# 105| Neuropsych Bite: Clinical Case 13 – With Dr. Caroline Fisher

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NAVIGATING NEUROPSYCHOLOGY

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**Speakers**: Caroline Fisher, John Bellone, Ryan Van Patten

**Intro Music** 00:00

**John Bellone** 00:17
Welcome, everyone, to Navigating Neuropsychology: A voyage into the depths of the brain and behavior, brought to you by INS. I'm John Bellone...

**Ryan Van Patten** 00:26
...and I'm Ryan Van Patten. Today we speak with Dr. Caroline Fisher about a clinical case. The patient is a young woman with type 1 diabetes, mental health symptoms, and ADHD. Caroline is a clinical neuropsychologist and the psychology

service lead at both the Royal Melbourne Hospital and the Melbourne Clinic in Victoria, Australia. She has a great deal of clinical and research experience in neuropsychology and we were fortunate to have her on. So, with that, we give you our conversation with Caroline Fisher.

**John Bellone** 01:11
Caroline, welcome to NavNeuro. We are so excited to have you on the podcast.

**Caroline Fisher** 01:14
Thank you so much for inviting me. It's a pleasure to be here.

**John Bellone** 01:18
If you want to go ahead and get started with letting us know some of the background of the first case you wanted to present.

**Caroline Fisher** 01:24
Yeah, sure, no problem. This case is a young woman in her early 20s. She effectively self-referred through her parents. I had actually seen one of her siblings a year or so earlier, so I received a phone call from her dad which was great because we got to catch up on how the other sibling was going which was really good to hear. It was very good news. I previously diagnosed her sibling with ADHD, which hadn't been picked up previously in her sibling who had a period of mood difficulties and her performance at school had dropped off even though she was a very bright young woman. It was quite a surprise to the family to pick up the ADHD. It's just something that hadn't been on the radar. The young woman in the case I'm going to talk about started speaking with her sibling and they started to identify a lot of really similar features. Her younger sibling kept saying to her, "That's part of ADHD. Maybe you've got it too." She had been thinking about this for a while on and off since her sibling had their diagnosis. We certainly know that ADHD has really highly genetic factors and that it's very common if somebody is diagnosed within a family for one of the first degree or second degree relatives to either have a diagnosis or certainly have a lot of the symptoms and be undiagnosed. This woman sought through her parents to get in touch with me. She was already linked in with a mental health professional. She was already linked in with a psychiatrist she'd been seeing since her teenage years due to difficulties with mood and so forth and some of that was related to her medical history, which I'll perhaps go into in a little bit more detail in a moment. It was perhaps a little bit atypical of the way referrals come to me - not necessarily directly through the medical professional, although the person that she was working with is known to me, her consultant psychiatrist. So

very happy to see this young woman and really interested to hear what she was concerned about and go through the process of doing the assessment with her.

**Ryan Van Patten** 03:17

Yeah, thanks for that intro. Glad you emphasized how highly genetic ADHD is. I've had cases like this where I've often seen an adult or older adult whose child or even grandchild is diagnosed with ADHD and then, in retrospect, they identify some of those characteristics in themselves. It works the other way, it works backwards. We're more used to thinking about a person whose parents have a condition and then they worry about their own genetic risk but it can work upwards in the age spectrum with ADHD. Great start and background information. Maybe tell us a little bit more about her medical history, the mood issues, any neurodevelopmental areas we should know about.

**Caroline Fisher** 04:03

This young woman was actually diagnosed with type 1 diabetes. It was a bit of a later onset [unintelligible] sometimes the case. Often it's diagnosed before the age of 10, but in this young person that was diagnosed in her early teens. And as is quite normal she'd had quite a lot of difficulty with this being managed effectively when she first received her diagnosis. For the first four or five years after diagnosis with type 1, she was running with quite high BGLs a lot of the time, blood glucose levels. Sometimes her readings averaged as high as being over 30, which is extremely high. We call that extremely poorly controlled diabetes.

