Factors Associated with Hearing Aid Adoption

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Thank you so much, Anna, and thank you to Audiology Online for having me today. I'm really excited to host this session. So thank you all for being here and for taking the time out of your day to be here with me. I'm Courtney and I am the senior manager of audiology and education at Unitron and I've been with the company about three and a half years. And prior to becoming a trainer at Unitron, I practiced in the clinic for about, about 18, 19 years.

So I direct all of our educational content here at Unitron. I do have a ton of clinical background and so this particular topic really interests me, as I'm sure it does to many of you who are practicing with patients in clinic. Just I was always curious to know why was it that someone would come in and adopt hearing aids right away? And then why was it that some patients just were so, so slow to adopt a device and there's so many factors that would go into it. And when I was practicing, I didn't take this all in like I should have.

So I'm excited to present all of you today with the recent research on hearing aid adoption and what some of our industry researchers have uncovered with respect to why patients adopt hearing aids and why sometimes they don't, even when we know they should. So we're going to get into it today. I am going to turn off my camera because we know computers don't always work like they should. So I am still here and my colleague Danielle Hayden is here to monitor the chat for me. We will use the Q and A as Anna mentioned.

So if you have a question or a comment, please drop it into the Q and A.

These are the risks and benefits of today's course. This is standard practice from Audiology Online, so you can just take a quick moment to read these over for yourself.

We have some learning objectives that we're going to get through today during this course. After the conclusion of this course, I would like for all of you to be able to identify how some contextual variables

influence and impact hearing aid adoption. A contextual variable is the characteristic of the wider environment or the group, a group that influences an individual's behavior, health or outcome. We're also going to talk about how some intrapersonal variables influence hearing aid adoption. An intrapersonal variable is a personal characteristic, an attribute or a factor, something like self discipline, a personality trait, motivation, or, or maybe even an emotional state that might influence an individual's behaviors.

We're also going to talk about interpersonal variables that impact hearing aid adoption. So an interpersonal variable is relating to relationships between human beings and communication between people.

So kicking off today with a little bit of interaction. If you can type into the Q and A. What does hearing aid adoption mean to you? I'm curious to throw it out to all of you. Some responses we're getting, Courtney, is that from moving from non aided to aided for patients or just daily use of hearing aids, getting someone to be consistent with wearing their hearing aids once you express that they have a hearing loss, the person's ability to accept and use hearing aids or patients that are wearing hearing aids every day.

So back to hearing aid adoption, we are going to talk about what this means. So as it pertains to hearing aids. Hearing aid adoption refers to the process where an individual with hearing loss decides, decides to purchase and commit to using hearing aids as part of their treatment and rehabilitation. And so there are a lot of factors that play into this, as we all know, a lot of factors that influence whether or not a patient will decide to take that step of making a hearing aid purchase. And so today we're going to explore those factors and, and learn more about clinical practices that you can incorporate as you guide your patients through the hearing rehabilitation process.

And so what drives hearing aid adoption? This question has been driving over a decade's worth of work for researchers and scientists as well as audiologists. And we all want to know this answer. What is going to help our patient adopt technology into their life and what helps them make that decision?

So we're thinking about our patient here, and this is our patient kind of exploring and looking down two possible paths. We know that it often takes a long time for patients to get to this fork in the road. In fact, data actually shows it takes nine years on average from the time that a patient suspects a hearing loss to the time that they actually adopt hearing aids. And we're all interested in this point and what is that tipping point that pushes a patient to go down the path of hearing aid adoption? Or patients that decide it's just not the right time for them for whatever reason?

Certainly not all patients that come through the door of our clinic are at that fork in the road stage. Let's just say if you have 10 patients that come into your office and are all of them candidates and they all have hearing loss and they've all been cleared and, and hearing aids are appropriate and medically recommended, there are going to be some that know that hearing aids are just not for them for whatever reason. They're in that information seeking mode.

