Season 2, Episode 4: Bridging the Gap Between Research and Practice (ft. Dr. Sara Becker)

Anusha: Hi, and welcome to DigiHealth Talks, a podcast created and hosted by the Brown-Lifespan Center for Digital Health in Providence, Rhode Island. I'm your host, Anusha Rahman. Join us as we meet some of the masterminds behind the field of digital health, leveraging the innovative technology around us to help the public improve their well-being.

Today we are interviewing Dr. Sara Becker, an Associate Professor of Behavioral and Social Sciences. She is a licensed clinical psychologist and implementation scientist working to bridge the gap between research and practice. Thank you so much for being here! We're really happy to have you.

Dr. Becker: Thank you so much for having me. I'm thrilled to be here.

A: Awesome. To start us off, can you tell us a little bit about your educational background and your current research focus?

B: Absolutely. My undergraduate training was in psychology and economics, and following my undergraduate I actually worked in business for three years. I worked as a strategy consultant, which meant that I advised Fortune 100 companies on their strategic priorities and business strategy. I was specifically in the change management and healthcare practice area focus groups, which meant that I worked with pharmaceutical companies and biotech companies on business strategy and often, to help them manage the process of large-scale, organizational change initiatives, such as mergers and acquisitions or other big strategic changes. It was around that point, working in business for three years that I missed my psychology roots and decided to apply for a PhD in clinical psychology. But the lessons that I learned in business as a consultant really formed a lot of my subsequent research interests. And so when I became a postdoctoral fellow at Brown in 2009, 12 years ago, and I was tasked with writing my first ever grant proposal, I decided to merge my interests in psychology, which was working with adolescents primarily, and I was interested in working with adolescents with substance use disorders for a variety of reasons, which I'm happy to get further into, and I decided to merge that with my business training work with organizational change initiatives. And also I forgot to mention, working with pharma companies that was really often situated with the marketing teams that played such a huge role whenever they did organizational change work. And so I got very interested in how do we market behavioral treatments better and how do we help organizations to prepare for the change of implementing behavioral interventions? And that's really where my interests in dissemination and implementation science began.

A: So it sounds like you didn't come from the “traditional background” of academia or research or something.

B: I think that's definitely accurate. I would say I got to a more traditional background eventually, but I certainly came to my current interest largely through a business lens.

A: Can you tell us what exactly dissemination and implementation science even means?

B: Absolutely. I think in a nutshell, dissemination and implementation science is the study of how to bridge the gap between what we know in terms of public health knowledge and what we actually do in terms of public health practice. And the dissemination word and the implementation word have slightly different meanings, so dissemination science is really the act of spreading information about effective treatment services or what we sometimes call innovations. And usually the goal of dissemination science is to build knowledge and awareness. Implementation science is really the act of helping to take an innovation or specific, effective treatment or service, and integrate it into a community setting. I mentioned before that I double majored in psychology and economics. So I tend to think about this through an economic lens: that you can think about dissemination science as work to increase the demand for innovation, and you can think of implementation science as work to increase the supply.

A: That's a really good way of thinking about it. Thank you. Would you be able to tell us a little bit about your technology-based parenting intervention, Parent SMART?

B: Absolutely. I actually just came from a Parent SMART meeting. This is a project that lately I've been spending a lot of time thinking about, I'm very excited about. So Parent SMART is a technology-assisted intervention for parents of adolescents in residential treatment. And typically, teens that present to residential treatment are those that have the highest level of mental health and substance use problems and difficulty with functioning across multiple life areas. But unfortunately, they also tend to have a lot of issues with relapse and recurrence after their residential treatment stay. And we know that when treating an adolescent, one of the most single effective things that you can do is involve their parent in treatment. It's an evidence-based principle, and it's really been shown that multiple evidence-based practices that involve families or parents, concerned significant others, do significantly better and are associated with better treatment outcomes than treatments that address the adolescent alone. So we got interested in, how could we involve parents in adolescents' residential treatment? And we did a lot of work talking to parents about the type of supports that would engage them, and we learned pretty quickly that parents were not really attracted to traditional office-based therapy. There were too many barriers to going to clinic once a week, having to drive very far distances. They also didn't like the constraints of only being able to speak to an expert once a week because often their problems were emergent and recurring throughout the week. And so we heard a lot of things that made us think a technology-based solution could be helpful. So we, based on parent feedback, designed Parent SMART, which is an intervention that combines several elements, all of which are delivered via technology. So there are really three that I'd love to highlight. The first element is an off-the-shelf program that actually I did not develop, it's called Parenting Wisely. You can view it at parentingwisely.com. It was developed by Family Works. It's really popular off-the-shelf product that we offer to parents that basically allows parents the ability to watch videos of parents interacting with their teens and seeing different