As is often the case as well, when you have such a serious medical illness at such a young age, managing the burden effect can be quite difficult. Sort of concurrently to her diabetes coming on, she started to develop issues with depression and anxiety and this is why she'd been linked in with the consultant, an adolescent psychiatrist, who she'd have been seeing for a number of years. Fortunately, for Christy and I - when I say Christy, it's a pseudonym and this is definitely not the patient's real name. But fortunately for Christy, her blood glucose levels were now well controlled and had been for a number of years. She had managed to go for a driver's license and those sorts of things. She was still on medication, I believe that was fluoxetine for her depression, and her mood was much better although she still had periods of a little bit of mood instability. She could have quite strong reactions to things and her mood could be up and down.

This young person certainly has a relatively high functioning family. As I said, I've previously assessed one of her siblings, who intellectually was very high functioning. This young lady had been very similar. She had gotten through school okay, but she'd found school quite difficult in the later years, particularly planning

and organizing her time. She got into the course she wanted to do in design at a university and was doing well but she said that was despite all the difficulties she was having. She would often leave her assignments to the last minute and she was pulling an all-nighter to get things done, cramming for exams, feeling like she couldn't concentrate on the lectures and having to go over her notes or re-listen to the lectures if they were recorded. Despite the fact that, if you were looking in from the outside, this young person appeared to be functioning quite well, cognitively, she really felt like - it was like the duck swimming calmly above the surface, but really pedaling hard underneath. She felt like a lot of those things were a lot harder for her than they seemed to be for her peers despite outward appearances.

**Ryan Van Patten** 06:44
Great, thanks. John, do you have anything?

**John Bellone** 06:46
I don't think so. She's in university right now...

**Caroline Fisher** 06:50

Yeah, she's in her third year at university and on track to complete her course. She has been working part-time in a related field. She's been working out in a design office part-time, while doing her degree and enjoying that and actually had plans to go on and do her master's in that area. She had quite high goals and was still hopeful of being able to achieve those but had noticed qualitatively a lot of those symptoms of ADHD, which I'll perhaps talk more about when we get to the diagnostic process with her.

**Ryan Van Patten** 07:24

Yeah, I wanted to say a few words about type 1 diabetes, which is very relevant here. Type 1 diabetes is less common than type 2. I've seen less than 10% of diabetes diagnoses are type 1. It's also known as juvenile or insulin dependent [diabetes], where the pancreas is no longer producing insulin to circulate in the bloodstream. Insulin is a hormone that allows glucose into the cells and so glucose can be dysregulated. People can have hyperglycemia, like you described in her. Cognitively, this can be relevant because small blood vessels, like capillaries, are vulnerable to hyperglycemia and can break down when blood glucose is not well regulated. This can lead to problems in the eyes, problems in the feet, the extremities, and problems in small vessels that supply the brain with blood as well. So it can be supravascular disease, small vessel disease related to type 1 diabetes. She's quite young still, but controlling glucose levels would be very important. You

had mentioned for her that it sounds like the mood issues happened soon after the diabetes diagnosis. Was there a direct link there? Or do we know why that was?

**Caroline Fisher** 08:44
We certainly talked about the burden that comes with managing such a chronic illness. I think it was quite a stressful time for the family given her BGL was quite poorly controlled in those first four to five years. I think she felt a lot of pressure around that. Her parents and school were actually quite worried about that. It's hard to know whether she would have gone on to develop depression and anxiety in the teenage years without the diabetes, but certainly I think the burden of disease had a significant impact. Again, if we look at the research around diabetes, even with type 1 diabetes, rates of depression and anxiety are much higher in that population. In particular, she herself had started to notice some of these cognitive issues. Again, it's a little bit tricky also when we come to the formulation to tease out: Are these just the cognitive effects of her diabetes and the impact on her cognition? Or does she also have a genetic predisposition to ADHD as well?

Given she's relatively high functioning and was still getting through, I think some of the issues around trying to keep up appearances with her cognitive skills and get through with her academic studies, she also felt like that was quite a burden. Because she was bright, a lot of those issues were overlooked. Perhaps her parents and her school would just tell her she's doing fine and, “You just need to work a bit harder and be a bit more organized.” I think that was a bit frustrating to her as well.