We also know that there are a good portion that have already made up their minds. And certainly there are things that we do as providers that could inhibit their journey or encourage it one way or the other. But this group is that middle group, these three out of 10 individuals, 30% of people that could kind of go one way or the other. So certainly not everyone who comes into your clinic is somebody that you can influence one way or the other. Some people are kind of just going to be on that fence and knowing that there's always going to be people on the fence.

We want to know more about what we can do as clinicians to possibly get these people to take the leap of faith and get hearing aids.

So what do we know about hearing aid adoption? What's some additional context that we can deliver around this topic? What drives our patients and what drives their decision making when it comes to adopting technology into their life?

And this is something that researchers in our field are constantly talking about. We have two key models in healthcare that we tend to talk about when we want to understand hearing aid adoption better. There's the health belief model, which is how the perception of the problem transfers into the actual behavior at the end. And then there's a stages of change model where there's this whole stage where patients are contemplating the decision and preparing to make a decision and kind of maybe relapsing into a more familiar behavior before they make a change. And then there's this kind of spiral that comes within that stage of change model.

So we do know that behavior change occurs within context and that social and environmental factors also shape decisions.

And so what really is the driver of hearing aid adoption? Let's get into it.

So let's talk about hearing loss and hearing aid adoption and how these two interact. What we expect is that the more hearing loss that a patient has, the more they should adopt hearing aids. Right? So we expect this to the graph, if we had to plot it to look something like this, we kind of expect that when a hearing loss gets to a certain point and a patient's audiogram gets to a certain level, they'll go on in and jump in and adopt hearing aids.

And then maybe there's at some point where hearing aids really don't do it anymore and this person's considering a CI. So, you know, this is kind of what you would think happens. But in all reality, and this is a study done by Kotchkin in 2009, we found that this is really not the case. It actually, the reality is something similar to this graph and what Kotchkin showed is that the degree of hearing loss or the

severity of hearing loss on the audiogram does not correlate with adoption. In fact, adoption might increase as the severity of the hearing loss goes up, but not as fast as we would hope.

So adoption of hearing aids kind of remains low in spite of the degree of hearing loss that your patient is dealing with. And so what we learned from this study is that objective hearing loss does not predict hearing aid adoption. Interestingly, and I'm sure we can all think of patients that we've worked with that have come in and have waited so many years before addressing their hearing loss. We may sit there and think, wow, how on earth has this person not yet adopted hearing aids? And how much has this person struggled before they've come to this point of sitting in front of me actually exploring this option?

And so if all of you had to take a guess and go ahead and use the Q and A, as to looking at the literature of late, what's the biggest influence on hearing aid adoption? What are your guesses?

Go ahead and type into the Q and A. And I'm looking at it right now, so I like to see what you respond.

Yeah, there's some interesting, interesting responses in the Q and A. I'm seeing family pressure, I'm seeing spouse, self reported acceptance, great responses, everybody. I'm seeing family. Someone's responding. The perception of need by the patient, perhaps auditory fatigue. These are all really interesting reactions.

Consistent use, not being involved with family, certainly all of these things could play into a patient or can influence a patient and play into their decision making processes.

So what is it? What's the winner? So the winner, according to one of the studies, this study by Katherine Palmer in Pittsburgh, the winner is actually self perceived hearing ability. And I think somebody actually said that in the chat. So nice, nice job, you know.

In this study, patients were asked to rate their own hearing on a scale of 1 to 10. And the clinician would then talk about, you know, based on your perceptions of your own hearing loss, how good or bad is your hearing? And we found that this was the single biggest predictor. And so this is kind of the answer to the riddle. It's how people feel about their own hearing.

And somewhere around that 5 or 6 out of 10 mark, like if I, if I score my hearing a 10, I have the most incredible hearing on the planet. And if my hearing is a one, that means that I'm really, really, really struggling. So that five or six mark was kind of, we saw a shift there in this study. And so that was pretty interesting to see that this was a pretty consistent, consistent report and a consistent, consistent perception influence. And so the impact of this Palmer study, we found, or they found that 0% of individuals with a hearing ability that they scored to be a 9 or 10 out of 10 pursued hearing aids.

