How Researchers Changed the World Episode 5: Girija Kaimal - How art therapy can reduce stress and support mental health

GK: These are not extra. These are not extraneous. Our brain is, and this is sort of a related issue and related topic, our brain is not a computer. Our brain is actually a creative machine because what it is doing, is not just processing information it gets from the senses, but it's predicting what is good for you and what will keep you alive. In that sense, the arts are a way of practicing for the future and to practice different outcomes. To imagine possibilities that we might never have considered.

KR: That was Dr. Girija Kaimal who as well as being a celebrated researcher and academic, is also a groundbreaking art therapist. Dr Kaimal proved that art and authentic self-expression is an effective therapeutic tool, and is not only psychologically, but physiologically good for our health and well-being. Pablo Picasso, one of the 20th Century's most influential artists, once said: “Every child is an artist. The problem is how to remain an artist once he or she grows up”. As adults there are many of us who would profess to be incapable of creating any kind of art. We asked Dr. Kaimal if she believes we all have the ability to be an artist.

GK: 100% yes! If we define being an artist as being able to express yourself visually, in music, in dance, in drama, in poetry, I would say all of us are. So, if you meet a child... you would never ask that question of a child. We assume all children are capable of all forms of expression. We offer them all these forms of expression in schools, in pre-school ideally. We don't question that. For some reason we have all these standards and expectations as we become older. Yes, some people have more technical skills than others but that does not mean that someone is an artist and someone else is not. That is a poor assumption. In our field and in creative art therapies, everyone is an artist, and everyone is capable of self-expression.

KR: In this episode of How Researchers, we're going to get back in touch with our inner artist and show how one researcher made it her mission to debunk the myth that artistic expression is for dreamers and doodlers.

[How Researchers Changed the World introductory music]

KR: Welcome to How Researchers changed the World. A podcast series, supported by Taylor & Francis, which will demonstrate the real-world relevance, value and impact of academic research; and highlight the people and stories behind the research. My name is Dr. Kaitlyn Regehr. I'm an academic researcher; an author and a scholar of digital and modern culture and I'm interested in how new technologies can broaden the reach and real-world impact of academic research.

In today's episode, we are speaking with Dr. Girija Kaimal, Assistant Professor of Creative Art Therapies at Drexel University, Philadelphia. Her research piece: Reduction of Cortisol Levels and Participants' Responses Following Art Making. Dr. Girija Kaimal is first and foremost a practicing Art Therapist. Art therapy is a form of psychotherapy that uses art media as its primary mode of expression and communication. Her work has proved that art therapy is a valuable and effective tool in transformative psychotherapy.
Clinicians have a unique understanding of people centered, qualitative and quantitative research. They also have impairments. If you haven't heard Episode 1, it's well worth a listen. 

We don't really have a big evidence base, like many other disciplines but there is a lot of knowledge and wisdom and practical experience that is out there. 

GK: My name is Girija Kaimal. I'm an Assistant Professor at Drexel University in the PhD programme in Creative Art Therapies. I am an art therapist, an artist and as of now, and for several years now, a researcher on arts and health. So, I examine broadly, the physiological and psychological outcomes of visual self-expression in therapeutic settings as well as in individual settings.

As long as I can remember I have always made art. Art for me has served different roles. When I was a child, I was quite a sickly child and I was home a lot from school and art was my way of expressing myself, of communicating and sort of connecting to the world. Very often I might have been home sick from school, but my art would be in the school or would be in exhibitions. It was a way for me to communicate and connect with those in my life.

As I grew older it became a way to process. A way to process and channel difficult emotions or difficult experiences. After I finished school, I went to a design school, so for a while art was my sort of profession. I was a designer. I was using art as a form of expression in a professional capacity. As I was doing that, part of me was always very interested in human behavior and human psychology and I wanted to examine and understand what this role of art was in our lives.

I went on to get a Master's in Art Therapy. As I was doing that, I discovered further that I was very interested in these questions of the role of art in our lives. I had lived through all these experiences and I had come to a point where I really wanted to explore how art can help us. Sometimes it does and sometimes it doesn't and to really understand the boundaries of that. That's my current role now. I got a Doctorate in Human Development and Psychology and I'm now able to study the role of art in our lives in many different ways.