She also struck me as the kind of young person who perhaps has a little bit of difficulty describing their feelings. When I asked her about her mood, she got quite flustered and that was quite hard for her to talk about. We talked a little bit about her social functioning as well and I also got the impression that it was a little bit tricky for her to talk about as well. She was the kind of person despite being very bright, not quite in touch with those words to use to talk about how she's feeling. I think whether that was a personality factor or the fact that that was the way moods and emotions were dealt with in her family was, I guess, a bit tricky for me to say on the basis of a one off assessment.

**Ryan Van Patten** 10:41

Right, yeah. I'm thinking about the relationship between her potential ADHD symptoms and diabetes for a minute. We have both alluded to the fact that, potentially, diabetes could contribute to poor attention in her. There might be a differential here between neurodevelopmental ADHD and inattention caused by diabetes. In the other direction, when somebody has type one diabetes, medication

adherence is super important. They are dependent on insulin, right? If she has pre-existing inattention and distractibility, it might be especially hard for her to regularly take her medications at times. That's just something to keep in mind that we can talk about later.

I wanted to ask about your approach to ADHD assessment generally. In the US, something we grapple with and talk about a lot is: Neuropsychologists get referrals for ADHD assessments, how much cognitive testing do we do? ADHD is a behavioral diagnosis, does cognitive testing have a central role? So, generally with a case like Christy's, how do you approach it?

**Caroline Fisher** 11:49

Yeah, that's a really good point. It's the same thing here as well, Ryan. So, in Australia, it's mostly diagnosed by psychiatrists. There are some psychiatrists who are very comfortable to diagnose without extensive cognitive testing. They might do a number of different ADHD scales, speak with the parents if it's a young person, speak with the school, and diagnose. That's relatively common, and the same thing for adults as well. I work with a number of different psychiatrists who are referring to me. Some of them are very comfortable making the diagnosis themselves and might refer more for a cognitive profile of strengths and weaknesses and strategies and for an opinion about whether they're suitable to go into an adult ADHD group that we refer in to. Where others really preferred to have the neuropsych as part of the package. It's not necessarily that they're hanging the whole diagnosis on the neuropsych assessment, but they really value our opinion. Sometimes when there's a lot of mental health comorbidity, it is difficult for them to tease out in terms of the cognitive symptoms from what appears to be ADHD and what could be cognitive issues more in keeping with their chronic mental health condition. So it's the same here.

We're very aware it's a behavioral diagnosis. Whenever I teach or give presentations on this, I always stress to people that you don't need to do a neuropsych assessment to diagnose ADHD. One of the reasons I strongly prefer to do them is it allows me to work from a strengths-based approach. In addition to other neurodevelopmental conditions, like autism spectrum disorder, I see them both really as a neurotype. Part of the neurotype, which is a bit divergent from the way neurotypical people think, but often has a lot of strengths in addition to the difficulties. A lot of the difficulties are often because society is set up for neurotypical people. It's very important that we don't view the way people who are neurodiverse operate as necessarily being all about pathology, all about deficits. What a neuropsych assessment allows me to do is find out what their strengths are instead of just going through the deficit-based criteria and ticking boxes on what are

you struggling with. I can also ask people what are you good at. I can find out from a psychometric perspective what they're good at and that can really help in terms of working with their self-esteem and self-confidence. More often than not, not just in a young person, but with adults coming for a query neurodevelopmental diagnosis, the self-esteem is usually very poor because they've spent their whole life comparing themselves to neurotypicals or being told they need to compare to neurotypicals and not adding up, not meeting the bar. That's the approach I take. I feel like the cognitive testing, as I said, allows us to know what people are good at and it gives us a nice way of working with people that's not just looking at the areas of difficulty.

**John Bellone** 14:37
Yeah, that's such a good point. It's something that's left out of the conversation a lot - the reasons why we do a neuropsych eval for these kinds of patients. Thanks for mentioning that. Before we talk about the test data, is there any history of substance use issues or other developmental problems or anything else we should know about the background before moving on?

