

**Marie:** Hello, and welcome to *The Parkinson's Research Podcast: New Discoveries in Neuroscience*. I'm your host, Dr. Marie McNeely, and I've partnered with The Michael J. Fox Foundation for Parkinson's Research to bring you to the forefront of the field of neuroscience to discuss the latest advances and discoveries with leading experts.

The Michael J. Fox Foundation created this podcast for researchers, clinicians, and industry professionals with the hope that these conversations and the resources we share will advance your efforts and partnerships to improve brain health. We're welcoming guests with a range of experiences and viewpoints. The views expressed belong to the guests themselves. We're excited to let you know about some upcoming changes to the show. In 2025, we'll be merging this podcast with The Michael J. Fox Foundation Parkinson's Podcast, so make sure you subscribe to hear future episodes. You can find the link in the show notes.

Today, we are excited to welcome our guest, Dr. Gemma Moya-Galé. Gemma is an Assistant Professor of Communication Sciences and Disorders, as well as the Director of the Communication, Technology, and Language Diversity Lab at Teachers College, Columbia University.

Today, we'll be talking more about her work on voice and communication in people with Parkinson's disease, as well as an app she developed to help people with Parkinson's improve how well their speech is understood. So, Gemma, welcome to the show today. Thank you so much for joining us, and how are you?

**Gemma:** Thank you so much. Thank you for the invitation. I'm great, and I'm very honored to share a little bit of what we do.

**Marie:** Well to start off with, we'd love to learn a little bit more about you. So, Gemma, can you tell us a little bit more about your career path and your background?

**Gemma:** Sure. So, I'm a speech language pathologist by training, and my passion has always been working with the adult population, specifically with people with Parkinson's disease. I'm currently Assistant Professor, as you mentioned, at Teachers College. This is my second year. And prior to that, I was assistant professor at LIU Brooklyn for five years. So, I'm very interested in conducting research, but also being very clinically present. I think something that I aspire to do, actually, is to really translate what we're doing in the lab to real-life applications to really help people with Parkinson's have improved quality of life.

**Marie:** I think that's wonderful. And for listeners who might not be specialists in this particular area, Gemma, can you share some of the background perhaps on how Parkinson's disease can impact voice, and communication, and even social connectedness?

**Gemma:** Thank you so much for that question. Voice actually, now we know, may be impacted before the actual diagnosis of Parkinson's. That speaks to how important this concept is, right? This aspect of our lives that we may take for granted, our own voice. So, what we know from lots of research in the area is that most people with Parkinson's — about 90% of people with Parkinson's disease — do develop some sort of voice and speech difficulty over the course of the disease. So, that means, typically, their voice is going to become a little bit softer. And when I speak with my own patients, people I work with with Parkinson's disease, the way they describe those changes is, "my voice has become weaker or softer". When I interview them at first, before we work together, and I say, so how do you perceive the power of your voice? I think this word conveys a lot, and people immediately say, "You know? It's less powerful. I've lost that power in my voice."

So, in therapy, what we want is to give that power back. But those are very (almost universal) aspects of voice changes — that soft voice. Even the quality of their voice may change, right? It may sound more hoarse, less clear, more breathy. For example, some people start stuttering or may speak faster than they used to. So, just imagine how all of these changes may impact someone's overall communication. And this is something that we always discuss when we're about to start treatment. Like, what are some of your favorite activities that involve social aspects? And many people say, "Well, going out to a restaurant," for example. Right? Dining out or eating out.

So, I always use the example of, "Just picture yourself at your favorite restaurant. And typically there's so much noise, right?" There's a lot of noise. And I think this resonates with everybody that we all try to raise our voice. Try to speak up a little bit just so that we can have that conversation because it may be a little bit loud where we are. So, the problem that people with Parkinson's may experience is that that communication is extra challenging. Speaking up is extra challenging. And many times, and unfortunately, something that I've heard already way too many times, is that, "I give up. I get frustrated. I get angry. I don't want to order my food myself. Someone else is going to do it for me."

So, really those speech changes, those voice changes really have a big impact on speakers' social life, social interactions to the point that they may start getting socially withdrawn. They may not feel like talking to so many people anymore if they are experiencing that something has changed in their voice, right? And I just want to add too that it's not just a voice problem, right?