family problems and possible solutions. It demonstrates what's an effective solution versus an ineffective solution. And then we layered in two other aspects based on parent feedback. The second thing we layered on is, we layered a smartphone app that is also conveniently called Parent SMART, which we really use as the name of our overarching intervention. And it has two forums designed to meet two of the needs we heard from parents. One need parents shared was that they wanted to network with other parents. They wanted to speak with other parents that had gone through similar struggles, raising a teen that needed residential care. So we have a "connect with parents" form where parents can interact with each other and seek support from one another. And then the second need we heard was they really wanted to access an expert for emergent needs that they didn't have to wait for once-a-week, traditional office based therapy for. So we also have an "ask an expert" forum where parents can immediately ask their emerging parenting questions and get a response from a team of clinical experts. And then the third piece that we've layered in is that we have telehealth coaching sessions, and that was also based on feedback from parents where they said "I'm a little bit technology shy" and "I like the idea of a technology solution, but I need you to hold my hand and teach me how to use it," so the telehealth sessions are really to teach them how to use the Parenting Wisely. We model the computer program how to log in, we show them how to watch the parenting videos, we show them how to use the app and if they have issues, we help customize it by saying oh, based on what you're saying, it sounds like this specific module at this computer program might be helpful for us to watch together, and we use the technology as an integral part of these telehealth sessions.

A: So you really took the main issues that we're having and you just built technology around it to best help the parents. Is that right?

B: I think that's exactly right. I would say the other thing I would mention though is that not all of what we built was new. Parenting Wisely was a popular off-the-shelf solution, and so I think by building a wraparound to Parenting Wisely, we were able to make something that I think is highly scalable because there was something that was already existing that was a popular product that we could create a scalable solution by leveraging that and not starting from scratch.

A: I'd like to talk a little bit more about the third piece that you mentioned earlier about teaching parents how to use the technology. I think that's something that we often miss when we're creating these digital interventions. I've seen that in a couple of research studies involving digital health. Can you tell us a little bit more about that?

B: Yes, absolutely. So this was a theme that came up in interviews and some focus groups with parents. The parents were just being honest that they really liked the idea of a computer program, they liked the idea of an app, but some parents were saying, you know, I have 20 apps on my phone, but I don't use them. Because once I download them, I don't know how to use them. I don't know how to engage. I get notifications and I forget my password. You know, I forget the basics of how to use it. So parents, it was literally direct quote from a parent, a mother said "if you want me to use technology, you're gonna have to hold my hand and how to

use it". And that really was the lightbulb moment for us that we thought, oh, we could do that, you know, we can hold their hand, we can actually teach parents how to do that. And so we really designed our telehealth coaching sessions around that feedback that we were hearing from parents and made it such that in the sessions, either via Zoom or phone, we prefer Zoom when possible, show them exactly how to use the technology. We're on the phone with them as they log in for the first time. We walk them through how to use it and we actually use the technology as a clinical tool within the therapy session as well. So rather than us trying to teach a skill, we say, now let's watch this vignette together, and then we watch the videos and we say, okay, what did you take from that video? You know, what do you think the parent did well in this situation, what could the parent have done better? And all of that is really built upon the technology.

A: Could you touch on the scalability of that concept a little bit, even for other research studies?