**Caroline Fisher** 14:56
No, nothing else for this young person. Very occasional use of alcohol, probably less than is normal for an Australian teenager, I would say. But nothing - she was only consuming alcohol once a fortnight or so and not to excessive levels and no other drug use that were disclosed at the assessment.

**John Bellone** 15:16
I'm curious if you have collateral information? We can either do that now or after we talk about your test results, whatever you prefer.

**Caroline Fisher** 15:24
I'll bring that in when I'm going through the ADHD assessment, the cognitive part. I did have a chat with this young person's mom. I tend to do that after I've done the assessment unless the family member comes along to the assessment and I'll do it then on the day. It's usually a phone call I make afterwards. I usually know what I'm looking at in terms of test scores as well before I speak to somebody from the family. Perhaps I'll present it that way as that was the way I worked in this particular case.

**John Bellone** 15:52
Yeah, let us know at a high level, broad strokes, what the test results were. What was your approach to this eval?

**Caroline Fisher** 16:00
In terms of presenting for the assessment, this young person was neatly dressed and groomed. As I said, she perhaps had a little bit of a difficulty articulating her feelings and some of those more psychosocial issues. But other than that, she engaged very well and she had self-referred, so she was very keen for the testing, which always makes engagement a bit easier.

Looking at the test results, I did a mood screen knowing she had a history of mental health issues. I wanted to see how she was functioning with her mood at the moment. As I said earlier, she said she was generally okay, but she tended to be a bit up and down with her mood functioning and that was her pattern. I gave her the DASS-21 mood screener, which is the Depression Anxiety and Stress Scale. Her endorsements placed her in a moderate range for current depression symptoms and an extremely severe range for anxiety and stress symptoms, which seems quite concerning. If we didn't know this young person's background, [we] would perhaps be a bit more concerned about that. But she said that was really probably a normal level of stress and anxiety for her, so it was interesting to hear her thoughts on that. While she was a little bit nervous about the cognitive testing in terms of how she would go, as I said, she was happy to be there and participate. There wasn't the anxiety that sometimes comes if someone's coming in and it's been suggested by others, not by themselves. That's where she was sitting with her mood at the time of the assessment.

Then, the way I do my ADHD assessments is I get someone to do the ASRS, which is a general ADHD screener, it's used around the world. The reason why I tend to use this one is because I like the anchors and the way it gives examples of the cognitive difficulties. It's really understandable to people. I also don't tend to use a measure like the Conner's because it has the mood screener embedded in it. I tend to find everybody scores very elevated on that and it doesn't separate the mood issues out very well. I always know I'm going to do the DASS anyway, which is why I use the ASRS for my first point of ADHD assessment to get people thinking about the types of cognitive issues and the types of daily difficulties they're having. Christy's responses placed her in the highly likely range for both inattentive and hyperactive/impulsive ADHD symptoms.

What I've also developed is a little bit of a flipped DSM-V criteria to be a little bit of a structured interview. I go through the DSM-V criteria and I put a bit of a Likert scale on it for anchors. I go through each of the symptoms, describe what they are to the person I'm assessing, and get them to rate where they fall on a Likert scale. So always, often, sometimes, occasionally, or never for those symptoms. Christy was rating herself as six of the inattentive symptoms scoring "always" or "often," and a further one "sometimes". This included things like having problems with her

sustained attention, not following through or finishing tasks and activities, having difficulty with organization, trouble starting tasks that require mental effort, being distracted by extraneous stimuli, and being forgetful in her daily activities. She also indicated that she was experiencing seven of the hyperactive/impulsive symptoms, “always” or “often”. This included feeling restless and like she was on the go, blurting out answers and statements, interrupting others, having difficulty waiting her turn, talking excessively, and having trouble doing activities quietly. So those were Christy’s ratings of herself. With thinking about the current DSM-V criteria, she's certainly endorsing quite a high number of symptoms in both areas and them happening quite a lot.

