intoxication? So... again your answer in the chat. I have a few A's and that is the correct answer. So we're looking into someone with PCP intoxication here. So this- this scenario really describes the classical- it's a classical PCP intoxication case. So just to review a little bit: PCP, is an NMDA receptor antagonist, it causes this- it's a dissociated drug. And so the symptoms here of PCP intoxication mimic psychosis. So we'll see the positive and the negative symptoms in this case. The person is, is agitated. They have disorganized behavior, or they also have a blank stare, I believe they say yes, a blank stare. So a little bit of negative symptoms. We often see people intoxicated with PCP with aggressive combative behaviors. And on physical exam, high blood pressure is common. We can also see different kinds of nystagmus. So horizontal, vertical, and also reiterated nystagmus. This is a pretty, pretty classic classical case.

26:18

And I think this was my, this was my last question here. So before I let Dr. Chao go through our questions, if there's any other question from you, I can, can stick around, and we can take questions at the end as well.

26:41

So as a reminder, in a little bit, we will transition into our behavioral addiction part of this session. So if you have any questions about these other classes of drugs, please feel free to ask them now. I think Annie might be logging off at some point. So take your- take your opportunity now.

27:07

That's it. So it's very clear.

27:10

We shall see. And also, as another reminder, we do record these sessions, and they're being recorded and there'll be available to you in the eLearning Center afterwards. So within the week, you should be able to see that. So you can always revisit the explanations and, you know, re-review the questions that you were maybe not as confident in.

27:35

I think this means we're good to switch over to behavioral addictions, but I'll keep monitoring and see if any other questions come up in the chat. Are you ready? Dr. Chao?

27:46

Yep. But Annie has to stop sharing her screen before I can share mine. Thanks. Okay. Right.

28:13

Okay, so I am going to go through some questions about behavioral addictions. Feel free to put any questions into the chat. Let me just pull that up so I can see. Okay. So which of the following behavioral addictions is included in the DSM-5 under substance-related and addictive disorders? So, A- internet use disorder; B- gambling disorder; C- compulsive shopping disorder; or D- hypersexual disorder?

28:52

Okay, I'm seeing a lot of B's, and that is indeed the answer. So gambling disorder is the only behavioral addiction that's included in the DSM-5 as an official diagnosis. There is another one which is in the appendix, which I think is a later question. So I'm not going to tell you which one that is. We will get to it in just a few minutes.

29:17

Which of the following statements about gambling disorder is true: A- woman with a particular polymorphism oops, sorry. I'm not good at reading this. Women with particular polymorphism with

MAO-A enzymes exhibit a higher risk of loss of control playing blackjack than women without such polymorphisms; B- genetic environmental contributions to risk of GUD are quite distinct and separate from those associated with alcohol use disorder risk; C- about half the probability of developing gambling disorder is attributable to genetic influences; or D- genetic transmission of gambling disorder risk tends to skip generations especially in twin-based studies.

29:59

So I gave you the spoiler, which is that the answer is C- about half the probability of developing gambling disorder is attributed- attributable to genetic influences.

30:11

So the wrong answers: A- there have not actually been studies that show any particular genetic risk associated with specific games. So we don't have evidence to support this statement. Statement B- There actually is quite a bit of overlap in terms of genetic and environmental contributions between gambling disorders and substance use disorders. So, they are not distinct and separate. There are specific genes that have been shown to contribute to the risk for developing both gambling disorder and alcohol use disorder as well as certain risk factors such as adverse childhood events. And then D- genetic transmission of gambling disorder risk tends to skip generations. This has not been shown, and even if it had been shown it would not be shown in twin-based studies because obviously, twins are the same generation, so D is also incorrect.

31:08

Okay. A 56-year-old man presents to your practice for evaluation of pathological gambling. Which of the following has not been associated with pathological gambling: So A- financial difficulties such as bankruptcy; B- work-related problems such as absenteeism; C- improved overall health or D- high rates of nicotine dependence?

31:40

Yep, so this one's kind of a gimme. Improved overall health is not generally seen with pathological gambling. Certainly people with difficulty controlling their gambling run into financial difficulties. They also have functional difficulties similar to what we see in substance use disorders where they are not doing what they need to do in their life. So work related problems, marital problems, problems with school, problems with other relationships, and high rates of nicotine dependence have actually been associated with pathological gambling. Most casinos, or many casinos you can still smoke in. So there is some correlation there.

32:21

Okay, research shows that gambling disorder involves a strongest effect on which of the following neurotransmitters: A- dopamine; B- GABA; C- acetylcholine; or D- endorphins?

32:44

Okay, I'm seeing a lot of A's, some D's. So the official answer is A and dopamine is, you know, sort of the main neurotransmitter that we think of as being involved with the reward pathway. That's what gives us the sort of pleasurable rush that comes from doing normal pleasurable behaviors and also behaviors which might be less than less than normal. Endorphins are also involved, but in a sort of indirect way. And so I think if I was going to pick any of the other neurotransmitters in this list, probably it would be endorphins, but dopamine has a slightly stronger role in this and a more sort of direct role in terms of reinforcing addictive behaviors.