So, there are other factors that are going to play an important role, like being tired. Fatigue. That also is going to impact on someone's willingness to maybe host a dinner at their own home. When maybe they really always enjoyed hosting

dinners, but now they're extra tired. Or even cognitive changes that may also impact someone's interaction. So, it's not just voice, but voice and speech really play such a big role.

And I think in our current era, when we're now talking more about social isolation in the elderly, for example, as a public health concern, I really think that anything that we can do to really minimize or eliminate social isolation is key, because unfortunately many, many times, these changes — that's where they're leading us. So, something that we do as speech and language pathologists is really advocate for social participation through what we do.

**Marie:** Well, that makes sense. And I'm really glad you highlighted the sort of interconnected web of effects that these voice changes have. And I'd love to talk next about the app that you've been developing. I know you were awarded funding from The Michael J. Fox Foundation to develop and test an app called Understand Me For Life. So, Gemma, can you maybe start by explaining the rationale and maybe the process that was involved in creating this app?

**Gemma:** Absolutely. So, this is a project that I started a few years ago with my colleague, Dr. Alireza Goudarzi. He's the engineer who developed the app. So, we've been doing this interdisciplinary work together for about 10 years, and then this has been going on for the last six years. And we were very fortunate to receive a grant from The Michael J. Fox Foundation for Parkinson's Research to develop and pilot test Understand Me For Life.

And in that first work that we did together, we developed this app to automatically assess intelligibility in speakers with Parkinson's. Intelligibility is how well someone is understood by a listener. And the aspect that is unique to the app is that as you record a couple sentences, and the sentences are quite short, the back end of the app embeds your voice in multi-talker babble — that is, in background noise.

So, you are recording in your home, so in a quiet space, but the app takes that voice and puts it in a sort of real-life scenario, right? That restaurant scenario that I was talking about.

**Marie:** Right, sort of adds the noise, yeah.

**Gemma:** Right, and it adds the noise. So, that was the first step was to kind of pilot test the app. And we had some people with Parkinson's and some people without Parkinson's the same age. And our results were promising. So, we took our research a step further. And again, we were very fortunate, and we are extremely honored to have received a second grant from The Michael J. Fox Foundation, because right now we are launching a clinical trial that's going to span the next

three years. And that's going to test the initial efficacy of this app to improve intelligibility in this population and social participation.

So, you were asking about the rationale, right? And I am very happy that you asked that question too, because what drives my research is not just improving voice, but also fostering independence in the people I work with. So, one aspect of Parkinson's that we know is that it's progressive. So, within the context of something progressive, we really wanted to try to improve self-management. The ability of any person to really manage this aspect of the disease, which is voice changes. So, that's how the app came about.

And now we are starting our pilot for the clinical trial this semester. We are really looking forward to that. So, we're also recruiting, by the way. And we're excited to see where this takes us, because this is something that we're passionate about. We deeply believe in. It's something that is functional in the sense that the goal is to have people use the app at home. So, no need to come to the lab. Participants will be able to use it whenever they feel energized, you know, whenever they feel like, "Okay, now it's a good time for me to do my speech practice at home."

They'll do it independently. And then we'll also be providing some sessions remotely with the speech and language pathologist just to troubleshoot if there's any issue, just to, you know, also make sure participants don't have any questions and that they're using the cues we want them to use, which basically focus on taking a deep breath and using a strong and a clear voice when speaking. But part of that treatment study is going to be done independently by participants. And that's something I feel also is pretty unique.

**Marie:** Absolutely. I think this is a fascinating study. And it sounds like a valuable app that has these different very well-thought-out features. And perhaps we could dive into the user experience. So, when someone is participating in this clinical trial that you have, they have the app, and they are going to use it today. What does that look like?

**Gemma:** So, participants will do some in-person testing. So, then the treatment portion itself is all remote. They do it at home. But we test them in person — before and after the treatment. So, during that testing, we'll make sure that we train them on how to access the app. To be part of the study, they will use their own phones, and they also need access to a computer because they're going to be reading some sentences through their computer. But basically, they'll be receiving a link every day to access the web-based app. And so the app will kind of coach them as to what to do. There are different breaks, and participants can take as many breaks as they need. But we cue them on how to read several sentences that will be increasing in length every week.

