

# Speaking of Research

## Series 2 - Cheryl Williams

### SUMMARY KEYWORDS

Virtual reality, pain management, chronic pain, distraction technique, immersive environment, global challenge, opioid prescription, biopsychosocial model, NHS implementation, patient experience, stakeholder conversations, skepticism, rehabilitation, psychological reframing, research podcast.

### SPEAKERS

Cheryl Williams, Catherine McDonald

#### **Catherine McDonald** 00:04

Hello and Welcome to Speaking of Research, a podcast from the South Coast Doctoral Training Partnership. I'm Catherine McDonald, and in the second series of our podcast, we're focusing on research that addresses global challenges. We'll be in conversation with doctoral researchers about their research, which global challenges they hope to inform, and how they hope their work will make a difference. In this episode, I'm joined by Cheryl Williams from the University of Portsmouth, whose research is looking at how virtual reality can be used as an innovative intervention in the management of pain. Cheryl, can you start by telling us a bit more about that? Sounds absolutely fascinating.

#### **Cheryl Williams** 00:48

Absolutely. Well my first project is actually doing a massive literature search to have a look at all of the research where virtual reality has been used for the purpose of pain management in both acute and chronic pain. There's been, like an extensive amount of research over the past few years, but the research like spans over the past 25 years in total, I have been working alongside some stakeholders to identify certain configurations where we can pinpoint exactly what the mechanism behind virtual realities analgesia is, and what contexts trigger those mechanisms, and also like what kind of individual differences might play a part in those mechanisms being effective. But what I've noticed so far is that there's an extensive amount of research which has looked at the use of virtual reality for distraction purposes. This is especially the case in hospital situations like surgery. So, to try and replace the use of anaesthetics, especially general anaesthetic and to help relieve like anxiety in people so they process pain in a less debilitating way.

#### **Catherine McDonald** 02:04

What does that actually mean then? Can you paint a picture of that for me? So, I am a patient in a hospital experiencing pain, talk us through how virtual reality could be used as a distraction technique.

#### **Cheryl Williams** 02:16

There's several different ways that it can be used as a distraction technique. So, there's a passive way and more active way. So, like, the most commonly used way is passive, because in quite a lot of like situations like dentistry, is a really good one here. So, the patient has to stay still whilst something's happening, so the virtual reality headset will be used to divert attention away from the situation that's going on. So, the surgery, essentially,

and the pain, so you start thinking about something else. And virtual reality is like, really good for this, because it creates, like, an immersive environment so you don't get distracted by what's going on in the outside world, so it diverts your attention away from the pain, and therefore you experience less intense pain as a result, and less distress.

**Cheryl Williams** 03:16

Across the entire population of the world, one particular study has found that around 25% of the global population deal with chronic pain on a daily basis, and that can lead to like a reduced quality of life, like extreme disability, like economic burden for that person and for society. Of everyone that has chronic pain as well, there's about 33% that are prescribed opioids, like on a long-term basis, which is not really appropriate on a long term, opioids are really designed to deal with more acute pain situations, so like, more intense pain for a short period of time. When it comes to chronic pain, it needs something a bit more, so there's the biopsychosocial, model of pain. So that describes that there's not just biological aspects of the pain situation, but there's also psychological factors and social factors, which play a part in the whole experience of pain. So therefore, treatments really need to be designed to target all of those like different aspects, to like to incorporate a better experience of dealing with pain.

**Catherine McDonald** 04:00

That's incredible. To sort of take it back to sort of a larger scale approach. What exactly is the global challenge that you're addressing with this research?

**Catherine McDonald** 04:17

Absolutely, and, as you say, a more natural one, which you know we're realising is increasingly important. If you could sort of fast forward right to the end of your research, what do you specifically hope you will have informed or changed in relation to that global challenge that you've just outlined?

**Catherine McDonald** 04:46

In terms of what you've discovered so far, is there anything more you'd like to tell us about that, like, where your research is actually at right now?