So 0% of those people, whereas 82% of people who rated their hearing ability as like a 3, 4 or 5 out of 10 and actually went ahead and took that leap, whereas about half and half, when you get to people rating their hearing at about a five or six, about half of those people adopted hearing aids. And this was true no matter what their actual audiogram looked like. This is very important. This is really an easy way for us to clinically find out when your patient walks in the door, kind of where they're at in this landscape and how they feel about their own hearing really makes a huge difference in their readiness to adopt hearing aids.

And here's a couple clinical takeaways, because I want all of you to leave here today with something that you can take right back with you to your practice. We can use our case history forms to find out where our patient's hearing loss perception lies. When they're sitting in the waiting room filling out paperwork, you can ask them, on a scale of 1 to 10, with the 10 being the best, where do you rate your hearing ability? And their answer to this question will tell you how likely they are to make that jump and take the leap of faith to purchase hearing aids. It's a simple way to gather information from our patient

and help them understand where they're at in this hearing journey before their appointment even starts.

And what about the role of social relationships in hearing aid adoption? What does the research out there tell us about the importance of our relationships in this whole process?

So who besides you, the provider, and your patient, affects the decision making process? When we think about this, you know, we think about our patients that show up to an appointment with a loved one or a significant other, or I would have patients show up with their whole family. I don't know if anybody can relate to this, but I would go into the waiting room and call my patient's name and like 10 people would stand up.

And then there's people that come to appointments alone. So what about those people? And what do we know?

So why do we actually study social relationships and the influence of our relationships on hearing aid adoption? We know that humans are a pack species. And by that I mean we might think we make decisions on our own. We might Think we're a lone wolf, so to speak, but we're actually a pack species. We actually care what people think of us and what people think of us and the people that are close to us and what they think really shapes our attitudes and forms our beliefs and our relationships are super critical to our overall wellness.

And what's important to you? Like, if you're making a big decision in your life, I just want everyone to take a moment to reflect on this. You know, when you're making a big decision, what factors into that? And who in your life helps you make a big decision? Whether it's about your.

Your health or, you know, you're buying something, go ahead and type into the Q and A. If you're making a decision about your health and you're making a big purchase, such as a hearing aid that's

relative to your health, what, what's important to you.

And we have some good responses in the Q and A right now. Family. Several people mentioned family, spouse, your financial decisions. The money certainly is a huge factor. Your family, your work, that spousal input.

Yes, very, very important. And many of you mentioned family in this, which I think is huge to this next point we're about to make.

And so when I was kind of researching information for this presentation, I found this article online. And this article was about John Nelson Bradbury. And you might be thinking, what does John Nelson Bradbury have to do with hearing aid adoption? So this news article struck me because John got up in the middle of the night to use the restroom, and he decided to send a group text to his entire softball team. John plays on a softball team.

He's 80 years old, and he plays with a group of people who are about 50 years younger than him. And so he woke up in the middle of the night and just decided to send a thank you message thanking his softball team for keeping him on the squad, even though he's an old guy, and how showing up for his softball team really makes him feel like he's the best of himself that he could be. And so he shared this lovely message with his whole team, and one of the teammates wives shared it and it went viral. And so the fact that he took a moment to tell his whole softball team that's 50 years younger than him how grateful he was that they showed up for him and how them showing up and making him feel a part of the team has made him a better person and has made him more likely to keep going and pursue a goal. And that change so kind of just made me Reflect on the impact that our significant others, our friends, our family, those human connections that we have in our life, make a huge difference.

And so this has been studied why we involve significant others, friends, family, loved ones in decision making and how does that impact our quality of life? There's studies like this one that showed that social variables contribute to our quality of life and our positive decision making. The drivers of well being, activity, perceived belief that there are people that are there for you, that will provide support, matter a whole lot. And so when we looked at social relationships more deeply in this particular study, and there's been a lot of work done on this topic, and this meta analytic review, which is one of the top levels of evidence one can have in the field, it's like a summary of all of the papers done in an area. What this meta analytic review looked at was the relationship between your social relationships and whether you lived or died.