So, this is something that they do over the course of four weeks. So, we designed the app with a very clear structure that responds to evidence-based practices. So, we use sentences that increase in length because this way we're increasing the complexity of what we are asking people to do. We use sentences that are real-life sentences, or functional sentences, so that the changes in voice are more naturalistic. We are using real-life sentences that resonate with people, and hopefully those speech changes are then transferred when they are speaking to their loved ones at home, for example.

We're using noise-augmented feedback in a way that also varies through each session so that we are promoting motor learning. And this all comes from the motor learning literature. So, there are different aspects of how the app was constructed that respond to a systematic way of targeting speech disorders in people with Parkinson's disease.

In terms of the cues that we use, those have also been very much established in the literature. So, we don't have a particular protocol that we use, but we use the cues for loudness and the cues for clear speech because both have been shown to, for example, improve different aspects of voice and speech.

And because not two people with Parkinson's are the same, we decided to incorporate these two queuing techniques into the way our protocol works. And we're interested in seeing how taxing this is. So, we want to see if doing this four times a week is feasible or not. But we expect participants to be part of the treatment study four times a week for four weeks, so that's 16 sessions. And what they do is they read 100 sentences every session.

And as I said, sentences are very short. We start with three to four words in length, so pretty short. But the way the app provides the feedback is what we call noise-augmented feedback. So, in a different number of trials, so not for every single sentence, participants will be receiving a score of what the app understood in noise. They'll receive the sentence the app understood, and they'll also be able to listen to their own voice in noise. So, we provide three different types of feedback, but all of those types have been augmented, let's say, using noise.

**Marie:** Very interesting. And it sounds like you've got this pilot test that you mentioned four times a week for four weeks, reading these 100 sentences. I know it can differ a little bit because people may be taking breaks, but about how long does it take for someone to read 100 sentences in one session?

**Gemma:** So, that's why we're pilot testing the app, but it's a great question. So, we have estimated about 60 minutes.

**Marie:** Okay.

**Gemma:** But of course, as you said, it's going to depend on every person. So, something that we really care about is the user experience. Is this feasible? Is this too taxing? Or maybe is it too easy? So, as part of this pilot program, we'll be interviewing our participants to get their feedback. They'll also be provided with different questionnaires, tapping on user experience. But I think the interview piece is very important because at the end of the day, this is an app that's going to be for people with Parkinson's for free. We want to make sure that it resonates with what they need. So, once we complete this pilot, I'll have a better sense of any changes that need to be made. But in terms of the format of the sessions, that's what it would look like.

**Marie:** Very interesting. And it sounds like it's targeting perhaps increasing people's awareness of how they're talking, or are there specific ingredients that you think are going to make this particular therapy effective?

**Gemma:** I think the fact that it's something they can do at home at a time that is convenient for them is a very important aspect of it. Because remember what I mentioned before that many times one of the barriers to communication and social communication is feeling tired. Right? That aspect of fatigue. So, hopefully by providing them with the chance to choose when to do these exercises — that can help. So, I think that's one of the key ingredients. I feel motivation — really wanting to try it out. Perhaps people who are interested in maybe tech-related approaches. We'll see.

**Marie:** So, you mentioned that this journey of creating the app began about six years ago. Can you talk us through what steps have been taken so far?

**Gemma:** So, about six years ago, that's when Dr. Goudarzi and I started talking about how to tackle this problem of how to enhance, hopefully, quality of life by providing something that people with Parkinson's can use independently. And while the process started writing up different grants, trying to get funding to develop the app, and that kind of became a reality in 2020, I believe.

So, since then we've worked on, first of all, developing the app, pilot testing it. The first pilot we did, we already changed a lot the outlook of the app, based on participants' feedback. So, participants' feedback has been an essential component of all of this since day one. And since then, we've been working on tweaking the app for a treatment study. Because the first grant that we got was tailored for assessment, right? It was not a treatment tool. It wasn't yet. And now for the past two years, we've been focusing on modifying the app so that it responds to the treatment goal that we wanted to achieve.

**Marie:** Well, it sounds like you've made great progress over these six years. What then are the next steps for this line of research? You mentioned this pilot is in-process. How's it looking so far?

**Gemma:** It's looking great. We are very excited to get started. So, the goal is to complete the recruitment for this and the actual testing and treatment this semester or in the next few months. And then modify the app as needed based on participants' feedback. Once that's done, we'll just launch the clinical trial. So, that's going to keep us very busy for the next three years.