I also spoke to Christy’s mom after the assessment to get her thoughts on how Christy was going. She wasn't rating Christy’s symptoms perhaps as highly as Christy herself was rating her, but there certainly were symptoms there. Her impression of the ADHD symptoms were that she had two of the inattention symptoms “often” and further three “sometimes” and four “occasionally”. She was endorsing two of the hyperactive/impulsive symptoms as occurring “often” and a further two “sometimes,” and three “occasionally”. The mom’s ratings weren't quite as strong. Given it's a high functioning family, I think mom was of the view of, "Well, she gets through". Bear in mind, things were a little bit of a surprise for the other sibling when they were diagnosed as well. I think the parents were certainly rating their other child as having more of the symptoms. I think that it's simply a more noticeable thing because Christy was perhaps a little bit quieter and just got on with things a little bit. I think some of that stuff tended to go a little bit under the radar. But I certainly did take into account that mom didn't notice these issues as much in my formulation as well. So not completely discounting what mom’s saying, but the severity of the difficulties in those areas weren't being rated as strongly by mom.

**Ryan Van Patten** 21:04

I'm curious about how you handle this situation. This may not be so much the case with Christy but many people who come to us for ADHD diagnoses are highly incentivized to get the diagnosis. They are looking for accommodations at school and/or medication and the criteria are pretty face valid. So, if we're not careful, we can provide these demand characteristics to them where it's very easy for the person to figure out how they're supposed to answer in order to get what they're looking for. We can be a little more sophisticated than that. I'm just curious if that was the case at all for Christy and, even if not, how you handle that?

**Caroline Fisher** 21:41

No, I certainly agree there, Ryan. In other settings I work in, that can be the case with the way clients are presenting. In Christy's case there weren't any necessarily

clear gains other than understanding more about herself. She was almost finished with her current uni degree and certainly when we spoke about whether I would write a letter of support for her uni, she didn't feel it was necessary at the time so there didn't seem to be a push for a secondary gain in that regard. She wasn't necessarily even fussed about potentially going on medication if that was the diagnosis. From Christy's perspective, certainly from the outset, it really seemed to be about wanting to understand herself more. Knowing it had been diagnosed in a sibling which hadn't been on people's radar until it was there and her sibling had done really well once her ADHD symptoms had been managed. Her sibling had gone on medication. But from the perspective of Christy, it really felt as if she was just wanting to know why she had those struggles and if there was a reason to explain it. So, certainly, that's an important thing to factor in whether there are secondary gains to be had from a diagnosis. But in Christy's case it didn't appear to be a prominent feature.

**John Bellone** 22:56

Since this is an adult, she's 20, she's a young adult, in order to have an ADHD diagnosis, the symptoms have to have presented in childhood. I wanted to ask about that as well.

**Caroline Fisher** 23:10

The difficult part is to tease out a little bit, with both of them, because of the medical history and this issue around when the type 1 [diabetes] started. A lot of the family's focus being on [unintelligible] and keeping her well. What we do also find with people who are bright and also particularly women, while the symptoms have to be there since childhood or adolescence, if someone's not disruptive in class, if they're not calling out to the teachers, if they're not a conduct or a behavioral problem at school, a lot of the predominantly inattentive symptoms can go missed. Particularly if there are cognitive strengths and other areas where young people can develop compensatory strategies. It's quite effortful and time consuming and they get really exhausted, but because they're very bright, they can develop other ways of overcoming some of those cognitive weaknesses around information processing that might be there. It's also not uncommon for me to chat with someone and all of the features look very much like ADHD, but you talk to the parent and they go, "Oh, no, they were really bright so they just got through", or "They were the quiet ones so I didn't really notice any of that," or "I have another child or they have that. They have a sibling who was this, this, and that." I'm very careful, particularly dealing with people who are of quite high intellectual functioning skills - you'll see in a moment that certainly Christy was - because I think the cognitive differences are there for them, but they're not so noticeable compared to their peer group. What might be a personal weakness for them might be something falling in the average range

because the rest of their skills are high average or superior. That's certainly a discrepancy for them, but it's not something you'd notice in a classroom of 30 children where lower functioning children or children with behavioral issues are the ones who are really going to stand out. I think picking up those more inattentive symptoms can be difficult and, particularly in Christy's case, getting that clear history of when things started. From her perspective, she felt they were very long-standing, but also we knew she'd had this history for almost ten years now, the type 1 diabetes as well. It was a bit tricky. Parents had three children, so working out which child did what and when, when the kids are in the older teenage years and early 20s, it can be hard for parents to remember as well.