33:38

Okay, caisson, yet Robert reports that he has been quote unquote, addicted to Candy Crush Saga since high school. He also has to study for a neurobiology exam on Friday. It's now 10pm on Thursday evening, and he hasn't started looking at the lectures at all. He thinks himself if I get some Swedish fish to grab some candies, I can reach Pudding Patch by midnight, which will give me such a sense of accomplishment that I will have a clear head tomorrow to tackle any question. Perfect. Plan to Pudding Patch it is. What part of Robert's brain most likely got activated by Pudding Patch just now? So: A- the medial orbitofrontal cortex, (B)- the nucleus accumbens, C- the amygdala and hippocamp-hippocampus; or D- the insula?

34:36

So I think it's for this question if I see a couple A's and a B, any other thoughts on this?

34:46

A- good, great. Yeah, this is a neurobiology of addiction question, which is not always the most fun, but definitely something which shows up on exams. Okay, so the answer is a. So the orbito-, so all of these obviously are structures in the brain that are involved in addiction and addictive behaviors. However, in this particular circumstance, what Robert is doing is, is sort of reasoning.

35:17

Oh, what's sorry. So he's, I had edited one of these slides and not the other one, but it was just in the questions that were not in the answer. So basically, he's reasoning, he's trying to make a decision of whether or not he can go ahead and play this game. So the orbitofrontal cortex is involved with the process of decision making, and the decision to go ahead with the behavior or not. So that's why in this case, it's medial orbitofrontal cortex. The nucleus accumbens, as we know, is very involved with reward. It is where the dopaminergic neurons from the ventral tegmental area project, and so is involved in the perception of pleasure when we engage in a pleasurable activity. But since he hasn't actually started playing Candy Crush yet, you know, even anticipation of a behavior may cause a little bit of firing of the nucleus, the ventral tegmental area and the nucleus accumbens. But until you actually engage in the thing, it's not really the big hit that you get. Amygdala and hippocampus are involved in emotional learning and declarative learning, and memory. So these, again, might be

activated to some degree because he had to learn at some point that he goes through this pathway in order to get that sense of accomplishment. But again, he's still in this moment, making the decision is the main sort of action that he's doing. And the insula is involved in

36:41

interoceptive awareness, awareness of sort of bodily sensations like pain or hunger. It also is involved with salience. So this also gets triggered a little bit in this situation, because knowing that Candy Crush is a salient cue, that is the pathway to pleasure is is what the insula is involved in. But again, this particular moment that we caught him in, he is trying to decide what to do: play Candy Crush, or take the test and he has decided to go with the Candy Crush. So orbitofrontal cortex.

37:17

Okay. Which of the following correctly lists medications that have demonstrated efficacy for the treatment of gambling disorder in at least one randomized controlled trial? So, A- naltrexone, lithium and paroxetine; B- naltrexone, lithium and olanzapine? The lithium paroxetine, and olanzapine or D- paroxetine, naltrexone and olanzapine?

37:50

Seeing a few A's.

38:00

Great, so the answer is A. In this case, you can strike out any... So I think in the lecture that I gave, we definitely talked about naltrexone and SSRIs. So you can eliminate any answer that does not have either naltrexone, which eliminates C, or paroxetine, which eliminates B. So then we're looking between A and D. And of these two, lithium is the one that has shown some efficacy and reducing the severity of gambling behaviors. And interestingly, that holds true in both patients who have bipolar disorder, which kind of makes sense if you give them lithium, and their bipolar is a little bit more under control than they may be less impulsive overall. But it also has been shown to be efficacious in some studies looking at folks who do not have bipolar disorder. So people who just have a gambling disorder have reduced gambling behaviors with lithium.

39:01

Okay, which of the following medications has some- has some evidence base for the treatment of gambling disorder? This one you should all get. Because we've sort of just talked about it in the previous question. So I'm not going to belabor this. The answer is B- naltrexone. And just in general, naltrexone has been looked at for a lot of impulsive behaviors. So there's also been research done on it for binge eating disorder and for hypersexual disorder. So it is and as we know, it is used in the treatment and FDA-approved for the treatment of two substance use disorders. So a lot of times, if

naltrexone is an answer choice for addictive disorders, it probably is the right answer. I don't want it- that is not an official ASAM stance. I'm not getting that as official advice, but it's usually a pretty good bet.