**Marie:** Wonderful. And maybe taking a step back, Gemma, thinking about the big picture. How do you see an app like this one really impacting people with Parkinson's?

**Gemma:** To be honest, I cannot wait to speak with our participants and get their honest feedback. I think it's something that can really help with self-management, with independence. I think it's something that has the potential — and hopefully we show that potential — to improve intelligibility, which is, you know, to me, such an important variable. I really think that if someone feels they don't want to eat out anymore because they will not be understood, that is something that I think we can actually target with a tool that can be easily accessible for everybody. So, something that I also care about is accessibility of resources. We are developing this project with that in mind and trying to make what we do, or the product that can result from this — to make it accessible to, you know, as many people as possible.

**Marie:** That makes sense. And Gemma, I am really excited to see the results of this trial soon. And I know that another important area that you specialize in is linguistically and culturally responsive methods for addressing communication challenges in Parkinson's disease. So, can you perhaps comment on the importance of just raising awareness, perhaps as the first step, of the need to embrace a language- and culture-specific perspective in working with diverse populations with Parkinson's disease?

**Gemma:** Yeah, I think now there's sort of a movement, you know, like we're embracing to reach that goal. I'm originally from Spain, so I work a lot with Spanish-speaking individuals with Parkinson's disease. And something that really sort of bothered me was that everything was in English, you know? Lots of the literature out there is on English speakers. And of course, there are over 10 million people with Parkinson's worldwide. So, why do we have so much in English and not that much in any other language? So, that's sort of what drove me to start my own research, part of my research also on Spanish speech characteristics from people who, you know, have Parkinson's disease, to really think, "Can we tailor

treatment in different ways?” And I think this is a very interesting conversation among speech-language pathologists.

What should we do first? Right now, throughout the past few years, we have great studies in different languages, and we can see that there are some universal aspects that are affected, like reduced loudness. That soft voice is commonly reported, regardless of the language of the speaker, just because it responds to that neuropathology. Right? So, there are different voice features that we can address globally or universally, regardless of the language.

But then, of course, treatment is done — or should be done, I think — from a culturally responsive lens. So, just embracing our client into, “So what's important to you? What should we be focusing on? What are your goals?” That part of client-centered care is also responding to what's something important for that particular client? In terms of my research, for instance, on what's more language-specific versus what's more language-universal or independent, what we've been seeing also is that, again, aspects that focus on intelligibility that are so important for English speakers — and definitely we may include in our treatment sessions for English speakers — may not be as relevant for Spanish speakers.

So, for example, this is a very abstract term, but when we talk about vowel space, different languages have different vowels and a different number of vowels. English has many vowels, Spanish only has five. So, in both languages — in English and Spanish, for instance — we do see, and this has been shown in French, in German, in other languages too, that that vowel space becomes smaller because of that speech disorder associated with Parkinson's disease that we call hypokinetic dysarthria. However, the impact of this vowel space becoming smaller is really significant for English speakers in terms of how that affects their intelligibility, right? But it does not play that big of a role for Spanish speakers.

And this is just the beginning of kind of this line of research. So, what are the different elements of our voice or our speech that may actually be more language-dependent and then we can address more specifically in our sessions? That's another thing that I think it's getting more attention in terms of research. I don't quite have an answer for this yet, but the conversation is about, “Well, if something is going to impact the way we're understood by others, that should have priority.” In some languages of the world, breathiness may actually be something distinctive, something that may change meaning. That does not happen in Spanish, for instance. So, the priorities of our treatment targets should be different depending on the language of the speaker.

And culture comes in also in the sense of, so, what materials are we bringing to the therapy room? Something that echoes or resonates with a client are going to

be much more productive at the end of the day for everybody, because also it shows that we care and that we value our clients' perspectives, our clients' backgrounds. I think that's so important to establish a relationship of trust. And, you know, more and more people now are embracing that perspective and talking more about this.

**Marie:** Definitely. And Gemma, you gave the specific example of vowel space, and I think this is helpful to put it into context. But are there other examples of some of these language-specific or maybe culture-specific considerations that should be kept in mind when treating dysarthria or speech-related disorders in Parkinson's — maybe specifically in the Spanish-speaking populations that you've been working with?

