NATIONAL HEADACHE FOUNDATION
HEAD WISE PODCAST

Episode 237: Cogniphobia and Migraine Explained

Lindsay Weitzel, PhD:
Hello everyone, and welcome to Head Wise, the videocast and podcast of the National Headache Foundation. I'm Doctor Lindsay Weitzel. I'm the founder of Migraine Nation, and I've a history of chronic and daily migraine that began at the age of four. I'm very excited to tell you that I am here today with Doctor Elizabeth Seng. Hello Doctor Seng, how are you?

Elizabeth Seng, PhD:
I'm doing well. How are you?

Lindsay Weitzel, PhD:
I am good. Doctor Seng is a repeat guest because we love what she has to say. She is also an associate professor of psychology at the Ferkauf Graduate School of Psychology at Yeshiva University. Doctor Seng is widely published in the field of headache psychology and is just an awesome person. We are very lucky to have her here today.

So, let's get started on our topic. Do you ever feel like when you think really hard or you're doing work that is cognitively difficult, that your head pain gets worse? Or do you notice that your children's migraine or head pain becomes more severe when they're doing homework, etc.? Well, there is a term for this. It is called cogniphobia.

Cogniphobia is the fear and avoidance of cognitive exertion, which is believed to precipitate or exacerbate head pain. And doctor Seng is not only one of my favorite people. She is one of the few published authors in this area, and I really want to pick her brain and ask her all about this today. So, doctor Seng, can you begin by explaining to us in your words what cogniphobia is and why it occurs?

Elizabeth Seng, PhD:
Yeah. So, I think it's important for us to recognize that we don't really know what's triggering migraine attacks. And it is certainly true that for many people, they perceive cognitive exertion or trying really hard to think about things, which is the fancy term for that, that as a migraine, attack trigger.

And indeed, there is a biological rationale related to allostatic load that John Borkum has described really effectively in one of his theoretical papers on the topic.

So, it is certainly biologically plausible that thinking really hard could potentially make it more likely that we experience migraine symptoms. But if you think about the, the alternative direction, the arrow going in the opposite direction, which a lot of people are these days, is that it may be that we notice our head pain more or notice that it is difficult to think more during the migraine Prodrome.

So, there's that period of time. Definitely 4 to 6 hours before a migraine attack, during which you may experience the prodromal symptoms of migrants. So, the migraine attack has started. It's just the head pain that hasn't started yet. And during that time, people commonly report difficulty concentrating, difficulty with word finding, difficulty with these cognitive tasks that would certainly make it harder to do during that period of time.

Elizabeth Seng, PhD:
So, I think it's important for us to notice that cognitive exertion itself may be believed to be a migraine attack trigger and absolutely maybe a migraine attack trigger. In some people or maybe in most people. But it's also possible that we're noticing that it's harder to think before a migraine attack, even though it may not be the reason the attack is happening.

So that piece is unknown. And we're exploring right now. What cogniphobia is, is not the phenomenon that it's difficult to think before a migraine attack, or it feels like the pain gets worse when I try to concentrate really hard. What it is, is because I notice that, because the pain seems like it's getting worse when I'm thinking hard, because it seems like it's harder to think before I have a migraine attack.

I therefore avoid things where I have to think hard, and I'm afraid when I have to do them. So, it's not the phenomenon that for some people, cognitive exertion seems to proceed migraine attacks. It's that because that happens to some people, they then are afraid of thinking too hard, and then they avoid thinking too hard in order to try to reduce their migraine attack frequency.

And that, we think, is a problem because a lot of life and a lot of engagement in our daily activities does require cognitive exertion. We have to think. And being able to think deeply is an important part, of especially, educational attainment, but also a lot of occupations. A lot of jobs require you to be able to sit down and think, even something as simple as menu planning for the next week is a really challenging cognitive task.