39:55

Okay, which of the following behavioral addictions is included in the

39:58

DSM-5 under conditions for further study? So A- compulsive buying disorder; B- hypersexual disorder; C- food addiction; or D-Internet gaming disorder

40:19

All

40:19

right. So I kind of mentioned this at the beginning. I said I wasn't going to spoil that one and I did not. So the answer is actually D- internet gaming disorder. I see a couple other answers some C's and B's. So hypersexual disorder is probably the next one that might kind of at least come into the appendix as a condition for further study. So and I did mention that in the lecture, so I can see why you might pick that one. And food addiction is not in the DSM, but binge eating disorder is and those two are somewhat distinct, although related, but technically it is not food addiction, it would be a binge eating disorder, which is actually under the eating disorder rubric and not addictive disorders. So yes, so internet gaming disorder is in the appendix as a condition for further study. And it is also included in the ICD-11 and recognized by the World Health Organization as a diagnosable condition.

41:19

All right, which of the following screening tools is recommended for gambling disorder? A- the DASS; B- CAGE; C- the Lie-bet test, or D- the TAPS-2?

41:40

Okay, this is the lie-bet test. This is- it consists of just two questions and has a relatively high sensitivity and specificity. The two questions, if you don't recall, are one, have you ever felt the need to bet more and more money? And two, have you ever felt a need to lie to people important to you to conceal how much you're gambling? So if someone answers, yes to those questions, there is a relatively high likelihood that they have some problematic gambling behaviors. And you should go on to investigate more.

42:21

Which of the following describes the average player in the US identified by the Enter- Entertainment Software Association?

42:28

A- the average age of players is 21; B- more than two-thirds of players identify as male; C- more than 70% of players identify as white; or D- at least 50% of players only play on smartphones. So the answer actually is C. And this question is sort of to highlight

43:03

the fact that, that the actual average player in the US is not what we think of, you know, is not what we would like sort of typically think of as quote unquote, gamer. So the stereotypical gamer we think of is a younger male. But actually, the average age of players is in early 30s. About half of players identify as female, so 50/50 split between men and women. And only about 12% of players only play on smartphones. So sometimes people think that like oh, the category of quote unquote "gamer" is super broad, because people are like playing Candy Crush or whatever on their phone in between, in between patients, or like on the subway or whatever, but actually, that is the minority of people. But it is true that over 70% of players identify as white so in the most I think the 2021 survey, they update this survey every year, 73% of players identified as white.

44:11

Which of the following describes temporal telescoping, so this is one of the cognitive distortions that people with gambling disorder may engage in. So, A- totaling wins without correcting for amounts lost; B- expecting that naturally occurring wins will happen sooner rather than later; C- attributing wins to skill and losses to fluke; or D- believing and good luck objects, behaviors, and/or rituals.

44:46

So the answer is B. This is the definition of temporal telescoping is that expecting that something that is naturally occurring will happen sooner rather than later. The others encompass other cognitive distortions. So attributing wins to skill and losses to flukes is an interpretive bias. D- believing and good luck objects, behaviors and routines are superstitious beliefs and totaling wins without correcting for amounts lost. Forget with them... I actually forget what that is called. Selective. Oh yeah, yes selective memory. Oh, wow, there's a demonstration of selective memory right there. Okay. Okay.

45:33

And then the last one while waiting at the Las Vegas airport for his friend to land, John sits at a slot machine to pass the time. After two hours, he realizes he has spent more money than intended and is running out of time to grab food and use the bathroom before meeting his friend at the gate.

However he thinks to himself, I can't really get up now, I spent too much money and time to walk away. This is an example of what cognitive distortion: So, A- temporal telescoping, B- selective memory; C- superstitious beliefs; or D- the sunk cost fallacy. We kind of went over these just a moment ago in the previous one. So I'm just going to go straight to the answer, which is that it is D- the sunk cost fallacy. So the idea that I've already invested this much, so I can't, I need to continue investing is obviously a cognitive distortion because whatever you invested prior to this moment has no bearing on future outcome. But people very often fall victim to this fallacy. And rather than cut their losses off- there's a phrase- they throw they could they throw good money after bad money. Okay, and that's it. I will stop sharing. And if there's any additional questions, feel free to unmute yourself or to throw them into a group chat.

47:14

All right, we can give folks a couple of minutes just in case they're typing because we can't see anybody's typing. But yes, if you feel comfortable- if you do have any follow up questions, or you want any clarification or want us to repeat one of the questions, this would be a great time to ask we have about 10 minutes left in our session.

48:01

All right, well, I'm not going to sit here for 10 minutes in silence. I'm assuming that nobody else has questions. Although obviously, if you think of something later on, you can always get in contact by email, or I guess primarily by email.

48:18

Yeah. So I think the best way if you do think of other questions, as you're reviewing is to email us at education@acm.org. And we can always field those to whatever faculty needs to see them or who are best-equipped. And then as a reminder, again, this is has been recorded. So it will be posted in the eLearning Center and you can access that for more practice- probably within a week. All right, if nobody else has any questions. Thank you so much, Dr. Chao for being with us. I see someone coming on camera. Hello. Thank you. Thank you. Thank you all for joining and I will see you all next week. Thanks.