**Gemma:** One recent study that we've almost completed is a focus group study where we conduct group interviews to Spanish-speaking patients with Parkinson's as well as their care partners. And our questions were focused on their perceptions of communication needs, their perceptions also on social connectedness, because as we said before, social connectedness is key really, I think, for most people. And for that particular study, we were also looking at perceptions of mental health needs.

So, in terms of communication, what we are seeing, and this is still an ongoing study, but it really gave us perspectives on family. The importance of including family in sessions, which I think it's not just relevant to this one — I don't want to say even cultural group, because that sounds like an overgeneralization. And I've seen this personally clinically as well with English speakers also in a different study that we recently conducted — that family support is so important.

But typically, in the Spanish-speaking literature, family involvement tends to be a big thing. So, it may not be culturally specific in this sense, but it brings me to the point of — we're working with people with Parkinson's, but we're also working or should be working with their whole support system. And when I talk about support system, I'm really referring to so who are their loved ones?

Because at the end of the day, it seems as if everything is very modular, like we work in the therapy room together, and then you're done. You're on your own. But that's not how real changes, I think, happen. Involving care partners is such an important part of the process. I think it goes a long way for patients or care partners themselves. So, yeah, in this case, it's not something that is particular, perhaps to the Spanish speaking population, but I think it's an important aspect to consider just involving care partners in the therapeutic process.

**Marie:** Absolutely. I think thinking about this holistic big-picture view, you know, the person in the context of their everyday life.

**Gemma:** Yeah. I think it's so important because if we want to drive change, I think change takes a village or requires a village. And at least, and this is from my own personal clinical experience, it really goes a long way when the therapist involves not just the person with Parkinson's, but their support network. And care partners also, they're dealing with a lot. So, it's a way of trying to also offer some sort of support to the care partner.

**Marie:** Certainly. So, for listeners out there who might be clinicians themselves who are working with people with Parkinson's and their families every day, do you have any practical advice that you could share, Gemma, on how to maybe implement some of these more culturally-responsive evidence-based practices in their clinics or in their centers?

**Gemma:** I think, stepping away from the one-size-fits-all approach. That would be the very first thing that comes to mind. And this, again, really is regardless of someone's background. I think just getting to know that person and their values, knowing their goals right from the start. What do they want to achieve with you, and how can you maximize that? Because we're not going to do the change alone. You know, we provide strategies, we provide the support, we provide the education on how to strive for those changes regarding speech and voice communication.

But we cannot just take a boilerplate approach and use it without taking that personal value, that client-centered perspective, and hopefully that of their care partner too. So, involving both of them, for example, in therapy. I think that's another great thing to do just to keep establishing that trust, keep establishing that rapport, tailoring different activities or tasks that we may do in therapy towards more functional goals.

You know, if someone is involved in different church activities, for example, in their community, and they want to practice some of those activities with you, well, let's embrace those in therapy so that that person, when they go out in their community, they can still be an active member of that community. So, I would say just really getting to know what's important to the client and implementing all of those points of view into the session. I think it goes a long way, and it really takes the person with Parkinson's as the primary person in the therapy room.

**Marie:** Certainly. And I think being able to bring in whether it's their spouse, or family members, or care partners into this conversation, particularly when you're talking about the realm of voice and speech, you know, these are the people who they are communicating with probably most frequently. So, they may pick up on things that perhaps even the patient did not, or they may have certain things that could help them understand the patient if you're not able to improve things on the patient side.

**Gemma:** Exactly.

**Marie:** I think that's amazing. And now, we mentioned you've got some ongoing research in this area. Can you share with us the results from your recent work where you were examining the impacts of an intensive voice and articulation therapy? And you looked in English and in Spanish in these individuals with Parkinson's disease. Can you talk a little bit more about the study, and what were the findings?

**Gemma:** Sure. So, this is a recent study that we completed. And we were using the Lee Silverman Voice Treatment or LSVT Loud, which currently has five randomized control trials. So, it's an excellent treatment approach to improve voice in people with Parkinson's. And I've been fortunate to work with Dr. Lori Ramig, who developed this treatment on her dataset for English speakers.

But then on my own research with Spanish speakers, we implemented this approach. We had great improvements in voice quality in both groups that we worked on. We had a group of speakers with mild dysarthria, mild speech impairment. And then we had another group of speakers who had more of a moderate speech disorder.