It requires you to know what's in your fridge right now. It requires for you to think about what you need to buy. Think about all the dietary preferences of your family. Like meal planning is a big deal. It takes a lot of organization, and when you have cogniphobia, you may avoid doing tasks like that, because you're afraid that it will worsen your migraine attack symptoms.

Lindsay Weitzel, PhD:
Okay, I'm going to ask something a little different right now that occurred to me while you were speaking because you were mentioning specifically migraine and there are people in my family, including myself, that also get other types of head pain in addition to migraine. We get a burning fire pain in our bones that we don't really know what it is.

But let's talk about some of those people that might have trigeminal neuralgia, or any other type of head pain. Do we know if other types of head pain are affected differently by cognitive exertion, and then eventually cogniphobia?

Elizabeth Seng, PhD:
We do not. So let me tell you what we know. And then let me tell you some hypotheses that are certainly worth, you know, trying out in your own life and, N-of-1 testing us trying things in our own selves. Right.

So the concept of cogniphobia arose related more to post-traumatic headache than to migraine explicitly. So it emerged originally in this context where we think of an injury, and then we think of avoiding doing things to make the injury worse.

So it was first identified in people who felt as though their brain was injured. And then when they experience pain they felt as though they were continuing to injure their brains. So they stopped thinking so hard.

This is really related to the concept of kinesiphobia and chronic pain, which is the fear of movement because the movement is producing pain. And of course, the fear is that you are re injuring every time you experience pain. It is kind of the great, paradox, of treatment for chronic lower back pain and arthritis, certain types of arthritis.

Is that, it hurts to move, but movement is the cure. It hurts to move, but exercise is the best possible thing that you can do. So in these, kinesiphobia describes when people experience chronic pain, they're afraid that the pain is causing injury.

So they don't move even though. The pain is, you know, not necessarily causing injury. So similarly the thought was people who have post-traumatic headache the pain may be making them afraid that they're re injuring their brain.

And so, cognitive exertion may be a kind of a component of that. What we identified in our lab was that this phenomenon was happening, even outside of the context of injury. Even in people who have headache disorders that have nothing to do with necessarily, traumatic brain injury. They were telling us, “Yeah, like we're afraid of thinking and thinking too hard because we're afraid it will make our headache attacks worse”. So that was kind of the piece that we added to it.

Lindsay Weitzel, PhD:
Thank you for answering that.

So as someone who has felt this myself over the years and seen it in my child, I have to say it can feel like there's a bit of a disconnect between the experience of cogniphobia and the medical explanation of it. And you've already touched on this a bit.

And what I mean by that is that the mental exertion causes our head pain to increase or the severity to increase sometimes. And then we learned over the years that this happens.

So, can you just touch again a little bit on why it's a phobia then? How much of it is the fact that, yes, the head pain does increase when we think hard sometimes. And how much is it that we're afraid that that's going to happen?

Elizabeth Seng, PhD:
Yeah so I don't love the term phobia. The term was coined prior to my, coming on to this particular construct. I might have called it something different. But what the phobia in cogniphobia is really talking to is autonomic arousal. So it's the idea that this increases your heart rate and makes you nervous. This is perceived by your body to be a threat. So your whole body ramps up. And we know that that ramp up reduces migraine threshold, makes it more likely for us to have migraine attacks, makes it more likely for the attacks to be severe.

So, it is not entirely known the extent to which cognitive exertion is actually causal in the head pain pathway. I already talked about how it's possible that that connection is a prodrome symptom is actually a symptom of migraine disease itself.

Another explanation is that pain interferes with your cognitive capacity to do stuff. So when you're in pain, but especially head pain, it is hard to think about much of anything.

What is pain? Pain is a signal. Pain is our bodies shouting at us, hey, pay attention. And it's really, really effective at that. So when you're trying to read a book and you have head pain, your head pain, you can imagine a Venn diagram where the big circle is all of the attention you could possibly give to your book.

If you have no pain, you can give all that attention to your book, and your kids shout your name and you don't even notice, right? Because you're paying attention. That's where you are.