B: That is an excellent question. And I think that is something when we submitted this grant, I should say that Parent SMART now is in its second iteration, so we, for those that are familiar with the grant funding world, our first three-year pilot was funded by the National Institute on Direct Abuse R34 award, which is really meant to be a pilot award mechanism. We tested this with 61 parents and 61 teens. The data looked beautiful. So we have now applied for a bigger study and we have what was once a five-year R01 that has been converted into a 10-year R37, which is like extremely exciting. Something else I can chat about if there's time, but basically we're now doing a bigger study of this with 210 parents and 210 teens. And I would say the reviews that we got when submitted that R01, the main issue that came up was asking about scalability. The response that I gave is that I think the way I'm conceptualizing this based on residential staff feedback is I'm hoping that at the end of the day, Parent SMART can be an off-the-shelf product that a residential facility could purchase, and that the telehealth sessions would actually be baked into the product. So you would purchase a subscription for six months that included a subscription to Parenting Wisely, a subscription to the app, and a subscription to kind of like these BA level coaches, which is the level that we train of folks that can train people on how to use the technology. Whether or not that is going to be the ideal outcome I think is part of the question that we'll be addressing cause I think another way you could frame this is trying to train residential staff to do that handholding themselves. But I think for me, the big thorn in my side is kids that are discharged from residential, the question of who owns their care, is a big one from a billing perspective, because once they're discharged, they're no longer being billed by the residential facility. And so the residential facility was telling me they could, they could purchase a subscription and build that into the bundled rate. But if they try to do fee for service and have their own clinicians do it, it just becomes a little bit difficult cause the clinician no longer owns the teen once they're discharged, from liability perspective.

A: So as we know, the field of digital health and technology is very broad. And so I want to talk about a lesser known topic that we don't quite hear about so much: workforce development. How do you use technology to impact healthcare workforce development?

B: I'm so grateful that you asked me that, this is also a topic that I think is really important, and I agree with you. It's not discussed nearly enough. So, and I mentioned before, the difference between dissemination and implementation science, I tend to think of what we're doing in Parent SMART as in the dissemination science side, it's a way we're trying to improve demand for services by creating products that could be marketed either directly to parents or directly to residential facilities. And in a way, that addresses demand for additional services. Workforce development falls squarely in the implementation science side, in the sense that in order to increase the supply of services in the community, we really need a workforce that's able to deliver it. And one of the things that I do is lead a regional training center called the New England Addiction Technology Transfer Center. It's a initiative funded by the Substance Abuse and Mental Health Services Administration, and we do a lot of workforce development and we use a lot of technology to do so. I would say we always have been in that space of using technology and of course the last year and a half throughout the pandemic, we really had to embrace it for 100% of what we do versus a fraction of what we do, which was how it was done historically. But one of the things we've really been challenged to do, especially with COVID, think about how do you train and provide technical assistance to the workforce in a way that really leverages technology, and that I think leverages technology beyond a webinar? And so I think all of us listening to this podcast are probably familiar with webinars that we can attend. And yet as a regional training center director, I know it is very clear in the data. If you just do what we call like a drive-by training or webinar, it doesn't actually change clinician behavior. So how can we use technology to provide ongoing support and training for the workforce in a way that really helps develop their skills and not just their knowledge, cause I think webinars all well and good for knowledge but doesn't really help with skill. So we have done a variety of things. One thing we've tried to embrace is a model called the ECHO model, which I believe stands for extending community health organizations. If I got it wrong, I apologize, but something very close to that, and it is the idea that people come together for these structured, basically, essentially, Zoom calls, but video conferencing calls around specific topics to provide workforce support and peer consultation. It was actually developed by a team at University of New Mexico and it was to meet the needs of rural providers and it was to meet their needs prior to COVID, so at the time, this was a really innovative idea cause we didn't have Zoom meetings all the time back then, but basically the idea that folks would come together for peer consultation around a specific topic to help build their skills, recognizing that folks that don't live in urban areas often don't have colleagues to do pure consultation and supervision readily available and their closest peer might be many miles away, and so having kind of the scaffolding of structured technology based peer consultation and supervision calls addresses an emergent need. The typical ECHO formula usually has an element of a brief didactic and then an element of brief structured case presentation or case vignette, and then also a lot of time for Q&A and interaction. And so it's really great learning strategy and tool that we've been very excited about. This area is hot right now. I'm not sure if we've called this digital health, but there's a lot of using kind of artificial intelligence to provide workforce development as well. There are systems developing for motivational interviewing is one example I'm familiar with, where folks can basically all a number and or submit a tape and do a session with a robot and basically it can rate their delivery and their skills to give immediate feedback on skills kind of in private, anonymous way. There's been talk about developing this for other platforms as well, and then

we're constantly seeing a proliferation of tools that can really help the workforce. So one tool that is getting a lot of press right now is called dynamic care for contingency management. There are competitive products as well, but it's a fully digital health solution to help providers to deliver a very effective intervention that often requires a lot of pieces, requires providers to remember a lot of details about patient progress, the number of prizes patient can earn and basically the digital health solution makes that all very easy for providers. So it's basically a platform that an agency purchases so that providers can communicate with their patients through a secure digital health platform. So we're seeing all sorts of exciting workforce development tools in this space. And I think it's a space to watch.