KR: Art therapists work with a very broad range of people, with a range of difficulties, disabilities or diagnoses. These include patients with learning or physical disabilities, life-limiting conditions, neurological conditions and physical illnesses.

There is a fairly broad evidence base to suggest that arts and creative therapies may help with mental health problems, but it's difficult to be sure because many studies have included fairly small numbers of people. And not all art therapists are researchers - as Dr. Kaimal tells us.

GK: For most people in my profession, in the creative art therapies, people come in to become clinicians. They don't necessarily come in to become researchers, so I was quite the oddball in my class, but I loved every minute of it. I said, "you know what, I want to do more of this," and I really want to understand what makes what I do unique? When does it work? When does it not work and what do we need to know to better understand? Most of the knowledge in art therapy resides with clinicians and educators who have done it for a really long time.

We don't really have a big evidence base, like many other disciplines but there is a lot of knowledge and wisdom that resides in clinicians.

KR: You may remember in Episode 1 of this series, we spoke with Orii McDermott, who came to academic research from a career as a Music Therapy Clinician, working with people with Dementia and other cognitive impairments. If you haven't heard Episode 1, it's well worth a listen.

Clinicians have a unique understanding of people centered, qualitative and quantitative research. They also have a desire to make their practice and outcomes more effective.

GK: So, I said, I want to understand this more. I think about art therapy as an intersection of visual expression along with verbal processing. I think of it as psychotherapy plus in a way. What distinguishes an art therapy session is that the participant in the session is typically actively making and creating. That to me is like a practicing of problem solving or a practicing of making a change or making an effort or making anything. In that sense it's different from pure verbal psychotherapy where you might be processing using words alone.

This active component I think is really key and really distinguishes what the art therapies provide. Especially for young people, who are not yet fully developed in terms of being able to articulate and understand what's going on with them, something like this offers them a way to be and a way to express themselves, beyond words alone. I have a teenage daughter myself, and sometimes it's hard to articulate what's going on and it's hard to offer support she might need. In my mind and in my experience, whenever words fail that's when the arts therapies are most powerful.

KR: Art isn't used as diagnostic tool but as a medium to address and work through emotional issues which may be confusing and distressing to the person who is participating in the therapy. Art therapy is not a practice of mastering technical ability or creating a modernist masterpiece. Honest self-expression is the only prescription Dr. Kaimal is interested in seeing.

GK: So, where did the idea and inspiration come from to undertake this study, to discover if Art Therapy really does lower Cortisol levels, one of the hormones that effects stress?

KR: Let me see...In the late 90's, this is a long story. In the late 90's I had heard of a study by J B Pennebaker who's a Social Psychologist. He had done this study where he asked college students to write about something, they had not shared with anyone. He encouraged them to write about any thoughts and experiences for 15 minutes a day. He believed they didn't need to share that writing. They could throw it if they want, they could keep it if they want but it was basically just for them. They would write and that would be that. What he did was, he tracked their use of medical services and he found that those who engaged in the writing were much less likely to go to the doctor at the end of the semester.

GK: James Pennebaker is an American Social Psychologist. His research has focused on the nature of physical symptoms, health consequences of secrets, expressive writing, and natural language.

KR: SO, That study really made an impression on me. I was baffled and I wondered what that meant but that stayed...
with me, that art or self-expression is not just something nice or something you can do in your spare time, but it can significantly affect your health and wellbeing. That stayed in my mind and I went on to do my Doctorate and I came to my current position at Drexel University.

I had the opportunity to apply for a career award here and I said, you know what? This idea has been sitting in my mind for almost 15 years, why don’t I explore if we might get similar outcomes in visual expression as was found in writing. I worked with a colleague in the Nutrition Sciences department who would analyze saliva samples. We said, ok, let’s come up with a really simple study. We will ask people to engage in art therapy sessions, we’ll keep it fairly open-ended. We won’t call it art therapy; we’ll call it visual self-expression. We’ll have an open studio format, people will come in, they’ll engage in self-expression for about 45 minutes. We’ll collect saliva samples before and after to track levels of stress.

**KR:** Girija and her team were tracking the levels of cortisol in saliva samples to measure stress…

**GK:** Cortisol is a stress hormone and typically it is a good thing. We need cortisol to survive, it is what wakes us up in the morning and says “alright, get going.” So, our cortisol level is actually pretty high in the morning because it gives us an energy boost to get going. As the day progresses, it steadily lowers in level which is why by the end of the day we are tired, and we go to sleep. So, there’s a whole circadian rhythm to cortisol in our body.