Head pain, though, That's like an overlapping circle. It's taking away from the attention that you can give to the book that you're reading. So your cognitive capacity is already limited. And it may be that, that is also playing a role, that it's not that the reading the book is making the head pain worse, it's that the reading the book is increasing your awareness of how much head pain there really is, and how much it's interfering with your ability to concentrate.

So, I just want us to entertain many alternative hypotheses. About the relationship between cognitive exertion and headache broadly, and migraine specifically. Because it is absolutely biologically plausible that cognitive exertion is independently a migraine attack trigger. But it is highly likely that the extent to which it seems like it's a trigger is also because of prodromal symptoms and because of this pain attention network, overlap.

Elizabeth Seng, PhD:
So, what makes the cogniphobia an arousal experience is that there are some people who perceive the same connection between cognitive exertion and their migraine symptoms. They say, “Oh yeah, thinking too hard definitely makes it worse”. But it doesn't mean that they stop engaging and reading the book. They don't put. The book down. They just keep reading. Because. They were going to read the book and they're going to read the book.

And those people don't necessarily have cogniphobia. They are not changing their behavior and avoiding challenging cognitive tasks in response to the relationship between thinking and headache and prodrome or headache symptoms. They're continuing to engage in life cognitively.

That's very different than the person who is really aware of their head pain when they start to read and they say, “Oh, no, is it going to get worse?”. And then they notice it get worse and then they say, “Oh no I have to put the book down”.

We're doing is we're training our bodies. That thinking hard is dangerous. So when you notice the head pain, your body says, see, I told you it was dangerous. Now, next time you're going to experience head pain even earlier. So it becomes a vicious cycle where the amount of cognitive exertion that you were able to do at the beginning, or that you were able to tolerate early on, becomes less and less tolerable over time. Because we have taught our body's autonomic fear response nervous system that reading or other types of cognitive exertion is dangerous to us.

So that's really the piece that we're talking about. I think that it's helpful for everybody to try to dispassionately notice in yourselves, are there activities that seem to make my migraine disease or my migraine attacks worse? And how can I still engage in activities that are meaningful to me while also taking care of myself?

I think that those are really great questions that we all have to ask ourselves, but I think it's also important for us to notice if every activity we've been striking off our lists are tasks that require thinking a little bit hard then we may be losing the capacity to think that hard over time. And that has clear potential downstream detrimental effects.

It can affect how far you make in school, what kind of jobs you choose or choose to go into, and eventually, it could potentially impact cognitive aging.

We know that one of the best things that we can do for our brain health, in the long run is to stay cognitively active, to choose cognitively demanding jobs, to choose pastimes like crossword puzzles that help us keep our brain going, to talk to people, just social relationships and chatting and having good conversations.

That helps us with cognitive aging as we age. And if teach our body these things are dangerous. I don't want to engage in these things because they're going to make my pain worse. Then it can become a bit of a self-fulfilling prophecy because our body's alarm system is going in, and then we're training it to do that.

Lindsay Weitzel, PhD:
Okay. I love the way you're saying that. And this is great points that I actually hadn't thought of when I was thinking of this conversation. So this is great, but this might sound a little bit simplistic, but for anyone out there that's listening, how might we know if we're experiencing cogniphobia? Can you give us a couple hints?

Elizabeth Seng, PhD:
The biggest one is like how often are you engaging in things you find cognitively demanding. If you notice that you have really reduced the amount of reading you do, or reduced the amount, you know, listening to the news, the things in your life that you thought were cognitively engaging. If you notice that you've really reduced those because of your migraine symptoms, that is a signal that you might have cogniphobia.

And cogniphobia is not it's not a disease. This is something that we all have to some degree. It's what's called an individual difference variable even people without head pain have a little bit of cogniphobia.