So, what we found was that both groups improved significantly after treatment, and those gains were maintained after treatment for about a month. And I say just for about a month because we were not able to collect data afterwards. But you know, in the short term, those gains were maintained. And definitely there's data using this treatment where gains are maintained for a longer time. And in the English study, it was about six months where gains were still way higher than they were at baseline. So, before treatment started.

So, I think this speaks to the fact that, you know, when you have two different groups of speakers, even if one of the groups has a mild speech disorder, if we know that most people with Parkinson's at some point will develop voice and speech issues, even if those with a mild speech impairment, if they're improving, that speaks to the fact that we can work on preventative care. We can work on providing speakers with strategies that then they can independently use at home to sort of keep their voice as strong as possible for as long as possible.

And then for those with a more moderate issue, they also showed significant gains. In this case, it was regarding their voice quality. So, even if their speech disorder was more moderate, they actually benefited as well. So, that difference that we were observing before treatment between the two groups, that difference disappeared after treatment. And I think for me, that's more evidence, to the evidence that we already have, that speech referrals should be really happening

at the time of diagnosis. Just because we can really provide participants, speakers with Parkinson's, with self-management strategies on how to keep their voice strong for a long, long time.

**Marie:** Very interesting. And did you notice any differences between the groups of the English speakers and the Spanish speakers in terms of whether it was how this particular therapy had to be administered, or how people responded to it, or even whether people liked it or not?

**Gemma:** Both linguistic groups responded equally well. I think this responds more to that conversation we were having before about more universal aspects of the disease. Universal being that softer voice, that weaker voice. So, both linguistic groups really benefited greatly from it. You know, there are different approaches out there, and I use different ones, but this one, right now, has the highest level of evidence. And it can be a great start to give speakers the power of their voice back and provide speakers with strategies.

As with anything, not everybody responds the same way, right? To treatment. So, I would say collectively, both groups showed great gains, very significant gains. But if we were to take a look at the groups individually, I haven't done that yet. But just from a clinical perspective, people may react differently to a given treatment. But I think overall gains are really significant in general.

Of course, we need to take a look at the person as a whole. Like there are different variables that may influence how someone responds to treatment. Depression, for example, or the presence of cognitive impairment may also play a role. Levels of fatigue. So, again, it's not a boilerplate approach. And we really need to see who can benefit the most. How can we tweak things depending on clients' needs? But in terms of our research, when we looked at groups of participants, we were able to see great gains in terms of their voice quality, which I think is fantastic news.

**Marie:** Absolutely. And I think science is full of surprises. Gemma, do you have any examples of some of these surprises that you've seen in your work or maybe unexpected outcomes that you've encountered?

**Gemma:** So, as part of my clinical work and also as part of my research, I also run an online group speech rehabilitation program that's called Speech for PD. And Speech for PD, right now, has grown a lot, which is a blessing. We have about 30 people who join our sessions, and we do this over Zoom. We use different breakout rooms, and it's a training platform for our graduate students, who are training to become speech and language pathologists. So, to your question, this is an online group rehabilitation program. So, when we started, I actually got

surprised at how easy it was to actually involve lots of participants with digital platforms.

We definitely learned a lot on how to maximize Zoom. This, of course, started because of COVID. We were in-person before and then COVID just made the transition to online platforms happen. But I have to say that, you know, at first I was a little bit scared. Can we still provide these services over Zoom? Can they be equally effective? And most importantly, will participants like it? Will they feel that we are building a community? Right? Because when we were in person, that sense of group and community and belonging was very important to me. And it was a pleasant surprise to say, yes, people were able to engage in Zoom sessions.

At first, we would spend some time with all the technicalities of Zoom, right? Of course, I think everybody had to do it. But this was such a beautiful, I would say, surprise. The fact that it was easy, the fact that we actually thrived through a very difficult time by building community in times of need. And it actually sort of evolved to this beautiful, beautiful group that we currently have that's still online. It's still thriving. And the most important thing is that I feel we've really built something that goes beyond speech.

So, we started it as a speech rehabilitation program to be done in group format. So, this is all group work, which I'm very passionate about because I think we're social beings. And I love individual therapy, but to me, group work is really one of the best strategies against social isolation. So, I always advocate for group work, as you can see.

But I think that was a beautiful surprise to me that we were able to actually build such a wonderful community of individuals. And the community involves participants with Parkinson's, their loved ones, my own students, my colleague Carol Norman, who co-supervises our students with me. So, it's supervisors, students, individuals with Parkinson's, their loved ones. It's a wonderful community. So, I think that's been one of the best surprises ever for me.