**Ryan Van Patten** 25:23
After all that good info thus far, can you provide us with the rest of the test results?

**Caroline Fisher** 25:29
From there, we went through and did the cognitive testing with Christy. What I would normally do when I have the time is I will do a full scale IQ or a prorated full scale IQ. The reason for doing that is the research around the cognitive difficulties that come out with ADHD, it's not fully clear cut. There's not one test we would give someone that they would do poorly on where we would tick a box and go, "Yes, they've got ADHD." Certain things we're looking for in their profile. What comes through consistently in the literature with children, adolescents, and adults, is that there tends to be a split between their scale measures on an IQ test between more crystallized intellectual skills and their information processing-based intellectual skills. If we're thinking about the WAIS, which is the the test we most commonly use here in Australia, normally what we will be seeing is a stronger Verbal Comprehension [Index] and Perceptual Reasoning Index relative to Working Memory and/or Processing Speed Index. That's why I tend to go forward and do a full scale or at least a prorated full scale IQ, which is what I did in Christy's case.

In Christy's case, if we look at her full scale IQ, she's coming out in the superior range overall, but it's very important to say there are scale discrepancies there so that's not necessarily giving an accurate picture of her skills across all areas. She performed solidly on verbal comprehension, in the higher average range, scoring at the 82nd percentile. She performed very strongly on perceptual reasoning. In the superior range, consistent with being good at design and doing a design course at university, with a percentile of the 96th percentile for perceptual reasoning. Interestingly, her processing speed score was really strong as well. She's coming out very superior in processing speed at the 98th percentile. So processing basic visual information and doing it quickly and rapid decision making with visual information was really strong.

The most notable score on Christy's IQ test was her working memory score, which was in the average range at the 55th percentile. While not a deficit in the sense it's not low for her age group, it was very much quite a notable personal weakness relative to those other scores where the other lowest scale is at the 82nd percentile and the highest is at the 98th. What was also very interesting with the working memory scale is that her short-term auditory attention span was good. It was consistent with their other skills. She could tell me nine numbers forwards for Digits Span, which scores out itself to be in the superior range. Where she had trouble with was whenever the task turned to a verbal working memory task - so having to do Digits Backwards or Letter-Number Sequencing. That was when she was falling down in the average range, when she had to manipulate the information online, that auditory verbal working memory was much more difficult for her compared to her other skills. That was the standout from her intellectual assessment.

I also did some other tests of language, learning, memory, and executive functioning. Generally, her verbal fluency in semantic categories was actually falling in the average range, lower than some of her other skills. The categories switching, interestingly, on the D-KEFS, she could do that, it was very strong. Consistent with what we would expect based on her working memory tasks, she wasn't as strong on verbal memory activities. Her ability to do stories, she was only in average range in the encoding part of stories on Logical Memory and recalling in the average range after a delay. Her verbal word list learning was a little bit stronger, which was interesting, too. When the information wasn't as long and she could chunk it, she could do quite well. She naturally put in place the chunking strategies - I probably gave her...the name of the word list, I'm looking at my report, but I probably gave her the Hopkin’s looking at the score she's got here.

She was able to draw the Rey figure really well. Her copy was very good, consistent with her skills in design. But really interestingly, she didn't recall the details of the Rey figure as well as perhaps we would have expected. Only recalling the details of the Rey in the average range after a delay. She got the whole gestalt, it was the small details on the Rey that she was falling down on recalling. No significant deficits for her age group, nothing falling in the borderline or the extremely low range, but certainly some areas of personal weakness or cognitive soft spots for her profile. Those were predominantly in the areas of working memory, verbal encoding, and having a flow on effects to her recall and recalling the finer details of visual information, visual memory activities.