Any college, you know, cartoons and college newspapers equate studying during finals with headache, like all of them. And everybody has some extent to which it's like, yeah, if I think way too hard, my brain hurts, I don't want to think that hard.

There's a big spectrum here. And we have done some work looking at the point at which cogniphobia does seem maladaptive and it's very high. So the high levels of real, when I say fear, that makes it seem more like an emotion. I'm really saying autonomic arousal.

Your body is acting like there is a big danger when you even think about trying to sit down and read a textbook. That is a good indicator that you're in a bit of a fear avoidance cycle. Like we could develop for anything else exercise, eating certain kinds of foods. But it's just that cognitive exertion is such an important part of our daily life. If we. If we become conditioned that cognitive exertion is dangerous, it just cuts us off from a lot of valuable things in our daily lives.

Lindsay Weitzel, PhD:
Okay, so you did mention to make sure you recognize if you're just stopping every time you start cognitive task. But are there steps, particularly that we can take to decrease cogniphobia when we notice that we're having it.

Elizabeth Seng, PhD:
Yeah. So there is no literature on addressing cogniphobia yet. It's very nascent so we're trying to understand what the phenomenon is. But the fear avoidance cycle is extremely well characterized all the way from, you know, basic lab mouse models up through human beings, especially in terms of pain and anxiety disorders.

So drawing from the interventions and those literatures, the best way to reduce a conditioned alarm response, which is what we think this is, is called systematic desensitization. So it. Means you. Expose yourself to very small amounts of the thing that your body has learned is dangerous. But you want to expose yourself in a way that is as safe as humanly possible.

So I would not choose the day before final exams to decide that I'm going to get real serious about studying. If I have cogniphobia, and I would choose the second week of the semester to say, you know, in the past I've never read textbooks because I've always been afraid that reading the textbook was going to make that migraine worse. I've always, like, listened to the notes, listen to my recordings, and that was it that was how I study.

But I recognize that I want to be a nurse practitioner, and that I'm going to need to be able to have a broader, you know, set of study skills. Early on in the semester you give yourself tiny little bits when you're wide awake and happy and slept well. You know, you give yourself just the best possible experience and you start off small.

When we do desensitization, we make what we call a ladder. Things that are truly, very, very doable. Because what we want is for you to know that this amount of cognitive exertion, this is not actually dangerous, like reading two pages is really not going to be dangerous. I feel very confident that I can do that. So you read two pages every day for weeks, then you build up the ladder.

You may want to train yourself on some other techniques. If I'm doing this with patients, I will also do relaxation response training because that autonomic arousal that happens, that alarm system is something that things like, diaphragmatic breathing can help reduce in the moment.

There are also drugs that help reduce them, like propranolol, which is also a migraine preventive treatment. As well as devices like gammaCore.

Lindsay Weitzel, PhD:
Okay. So is this process different for children? If we notice that our children are having this problem that their head pain is getting worse and they're doing their homework, or when they have a test at school, how do we best help them?

Elizabeth Seng, PhD:
Yeah. I think that this is so important because the reason why, even though I don't love this like phobia part of the term. The reason why I think that this construct is so important and I'm still happy to be studying it, is because it could interfere with educational attainment. And that, of course, is the most important for our children.

So I also have concern, our kids brains are so neuro plastic. They're so, you know, easy to modify. And that can be really, really great when we're talking about good things. But it can also be bad. When we're talking about things like conditioning our brains that trying hard is bad and dangerous.

I have no kid data, but stepping back and trying to kind of put what we know together. I would say that you would probably want to be very aware of when this process happens with your kids, but you also want to remember that your kids experience is different than yours was.

Our children have totally different brains and totally different environments. Just think about the internet and phone situation. It's so different than it was when we were children. And it creates a lot of different kinds of cognitive demands that could be really painful for a kid who's suffering with a headache condition.

I think one of the most important things that I want us to take out of thinking about systematic desensitization and keeping our kids intellectually curious while they're struggling with head pain and head pain perceived to be exacerbated by cognitive exertion. You know, I really think that we need to start by listening to our kids and by giving them a bit of a break.