**Cheryl Williams** 04:46

I would hope that I can get virtual reality being used in places a lot more frequently and regularly than it is. So, whilst there's been a lot of research on it in the past few years. If we think about the UK, there's not been a great deal of implementation into like the NHS services. There has been in a few like, specific areas around the country, and I've spoken to some of those as part of my research so far, and the work that they do in is absolutely incredible. So, they describe, like, when they use virtual reality with their patients, it's like, almost like, having an extra multi-disciplinary person with them. The virtual reality like acts as a tool to assist them in, like their rehabilitation and like their psychological reframing, and like all of the aspects that they use to help treat chronic pain, virtual reality acts as like an extra person. So, it'll be brilliant, if it can be used like a lot more frequently in a lot more places in the country.

**Cheryl Williams** 05:59

Yeah, it's really interesting. I've actually identified 20 different mechanisms. So, although I've spoken about distraction quite a lot, there's like way more to it than that. And then I'm going to hopefully test some of those mechanisms in the next year to be able to give a more informed approach to when virtual reality should be used with people to trigger the certain mechanisms.

**Catherine McDonald** 06:22

And so listening to you talk, I'm imagining, sort of, to go back to the picture you painted about someone in the dentist chair.

**Cheryl Williams** 06:29

Yeah.

**Catherine McDonald** 06:30

In terms of the virtual reality, what would I actually see? Because at the moment, I'm struggling to, I mean, I imagine walking into a dentist and thinking I'm going to have something really painful done to me and they say, oh we're going to distract you. I would struggle to believe that was enough. It's fascinating to me that it would be enough. Tell us what I would see in that virtual reality or what I would experience with that headset.

**Cheryl Williams** 06:53

Often, people get a choice of what they want to watch, and there's normally a selection of different experiences. So some of those would include, like, tours around certain cities, or like, a underwater experience where, like, you kind of, like, imagine that you're like a scuba diver, and like you're swimming around undersea and you're seeing all the sharks coming around. There's also experiences where it's a bit more relaxing and chilled out. So, like, you might be on a beach and you're watching everything that's going on around you, like the birds flying and like hearing the beautiful sounds of nature and that kind of thing. So, there are a lot of options. The space experience is a very popular one that the children have picked. So yes, it is really interesting. Some of the experiences often involve a bit more interaction as well. So, there'll be some kind of gaming involved, but it all depends on, like, how much the patient has to stay still whilst they're using the virtual reality. In terms of, like, their expectation and belief in the system working. That is actually one of the identified mechanisms as well. So, if you don't kind of buy into the intervention, or don't think that is going to be effective for you, then it's not going to be as effective as it would be for someone that believes that it is going to be.

**Catherine McDonald** 08:11

Is there a sort of a mechanism that you would use to kind of get me to a place where I could believe in it?

**Cheryl Williams** 08:16

Not really a mechanism, but you would sell it to the person in such a way, is like, this is a way that might help you to experience less pain. And people always get asked if they want to use it in those situations, and often, like they don't believe in it, they will choose not to use it.

**Catherine McDonald** 08:36

And one final question, just because I'm really curious. Are clinicians, are you experiencing scepticism with clinicians? Do the actual practitioners take some convincing of this?

**Cheryl Williams** 08:46

In some of the stakeholder conversations that I have, they have highlighted that there has been a bit of backlash with certain people that they work with, which has posed a problem with them trying to sell it to the patients. Quite often, the stakeholders have mentioned that surgeons and that kind of, like area of the doctor haven't really been that big a fan of it, but often that's because they don't really understand what it's about and like how it can help people.

**Catherine McDonald** 09:16

Sure. Cheryl, I wish you all the best with it. I think you know; chronic pain is such a huge challenge, it sounds absolutely fascinating.

**Cheryl Williams** 09:24

Thank you so much.

**Catherine McDonald** 09:25

Thanks to Cheryl Williams, and thanks to you for listening to this episode of Speaking of Research from the South Coast Doctoral Training Partnership. To find out more please visit [southcoastdtp.ac.uk](http://southcoastdtp.ac.uk). Don't forget to subscribe wherever you get your podcast to access earlier and forthcoming episodes. This was a Research Podcasts production.