And in this review of the literature, they found the biggest predictor of mortality was actually your social relationships, even more so than smoking, BMI, obesity, consumption of alcohol, etc. So your social relationships and those human, human connections were the biggest predictor of well being and mortality. So this proves we're truly a packed species here as humans. So we keep studying the impact of social relationships on hearing aid adoption. We know that it matters who sits by us in clinical appointments and supports us, who shows up for us every single time.

We know from the literature that significant others inform decision making. It's not just the patient that's taking this leap of faith into hearing aids, it's the whole family. It's all of their connections that they've made. And these significant others influence the patient's experience and their motivation to pursue and make a change.

And what about hearing loss? And we know because we're all practicing in clinic, that hearing loss has a huge impact on our social relationships. This is not lost on us practicing in clinic. We see this every single day, day in and day out.

So this study I found interesting about hearing loss and third party disability. This is interesting because a hearing loss affects a spouse's social emotional health. This study by Scarinci, Worrell and Hickson looked at this and the definition of a disability in this case is disability experienced by family due to a loved one's health condition.

So we did find that the spouse of the patient that has hearing loss, 98% of them in this study, when this was looked at more closely, did find that they themselves felt the impact in the form of some type of disability, like the list you see on the right, like they don't involve themselves in activities as often. They have smaller social networks. They, they have some miscommunication when they go to appointments with, with their loved one because they're so focused on helping their loved one here that maybe they kind of lose, lose track of things themselves. So we care what friends and family think. We're a packed species.

We know that perception is important. But the significant others do also feel it when their spouse has hearing loss. They feel it more than maybe we realize or maybe we think about.

And so looking at some more data, we're able to see trends with significant others present or not in hearing aid consultation appointments. So in black there on the graph, you're seeing adoption rates for different degrees of hearing loss.

When someone has a moderate or greater hearing loss, it doesn't really matter as much if their significant other is present. Interestingly enough, with a more moderate impairment of hearing, there was a little bit more of an impact of the significant other being present. They did have a higher rate of hearing aid adoption when someone important to them was with them at the appointment. Now, for patients that had more mild hearing loss, there was 96% higher adoption rate when a significant other was involved. So that's very interesting because it does prove that the impact of social support might be greater if your patient has a mild hearing loss.

And in clinic, these patients that might be on the fence, like, should I pursue or not just having someone there sitting next to them and supporting them through and maybe, you know, validating what you're telling them as the provider, like, yes, a mild hearing loss might seem mild to you, but to this person sitting next to you, it has a huge impact on their life. So thinking about the bigger picture and why you might adopt hearing aids, we know that that impact might be the thing that gets them to make that decision and take the leap. In this study done by Ekberg, they measured patient satisfaction using a net promoter score as compared to three types of intervention. So this also as far as, like, we ask a loved one to come to the appointment with our patient's page. But how do we utilize the loved one?

How do we bring them in? How do we foster family centered care in our practice? And so in this study, there were, this clinic had a whole clinic approach targeting all staff in their audiology clinic. And the staff was trained to ask a family member to attend the patient appointment. And they were also trained to set up the room to include the family member.

They also asked the staff to set an agenda for the appointment that included both the patient and the family member. And so what was found was that patient satisfaction improved. The NPS or the NET promoter score was higher. When they were asked how likely they were to recommend this participating clinic to a friend or family, those scores were much higher. So interestingly, this family centered care school of thought led to benefits and patient satisfaction and increased adoption and actually including that family member in the decision making, like not just putting the family member in the corner when you know you're talking to the patient kind of separately, really drawing them in and including them does make a huge difference.

Interestingly good to know. So drop this into the Q and A. When you're working with a patient, what's something that you've done in your practice to engage the patient's loved one? The consultation. I'm going to read out any responses that I get.

What's something that you've paid attention to through the years?

How do you include a family member?