Like the way they study or the way that they maybe hope that they'll be able to study in school, that may not be terribly accessible to the kid who's sitting in front of us. And what we want them to do is to be engaged in intellectually curious activities. As much as they can tolerate and we want that to be increasing over time rather than decreasing over time.

But if we sit them down and say, you have to spend two hours doing your homework every night for a kid without pain Then this may simply not be within the realm of, you know, appropriate for their level of symptoms. And the concern is that, remember, we're talking about a conditioned response. If the kid sits down and they say. This feels dangerous to me and dangerous because I feel like this much studying is going to make my head hurt more. And make them study for two hours and lo and behold, their head hurts more. What have we done? We've actually strengthened the conditioned response. You've told the brain “Yeah you were right to be afraid. This did make the pain worse. You should be afraid of studying

tomorrow night". And over time, that conditioned response will happen faster and faster and faster. And they'll be able to tolerate less and less and less.

So it may feel like why, well I just need to force them to do it and they'll be fine. That's not how systematic desensitization works. We want to take it all the way down to the smallest bit that they feel like they can do without an increase in head pain, and then work our way up from there.

There are a lot of techniques that teachers and occupational therapists and psychotherapists use with kids with ADHD that I think would be really relevant in our, headache disease community about taking breaks. Now, those breaks for kids with ADHD are obviously for very different reasons. It's related to attentional capacity, and that's not what we're talking about today. But if we think about it from this perspective of teaching our kids that reading or that doing math or that doing things that are hard aren't dangerous. That's the goal.

Elizabeth Seng, PhD:
So we want them to engage in it and love it and be so intellectually curious for the five, ten, 15 minutes that they feel confident they can do without an increase, significant increase in head pain. And we want to then stop before the head pain gets worse. Not after, before. Want to try to catch it before those symptoms ramp up. And then maybe 45 minutes later, we go back for another ten minutes. You know. Does it take a long time? Yeah. Is it a bit challenging to implement? You bet.

But the principles make sense. And they're principles that we use for all sorts of other disorders, especially disorders in childhood anxiety disorders in childhood ADHD. And I think that it is absolutely worth asking ourselves, why are we torturing our kids with headache?

And do these really, really long sessions that invariably make their head pain worse when there may be alternatives that we're using for kids who have other kinds of accommodations that maybe are okay.

Lindsay Weitzel, PhD:
Just sticking with one more question having to do with children with head pain and migraine. What do we do with the issue of teachers and parents not knowing when or if the child is abusing the problem? Because even in the instances that I have been involved in, there are occasions it can be difficult to tell if the child wants to go play video games instead of do their homework, wants to go rest and sort of do the homework, would rather be on the couch.

Or if the head pain is getting worse on that particular day and I'm talking even in very severe cases where, you know, the kid has really bad migraine and there is no question. But it can get to the point where is the kid just too exhausted and never wants to do their homework ever again? You know, how hard do you push? Do you have any advice for that instance and for talking to the teachers about it who just don't understand.

Elizabeth Seng, PhD:
Yeah. So I mean, I want to just I want to frame this out in very, very blunt terms, but when we're talking about issues related to effort and malingering. And this comes up every time I talk about cogniphobia. What we're asking is if people with headache disease are lying about how hard they are willing to try.

And I like to start from the perspective that our patients and our kids are not lying to us. That's my first place where I start. But I want to also acknowledge that all of us get tired. By these kinds of things, no one likes to study for hours and hours every night. And everybody has a cognitive capacity that they reach. And they're kind of like, no more. Full disclosure, I'm close to there today, and we're recording this during the late afternoon. I have not had tea yet this afternoon, and that feels like a travesty to my brain right now.