A: And ultimately, how do you hope all of those combined will impact health and healthcare in the future?

B: Such a great question. I really hope that it empowers, I hope eventually reimbursement makes it such that consumers are empowered with more choices so that when a consumer presents to a clinic, maybe they're offered a menu of choices, of which some level of digital health provision of services is one of the menu of options. I think right now it's often, these solutions exist, but they often exist by for-profit companies, or they exist by entities that are not always integrated into the healthcare system. And so to have it be part of the health care experience in a more integrated and reimbursed way, I think would really be a game changer.

A: Stepping outside of this little bit, you're a method researcher, so you focus more on methodology. How did you decide that this would be your focus and what advice do you have for novice researchers who are interested in this similar path of work?

B: Great question. So I consider myself as having a content area of expertise in adolescent substance use and then a methods area of expertise in dissemination and implementation science. And early on in my training, a mentor said to me, you know, as you're thinking about building your area of expertise and your reputation in the field, if you can have both a content and a methodological area of expertise that can be helpful, just to give you a broader array of options for collaboration with colleagues. Cause if you do your content work, you can certainly, you can always collaborate with people in that content area, but once you learn a method, you can collaborate across all different types of areas, and so having that skill can be, I think, really beneficial. And I'm assuming people listening to this podcast probably have methodological skills or interests in digital health. And so I think that's a perfect example that you could have a content interest in a specific illness, disease, state, population, area of focus, but you can have that methodological skill that really transcends settings, populations, and presenting concerns. And I highly recommend that. I think I got interested in the methods of dissemination and implementation science before I knew that that was what it was called, and for largely the reasons we talked about before that in business, it was just such a focus in business about how did we get organizations to do things and how do we market to people. I think that's cause these were for-profit entities and they realized, you know, to make a profit, you've gotta be communicating with people, you've gotta be marketing and you've also gotta solve the problem and get things integrated quickly. And yet when I did my academic training, that was all

completely lacking from my training. There was no discussion of marketing messages, there was no discussion of how do we actually integrate things, and so I got very interested in understanding that as a field of study. And it wasn't until 2011 when the NIH announced their first-ever training institute in dissemination and implementation research, and I read the description, that I was like, oh, this is what I'm doing that I didn't know how to name and now have been really involved in that space ever since.

A: Very cool. Thank you for that. And to wrap us up, how do you see technology changing how we implement research interventions and projects, say in the future, 20-30 years from now?

B: Gosh, I hope that 20 to 30 years from now, everything we do is, you know, better, quicker, faster, more efficient, we have thanks to technology. I think what I'm learning with parents more, I don't think we will ever replace the human touch, I think there's something really special about the human touch, so I like to think about technology not as a clinician replacement or as like a behavioral health disruptor necessarily, I like to think about it as a clinician extender. And so I like the idea that in the future we can see clinicians, we can see nurses, doctors, but technology just so extends the reach of what those limited folks are able to do. I think we've seen with COVID, we so need to respect our healthcare professionals, I know many of them are burning out just because of the demands upon them. And so if we can allow each person to reach more patients via technology, if we can replicate some of what they're doing, you know, extend what they're able to do off hours out of standard work environments, I think that will just help our healthcare workforce and it will help our patients. So I'm hoping that we can really continue to lean into technology to extend the reach of what we do.

A: I share that hope. Thank you so much for being a part of this episode. We loved having you, and we learned so much.

B: It was mutual. I absolutely loved being here. Thanks so much.

A: Thank you! To learn more about the Brown-Lifespan Center for Digital Health, check us out at digitalhealth.med.brown.edu. Don’t forget to listen to our past episodes, available wherever you get your podcasts.