So one thing that I did personally, I'll just speak from experience, is that in the clinic that I worked at, I we were able to move a table in a round table into the room I was in. I didn't have too much room, but I had enough room for a round table and a few chairs around it. So creating a setting where we could all sit together was really, really nice and I thought helped me as the clinician, bring in that loved one and draw them in. Another person mentioned showing the family member how to help with the maintenance of the hearing aid, such as changing the wax guards. And that's a great comment that not only do you fit the hearing aids on the patient and teach them the care and maintenance, but you also share that information with the loved one, encourage them to take part in the care of the hearing aid.

That really is a fantastic tip.

Someone also mentioned during a demo experience, you might have the loved one step outside the door and you might have them ask the patient questions from a distance. I also love this because a lot of times this shows the real impact of a demo and how the patient's life has changed in just this short time since you put the hearing aids on. That's a great piece of input right there. And keep it coming. I love the tips that you're all delivering.

And so just a couple comments and clinical takeaways that we can take with us with this information that we now have about bringing in the loved one and family centered care in our office. When making an appointment for a patient at your office, always ask them to bring a loved one we know it makes a difference to everyone a little bit, but especially those people with milder hearing loss that might not think that they need hearing aids or that their hearing loss is having a huge impact on they're the

greater good. It makes a difference for those people. As we know from that study and utilizing a family centered approach in your office, it might be the difference between a purchase and someone that goes home without the hearing rehab plan. They need to be successful.

And remember how you involve that loved one does matter. Remember that whole office approach, including that whole office staff and welcoming the loved one and involving the person that's there with them and that really translates into positive reviews and recommendations in your community.

And what about the role of emotion? How does emotion play into hearing aid adoption?

And this quote struck me as I was putting this presentation together. It's that one of the most significant things ever said about emotion may be that everyone knows what it is until they are asked to define it. Very good point if you ask me. Why do we study emotion? Emotion is a core mechanism by which we interpret experience.

It's critical to social communication and there's a relationship between emotion and behavior. As we know, having hearing loss or being told you have a hearing loss brings with it a ton of emotions. People feel sad, people feel frustrated, angry sometimes as they navigate life with a hearing loss, it can be really, really tough. And a lot of times patients make decisions with their emotion, with their heart, and maybe not as much their head. We also know this is another interesting side step is that hearing aids process speech and they process that incoming signal, but they don't always preserve the emotional information in that speech signal.

And that was really interesting to me when I really took a minute to think about that. Hearing aids amplify speech, but they really don't amplify emotion.

So let's do a literature review of some recent studies of emotion and hearing aid adoption.

This study done by Granes et al. Explored the influence of emotion on hearing aid adoption and these researchers used conversation analysis on 63 video recorded initial audiology consultations with older adults to examine how emotional and psychosocial concerns were addressed. And interestingly, when they kind of the researchers reviewed all of these appointments, they found that emotions were rarely discussed in a clinician patient interaction. They also found some degree of clinician discomfort. Some hearing care providers felt ill equipped or unsure of how to handle the emotional side of hearing care, and some of this led to missed opportunities.

The lack of emotional engagement in this study was found to contribute to low hearing aid Uptake, even when the clinician recommended hearing aids to the patient.

There's another study done by Gurjit Singh in 2017, and the question he was trying to answer was do conversations about emotion actually facilitate hearing aid adoption? So in this study, they worked with 439 adults in audiology clinics in Canada. And these adults were assigned to complete one of two questionnaires in the waiting room, the EMOJ Q, as I like to say, where the patient's responses were used as a prompt to display discuss their emotional experience with the clinician they were working with. And the echo. And these in, in the echo, the patient responses were used as a prompt to discuss potential hearing aid ownership.

So clinicians then rated their level of perceived comfort with that conversation with their patients. And the results of this study on emotion had some interesting things findings. So the red line is our echo questionnaire results expectations and the blue line is our emotions condition. The Y axis is hearing aid adoption and the X axis is the comfort level with the conversation. And now all of the points on the red line are somewhat flat.