All of us experience variations in our cognitive capacity and our capacity to exert effort. So for a kid who is suffering from a headache disease, and who knows this is part of what's going on. I think that we can just expect that they're probably going to need more breaks, and that there are going to be times when it is just you know, not in the cards for them. But I think it's really important for our kids to understand, to try to take them. I am imagining here 11, 12, 13 year old. All right. I'm not thinking about smaller children who wouldn't have capacity to engage in this kind of exercise.

But I would want our kids to engage in an exercise that, like these small skills that you're doing each day are the pyramid, the foundational blocks of the pyramid that is your entire life, and you can't make it up later. Your pyramid could touch the sky, but you have to lay enough blocks. To be able to do that. And every time you read another page of your textbook, you're laying another block in your pyramid. So when you say, I'm just too tired and I just have a sense that if I keep going, my migraine is going to get worse.

We need to recognize that right now, you're choosing not to lay blocks in that foundation, and that's fine. But we want to make sure that over all, over the course of the whole year, you're still laying as many blocks as you want to.

In a little bit of self-disclosure. So my son, I homeschool him and he is extremely bright. But it's hard to lay all of these blocks. For things that are not related to head pain, but are related to something similar to what we're talking about. So he needs tons of breaks more than I ever needed when I was a child, and it's hard for me to understand sometimes.

So we, for subjects that are particularly cognitively demanding, we just keep going over the summer. That may not always seem fair, I understand. But that's the way that's worked for accommodation for my family and my child. To be able to continue to lay all of the blocks that he needs to have as high of a pyramid as he wants in the future. While not overwhelming him with symptoms that pushing would just make the symptoms worse.

Elizabeth Seng, PhD:
So for some kids, a very reasonable alternative can be something like “Look of course you can go lay down tonight. But that means that Saturday when we get up, this is the first thing on our agenda, but absolutely”.

You know. One of the hardest things about kiddos is that their, frontal lobes have not fully developed yet, which any parent I think could tell you 100%. They have a really difficult time with planning and organization, and we need to be our kids’ frontal lobes. So, it's up to parents to, like, get kids on board and teachers get kids on board with this idea that you have ownership over how much you engage with cognitive tasks. Because your engagement literally determines how high you can go.

But if your kid has an intention, like, yeah, I'm going to do a little bit of this on Saturday, it's up to us as parents to say all right, it's Saturday. We said, we're doing this. This is the organizational planning that we set up and this is how we're going to accomplish it.

Lindsay Weitzel, PhD:
So you've touched on something that is something that I always wanted to just mention in the head pain field, especially if you are someone whose pain doesn't really go away, it might go up and down. But if you're somebody who has constant paying, normal people have to rest and when you are only taking your breaks because you're in dire pain and can't perform that is not really rest.

And so this is something, as someone who has been in pain my whole life, I still struggle with because I don't really get a chance to just rest because my rest is in horrible pain. And that is something that I think we all have to also pay attention to in our children. You know, they might need to rest like a normal kid and not do homework, not just not do homework because they're in pain. And so you were touching on that.

Elizabeth Seng, PhD:
Absolutely, pain is not the only reason why your child deserves rest time.

And pain is not the only reason why you don't deserve rest. So I have a patient who we work with and we think about this as rest versus recovery. Like there are times you need to recover from pain and that's great. But you also need times of true deep rest. And I think that's even more true for our children. There's been a lot of conversations this summer about how our kids need to be less scheduled and have time to be bored in order for them to experience more creativity.

And I think that it's important for us to remember that we need bored time for our brain just to exist. Because it really just accelerates our cognitive growth and creativity. So yeah, I love this part of this conversation because it comes up all the time that we really do need to give

ourselves. The same freedom, the cognitive freedom that people without head pain experience. And that is an important and worthwhile self-care goal.

Lindsay Weitzel, PhD:
So what we're really talking about when we before we close and when we talk about cogniphobia, is the fear avoidance model and is it different for something like migraine, than it is for something like back pain.