**Ryan Van Patten** 30:22
Great, thank you. Very thorough and helpful description of the test results. I'd love to hear your overall impressions and recommendations. The one cue that I'll give that I'd love to hear you talk about for her, what I think is complex and especially important for this case, is thinking about her type 1 diabetes, her mood and anxiety, and then potentially ADHD. Those three clusters and how they're interacting, how we can explain that. If you did diagnose her with ADHD, how can we tell a story about that in a way that's helpful for her in terms of diagnosis and your impression section.

**Caroline Fisher** 31:02
Yeah, absolutely. You're giving me a summary of her background there, Ryan.

**Ryan Van Patten** 31:08
[laughs]

**Caroline Fisher** 31:08
The key points of this young person's profile and her history to date. What was very interesting as one of the main things to come through from the cognitive testing was to confirm that she's an extremely intelligent young woman, she's very, very bright. That was very, very helpful for me to be able to tell her because she had issues with self-esteem, she was having issues with having a positive sense of self. From a therapeutic perspective, that was really helpful for me to be able to tell her and explain that because she is extremely bright, her areas of personal weakness are not low for her age group. They're just low compared to the rest of her other very good skills. I think that was really helpful to know as well. It was saying to her, "You're not imagining these areas that you're struggling a little bit more with. The reason why other people are not picking them up is because they're not low for your peer group or necessarily low for other people, but they do stand out to you. Because your other skills are so strong, you're probably used to things coming naturally or being quite good at picking up certain things very well. When you can't, it's a puzzle and it makes you feel like you're failing when, really, it's related to some cognitive soft spots."

In terms of the diagnosis for this young woman, if we didn't know about her type 1 diabetes and her mood issues and we just heard this story of despite the fact she's done well, she's often struggled long-term with planning and organization, often feels like she misses parts of conversations, often feels like she's got a poor functional memory, forgetful and her daily activities, long standing for her, sibling with an ADHD diagnosis. Looking at their cognitive profile and her responses on the

ADHD questionnaires, perhaps not so much mom's, would be quite naturally convinced and pretty happy that this looks like ADHD. However, we do have these confounding factors. As we've already discussed in a bit of detail, type 1 diabetes is associated with cognitive difficulties. When you look at the literature, and I certainly got out all the latest systematic reviews on both topics, and you put them side-by-side, there's almost an identical match on cognitive tests we commonly used for the difficulties. Working memory is one of the most prominent difficulties that come up on cognitive testing for type 1 diabetes. That often has a flow on effect or co-occurring effect on verbal memory. An issue with recalling details can come through as well. It's quite possible that a lot of these issues are related to type 1 diabetes. Unfortunately, in this young woman, I just don't think it's possible to tease that out. We also know she has depression and anxiety and a number of those features. When someone is experiencing a lot of symptoms of depression and anxiety, and at least on the DASS we would have to suggest that she is even if that's normal for her, they can also create issues particularly with information processing and memory.

Where I came to for this young woman is saying we certainly can't conclusively rule it in and we certainly can't conclusively rule it out. Cognitive features are there. Mom's history is perhaps not quite so prominent, bearing in mind this is quite a high functioning family and this young person tends to be quiet and keeps to herself. Her difficulties may not be noticed as much. I've gotten relatively comfortable, because a lot of the cases that come to me are very complex like this, in sitting in this gray zone where we say, "We can't go away and conclusively tick the box for you, but we can certainly say a lot of the features are there. They may be influenced by some of your co-morbid conditions." I suggest that people go away - and they're almost always linked in with another [physician], usually a consultant psychiatrist or sometimes a pediatrician if it's an adolescent - go away and talk with your team. See how they feel.