They're not significantly different than one another, but the endpoints on the blue line are both significant. So if you were to average all of these points, it actually has the same hearing aid adoption rate between the two conditions. So if you were having an uncomfortable conversation, people actually kind of retreated and adopted hearing aids at a lower rate, maybe just because like the researchers thought maybe they felt threatened. But if the conversation went well, they're moving forward at a higher rate and they were comfortable, they were processing, they made the decision and they adopted hearing aids. So what are some clinical takeaways that we can take from this study, these studies of emotion, addressing emotion, the emotions of the patient, and the kind of the emotional experience between the patient and you as the clinician, that's something to pay attention to.

Patients that were comfortable discussing their feelings with their provider in these studies were more likely to adopt hearing aids. Again, using that patient center approach and getting people talking about their emotions, feeling comfortable doing so did make a huge difference. Those people adopted hearing aids at a higher rate.

Also, when we're talking about our clinical interviewing, we may consider adding in questions that address emotion, like how do you, how are you feeling about your hearing? How are you feeling about being here today? You know, just finding out, kind of getting a temperature check and a pulse on where your patient's at and where their head is at and making, opening up that conversation so they feel comfortable sharing with you that it does make a difference, and they're more likely to go for it and adopt hearing aids than if you shied away from those topics.

And so let's get into our final section today, which is the study of patient decision making.

And so when a patient's sitting in front of you and they're deciding yes or no, you've recommended hearing aids. And maybe they're kind of sitting on the fence. They're not sure if now is the right time. Maybe their family member is sitting there like, oh, my gosh, I hope they say yes to this, because this is

going to make our whole lives easier.

You know, let's take a dive into what actually influences our patients when they're in that moment when they're sitting in front of you about to say yes or no to hearing aids. And here's our patient again. He's back, and he's deciding between these two paths that have diverged in front of him. And he's taking in all the information from the audiological evaluation. He's using the information you gave him to decide on his next step.

And we know that it's not simple, it's not easy. There are many factors actually in the research that influence patient decision making, and some of them might actually surprise you. And why do we study decision making in the first place? We know that there is uncertainty about hearing care. This is not new news.

Our patients have to develop trust with us. They've had maybe an experience or two where somebody hasn't been straight with them in the past. There's always been a little bit of trepidation when it comes to hearing care. You know, people walk into an eyeglass store and buy, you know, 10 different kinds of eyeglasses for their vision loss. But when it comes to hearing aids, we know it's not that simple.

We have trust, we have efficacy. You know, we always have those people that say, you know, these things just never worked for me. We deal with cosmetics, we deal with cost. There's a lot of kind of battles we're fighting here in hearing care that are a little bit different than what is experienced in other industries. We know that biases can also affect decision making, including decisions made about hearing aids.

People might have their own biases about age or stigma or how their spouse might feel if they saw a hearing aid sitting on their ear. And does it make them seem older? And, you know, there's a lot of things that our patients kind of show up with that we can't control, we can't change. But these are things

we have to maneuver around, and then we know patients can't always explain why either. You know, somebody might just walk out the door without the hearing aids that you recommended.

And you sometimes never know why. And neither do they sometimes. It's just, you know, they're on the fence. And we don't know what gets them to say no or what gets them to say yes. But we do have some research to tell us why.

The decision to purchase a hearing aid is also a risk proposition. There's a big risk associated with the pursuit of hearing aids. They're expensive. You know, patients are asking all these questions in their head like, will they work? What's the safe choice?

What are the risks? Patients are weighing these pros and cons before they even step into our office and sit in front of us for the consult.

And so what does the literature say about factors that impact decision making when it comes to hearing aid adoption?

Various studies on decision making that we looked at for this presentation have produced the following results. So the time of day and whether someone has eaten lunch can influence their decision making. A study from the Netherlands found that being hungry might be linked to more advantageous decision making. This might be rooted in our evolutionary behavior where hunger drove creatures to take more risks to find food. And in yet another study, they found that increased glucose can actually increase risky behaviors and influence in individuals that have low self control.

The overall insight suggests that there's a connection between our physiological state like hunger or your glucose level and your risk tolerance that indicates that our body systems actually influence our decision making.