Elizabeth Seng, PhD:
So. You know, a couple of years ago I would have said absolutely. And now, I don't know. I'm less I'm less sure. So I want to say the ways in which I think it may be different and the ways in which I think that they're similar. So they're. I would have thought, well chronic lower back pain. We're talking mostly about kinesiphobia, which is the fear of movement.

So I would have thought, oh we're really thinking about, you know, movement more for back pain than for migraine. But obviously in recent years we've been finding that movement is also a problem for people with migraine. That exercise is really hard with migraine that even going up and down the stairs, you know, migraine worsens with physical aggression in the diagnostic criteria.

Obviously migraine is going to interfere with our ability to engage physically and that can lead to a conditioned fear avoidance response on top of the already difficulties that we have with physical activity. So it is similar in some ways. There's a really big way in which I think it's different for many people.

On chronic lower back pain, it is typically with us most days, and it might worsen as we engage in physical activity and feel better as we rest. But it's kind of always there. For some people, their headache disease is always there, and I think that in that case it's a little bit more similar. Fear avoidance is a little bit more similar to chronic lower back pain, where what we're really fearing and avoiding are things that seem to worsen our pain.

For many people though headache diseases are episodic in nature. They happen and then they go away. And in that context, the fear that we're often talking about is actually anticipatory fear. I'm afraid of reading this textbook not because I have head pain now, but because I'm afraid it's going to trigger a migraine attack. And that situation is kind of tailor made for fear and avoidance. These episodic diseases, I think, actually activate that alarm network of our body much more strongly than symptoms that are kind of constant.

So I actually for my $0.02, I think that the fear avoidance model or this alarm network getting conditioned to activate to otherwise benign stimuli actually happens even more and more strongly for episodic conditions like episodic migraine. Which is one of the reasons why I think it's so important that we talk about it as non-stigmatizing away as possible. I do not think

people are causing their migraine symptoms. I do not think, you know, I certainly don't think that migraine happened because we became afraid of things in our lives. That's not what I'm trying to say. But when migraine is early on in its course and it's still episodic, if we notice ourselves avoiding going out to eat with our friends and avoiding going to basketball games and avoiding reading books or studying. Our body's getting into this conditioned avoidance, this conditioned response. And I think that it's really helpful to ask ourselves, how much of my life am I willing to let go of because of this fear cycle and migraine?

Because it doesn't seem like it's actually making people's migraine disease better. It seems like it's making people worse. So we want to retain as much of our valued activities in life as we possibly can. As we are also, you know, assertively treating our migraine disease because. You know, we want people to have a few symptoms as possible, as few attacks as possible. We want people to treat them as quickly as possible.

Lindsay Weitzel, PhD:
That was great. I think that that is a great place to end. Is there anything else that you'd like to add to this topic before we go?

Elizabeth Seng, PhD:
No, no, I, I want to add one thing. For caregivers and people who do not have migraine disease or a headache disease who are listening. Do not use this podcast to go show a person with a headache disease in your life, like see I told you, you are making it worse. That's not the point of this conversation.

I recognize the possibility of this topic to do the opposite of what I hope related to stigma. I recognize the possibility of this topic, to be kind of twisted to be seen for people with migraine disease and other headache diseases. And I just really want to be as clear as possible in communicating that look our bodies are developing conditioned responses to everything all the time. That's one of the things our bodies are really, really good at doing. Of course, our body is going to develop condition responses related to this huge medical event that we have.

I want to offer hope. That you can still read. You can still go to school. You can still have the job that you wanted to have, and that by slowly rebuilding those parts of your life. You may be able to engage in them without increases in head pain at all. And even if you do have increases in head pain, it's appropriate to asks ourselves, is this thing worth it to me? And it may be.

Lindsay Weitzel, PhD:
Right. Thank you so much. That was a great way to end. And thank you, Doctor Seng. And thank you everyone for, watching or listening today. And please join us for the next episode of HeadWise. Bye Bye.