**Marie:** Oh, that is fantastic. I'm so glad to hear that this group was a success. And I think you're absolutely right that this way of communicating with people virtually has just become a normal part of everyday life, which I think opens up a lot of doors and possibilities. Well, we've talked about some of the resources that you've used in your research and, of course, this app that you are developing. But if you look at the field as a whole, what are some of the tools, and resources, and collaborations, even, that you see as really moving the field forward and having an impact?

**Gemma:** I think in our field, we're experiencing exciting, new developments. I think the world of artificial intelligence is really, really moving fast and opening up so many new possibilities. I think automatic speech recognition will soon be so much stronger and accessible for those with speech impairments. You have Project Euphonia, for example. It's just an exciting new path. And I think, for all of us, trying to kind of maximize that world of AI to provide better outcomes in terms of speech for individuals with Parkinson's. I just think it's an exciting new time.

**Marie:** Definitely. And what do you see then as perhaps some of the biggest unanswered questions that remain to be addressed with all of these changing, dynamic aspects of the environment?

**Gemma:** What I think about this is, how can we make it easier for users? How can we make it easier and more relevant to what they need? I'm in constant conversation, for instance, with participants in the Speech for PD group to learn about these needs. I think that's the only way to really try to, you know, move the research to where we can really directly transfer it to real-life needs. But yeah, how can we make their quality of life better in our own distinct disciplines? How can we make it easier? How can also, as I said before, you know, the concept of accessibility. How can we reach more people and involve more people in our clinical services, right? In our research. I think those are all questions that are constantly in my mind.

**Marie:** Certainly. And I know, Gemma, that you are tackling some important pieces of these questions in the work that you're doing today. So, to wrap up our conversation, can you share with listeners maybe just a summary of how your work is bringing us closer to some of our big picture goals, like improving therapy for people with Parkinson's overall?

**Gemma:** Well, you know, I feel privileged to be able to do what I do. As I said, I'm just passionate about working with people with Parkinson's disease and their loved ones. I can only say that I just hope that my research — and my research is not something I do on my own. You know, when I say “my”, it's like “our” research, actually, with my colleagues, Dr. Alireza Goudarzi and, you know, for this clinical trial, our research team was very small. But now we grew a little bit more, and we have wonderful collaborations going on with Dr. Bryan Keller, also from Teachers College, Dr. Edward Moss from Temple University.

I just feel privileged to be able to work with them. And hopefully what I want to see is my research helping people with Parkinson's be able to monitor their voice, increase their independence, their self-management. Hopefully we can be part of that change. In any case, that's my hope. That's my dream. You know, that's why we work so hard to move this forward.

But that's only one piece we've been discussing. You know, I think I also want my research to serve as advocacy for people with Parkinson's who speak other languages. And I focus on Spanish because that's my home language. But this holds true for any other language. I really strive to make what I do accessible across communities, underrepresented communities. More has to be done.

And my efforts to involve the Spanish-speaking communities. Well, I hope that I can keep doing that. I really hope that I can also involve care partners and provide resources for Spanish-speaking care partners to really maximize their quality of life, their social connectedness. So, serving underrepresented communities is an important mission of my lab. But, you know, it's also a very personal, important mission for me. So, I think those two big areas, basically, this is what I work for every day. Just empowering patients regardless of their background with technology, but also then really striving to be able to serve those that have been underrepresented for a long time.

**Marie:** Absolutely. We tremendously appreciate the work that you are doing in both of these areas. And it's been wonderful to hear more about you and more about your work today during our conversation. We really appreciate you joining us on the show. Thank you.

**Gemma:** Thank you so much, Marie. This was such a pleasure. Thank you for the invitation.

**Marie:** Well, it's been wonderful to chat with you. And listeners, it's been great to have you here with us as well. If you want to know how The Michael J. Fox Foundation can help your research, please visit [michaeljfox.org/researchresources](https://michaeljfox.org/researchresources). And remember that in 2025, we'll be merging this podcast with *The Michael J. Fox Foundation's Parkinson's Podcast*, so make sure you subscribe to that show to hear the outstanding episodes we have coming up. Find out more in the show notes. Thanks again for joining us for this episode of *The Parkinson's Research Podcast*.