In this study done by Gurjit Singh and Stephan Launer Sonova researchers looked a little more closely at the time of day and hearing aid adoption rates. So let's look at what Singh and Launer found in this study. They looked at 24,842 patient records. That's a lot. And they analyzed first time patients with no other hearing aid experience.

And what they looked at is the time of the patient appointment and the hearing aid adoption outcomes. And the appointment times were adjusted to account for time zone variations. And so what did this data show us when time of day and hearing aid adoption are involved? How do they impact one another?

So these are, this is the study results of the Singh and Launer study on adoption. The X axis is the time of day and the Y axis is the hearing aid adoption rate. And that's the blue line. They also took a look at the return rate of hearing aids, which is the red line. And what they found is that hearing aid adoption dropped significantly at 12pm and 4pm and then patients that were on the fence were less likely to adopt hearing aids at these times.

And that these small timing differences influenced their decision. Those who purchased at these times had lower return rates, interestingly showing the same 12 o' clock and 4 o' clock pattern. So then they were like, wait a minute, what about other countries? Because we want to make sure this isn't maybe a North American effect. So these researchers also looked at over 10,000 appointments in Belgium, audiology appointments, same thing.

What they found was a very similar trend. It was delayed a little bit, maybe closer to one o', clock, but it had those same dips in hearing aid adoption rate in the afternoon and then once again later in the day. So when we look at this data, what do we take home from it?

We can optimize our appointment timing. We can schedule our hearing aid evals earlier in the day to improve adoption rates, because the research actually shows that this matters. We want to maybe avoid noon and late afternoon time slots for patients when they might have some decision fatigue and they may be less likely to accept a new solution into their life. Patients who adopt hearing aids at noon or 4 also tend to have lower return rates, suggesting that decisions made are under higher cognitive load might reflect a stronger commitment once made.

And there's some recent data about price unbundling and how does that impact hearing aid adoption? As I was researching for this presentation, this data came out that I found fascinating that whether you bundle or unbundle your services could have a big impact on your patient's adoption of hearing aids. And this is kind of hot off the presses. Picu et al studied adult patients with no hearing aid experience who completed an hae. And they actually found that when services were unbundled, a higher percentage of patients did adopt hearing aids.

And in the conclusion of this study they found that unbundling and charging for hearing aid consults actually resulted in more efficient consultations and less time spent with patients who did not have perceived hearing difficulty. And we remember from the beginning of this presentation that your self perceived hearing difficulty makes a huge impact. Remember, if patients rated their Hearing as a three to five out of 10, they were about 82% more likely to adopt hearing aids. So interesting spin on this is that maybe whether you bundle or unbundle your services or charge for hearing aid consults or not does have an impact and does reflect in higher adoption rates.

So a summary of what we learned today. Hearing aid adoption does remain low throughout everywhere. Everyone has found people do not adopt hearing aids as fast as we hope they would and that objective hearing loss can predict hearing aid adoption. But the self perception of a patient's hearing loss really is a great predictor of whether or not they will go ahead and adopt hearing aids and

make a purchase. I also think based on the literature we reviewed today, that understanding these factors that contribute to hearing loss perception is really important to foster hearing aid adoption in our patients.

Also remember that adopting that family centered whole person approach in your clinic does make an impact. And remember to consider where your patient is coming from. We need to consider emotion, their social connections and their decision making and their cognitive load. All of these things do impact their adoption rate. And the literature is strong in helping hearing care providers and audiologists everywhere adopt this whole person approach.

You're not just putting a hearing aid on someone's ear and they're walking out the door. You're forming a connection, you're forming, forming a partnership and you're including the whole family in the process. And that does make a huge impact.

So we have come to the end of our presentation today and I want to just hang in to see if anybody has any questions in the Q and A. I want to thank all of you for taking the time out of your day to learn with me on this exciting topic. I hope you all learned something that you can take back to your clinics this afternoon, or if it's that 4pm time and you're on the Eastern time zone, you're getting ready to call it a day. Hopefully you don't have a new consultation coming in right now, but I'm really excited that all of you shared your time with me today and with unitron. We really appreciate all of you and we look forward to more engaging content on audiology and Lyme. So stay tuned.