One thing being mindful of this young woman is whether putting her on a stimulant medication is going to interfere in any way with her blood glucose readings or her appetite and those sorts of things are very important to factor in. Fortunately, this young woman has an excellent psychiatrist so I was able to pass over the details of the assessment. Fortunately, Christy herself was able to understand where I was coming from and was relatively comfortable with this being what I would call a gray zone diagnosis where we can't tick all the boxes conclusively and rule something in, but we're certainly definitely not ruling it out. We went through and talked about what this meant for her, and certainly had a pretty extensive feedback sheet really focusing on her strengths, what the areas of difficulty were, and some compensative strategies. I also gave her some books to go away and read about ADHD in adults to give her a sense of the fact that there are other people out there

with conditions like this. Whether we make the diagnosis conclusively one way or another, she's still likely to benefit from all the strategies and recommendations we would normally give to somebody with ADHD as well. I certainly recommend - there was enough there too to give her access to our adult ADHD support and therapy group if she was feeling like she wanted to take that up at some point in the future.

I don't know where they got to with medication. It wasn't something that Christy herself was seeking necessarily when she came to see me so I'm not sure where she ended up in that regard with her psychiatrist. I haven't had an update yet about this one. But I certainly know, as I've mentioned, the sibling in this family who once she was put on ADHD medication was able to get back into school in her final year of schooling and do extremely well. I'm not sure where Christy ended up, but that's where we ended up with the diagnosis.

**John Bellone** 37:00

Yeah, that was really helpful. As psychologists we live in that gray zone [laughs]. It's so often where we have to be, but that's the honest place to be. I am really curious, maybe just for the remaining minute or two about that ADHD day program, outpatient group. If you could say a couple of words about what that entails.

**Caroline Fisher** 37:21

One of the services I work at is a private mental health hospital, and they have a day program where outpatient groups are run. At the moment we've run a 10-week course, which is led by neuropsychologists. It's an adult ADHD course or related disorder, so people who have that gray zone diagnosis can still come along. There's three main components to that program. Most of the people coming through the program will be newly diagnosed, but not necessarily. The program focuses on education, talking about what ADHD is. Each week there is a topic related to ADHD. It might be purely attention - talking about attention and all the types or aspects of attentional issues, which might be part of someone's profile of ADHD. There might be a session on hyperfocus, how sometimes you can focus exceptionally well if you have ADHD, to the exclusion of everything else and what that means. How people sometimes find that confusing, why can they do this when they can't do that. Executive functioning, memory, all of those issues which can be an issue for people with ADHD and interfere with their daily functioning. They also talk about relationships and how aspects of having ADHD can impact on relationships and communication. They go through and they do that. They always have an activity that the group does together. I think the group members often learn as much from the other group members as they do from the facilitators. It can be a real relief to sit in a room with a bunch of adults, most of them are also working and have jobs and see that you're not alone in the things that you struggle with at work

or in your social relationships related to ADHD. They are common to having that condition.

There's also a therapy component as well. A lot of the work they do often has the CBT-based focus because they're working with Mary Solanto's CBT model, but also some active mindfulness strategies. Some people with ADHD quite like mindfulness and can get into it and it can slow them down. Other people really dislike it, because that sense of being still is quite hard for them. Some of the walking meditations and the more active aspects of mindfulness sometimes suit people with ADHD better. That's a really useful group for us to have as part of our group of things we can recommend because sometimes it's the support and the understanding, learning more, and the acceptance which can be great for people. Often people are quite relieved to have the diagnosis because they have struggled throughout their life and nobody's really been able to pick up why and it's really affected their self-esteem. They'll actually mention it with a group of people who are going through the same thing, which can be really helpful.

**John Bellone** 39:58
Yeah, sounds like it was a really helpful evaluation for Christy and really helpful for us and our listeners, too. Thanks so much.

**Caroline Fisher** 40:05
No problem. Thank you.

**Transition Music** 40:06

**John Bellone** 40:10
Well, that does it for our conversation with Caroline. If you'd like to support what we're doing here, please leave us a rating on whichever podcast app that you're listening to this on. And, as always, thanks so much for listening, and join us next time as we continue to navigate the brain and behavior.

**Exit Music** 40:27

**John Bellone** 40:51

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**Ryan Van Patten** 41:03

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**End of Audio** 41:21