Cortisol also spikes when we are faced with a threat. Evolutionarily, that threat would be a physical threat like an animal attacking you or some sort of physical danger. The cortisol would spike in your body and it would give you a boost to run in your muscles; it would increase your heart rate, it would make you sweat. All these things are to prepare you to run to safety because the sweating will then, presumably cool down your body as you’re running.

Now in our modern day, we’re not faced with physical threats as much. We’re not attacked by animals. Our threats are more psychological and perceived. So, it might be things like being treated poorly, or discrimination or being bullied, or being insulted or rejected. Those kinds of psychological threats are the threats that we face, most of us in one life today. To our brain, that threat is still a threat. It’s a threat to your wellbeing. It’s a threat to your existence and your cortisol levels will spike, even if it’s not a so-called physical threat.

If you have elevated cortisol levels for extended periods of time, this can affect your body in several ways. It can affect your cardiac health. It can affect your gastrointestinal health and it can significantly impact your health and wellbeing. So, to be able to manage the chronic stresses of modern life, of everyday life, is really key. I thought if we could demonstrate a change or a shift through an art intervention, relatively inexpensive, wouldn’t that be interesting? So honestly, I had no idea what we would get when we went with this. It was completely open-ended. We had no precedent for this. I did it with a student of mine and I did it, we would collect the samples and we would rush to the lab to store it in the middle of winter. It was quite an adventure.

We were excited to find that even in 45 minutes we could significantly lower people’s stress levels as a result of our intervention. Our intervention was very simple. It was art therapy in an open studio. We offered a limited amount of art materials so it’s not overwhelming and it’s manageable and what we call in art therapy, a set of structured mediums. So, people could make collages. People could make drawings with markers and paper. They had modelling clay. Those were the options. People made a range of art products. Some people just played with the art materials, kind of kinaesthetically. Others drew a favourite memory, or they made something in memory of a loved one or they made something that they were experiencing in the moment. They might have made a collage of what was going on with them in the moment.

I remember a few participants saying that… I work in a university setting so I see a lot of students and a lot of them reflected on how this was the first space in a really long time where they got to do something without a judgement or a grade at the end of it. It highlighted to me how few opportunities adults have for self-expression. We treat these things as children’s activities, but we have as much need for authentic self-expression as anyone else. So that’s the long story of how I came to do this study, but we were really inspired by it and we were excited to show that it doesn’t take a long time. That we can really manage our cortisol levels and by proxy our stress levels with opportunities for self-expression.

**KR:** Just 45 minutes was enough to significantly lower stress levels.

Adrenaline, cortisol and norepinephrine are the three major stress hormones. They are rather similar and all produced in the adrenal glands, but with slightly different functions. Unlike adrenaline and norepinephrine, cortisol, a steroid hormone, takes minutes rather than seconds to take effect in the body.

After the break, we’ll find out why art therapy works and how you can use it to manage your stress.

[Break introductory music]

**KR:** In this podcast, we explore the multitude of ways that research impacts the world. From the influence on political discussions to how it can revolutionize practices within a field, such as healthcare, to how in can shape public opinion and world views.

We believe that every researcher has the power to change the world in some way and we want to help make that happen for you. That’s why we’ve worked with the team at leading publisher, Taylor & Francis Group, to develop two free 12-week learning programs for researchers.

If you’re an Early Career Researcher, our learning program delivers the complete guide to getting your research published and establishing your research profile.

For Mid-career Researchers, our second learning program is a go-to guide for managing mid-career challenges, boosting the impact of your published work and enhancing your research profile.

Our learning programs are designed to fit your workload, so they’re delivered to you online with one email each week for 12 weeks. That means you can access each chapter whenever it’s most convenient for you. Plus, you can save emails and come back to them throughout your research career.

**KR:** Before the break we were speaking with Dr. Girija Kaimal about her study which investigated the link between a reduction of cortisol levels and art making – or ‘visual self-expression’. Girija was explaining that it isn’t what we create, but that we create in the first place. Her trial was unstructured in terms of chosen activity, participant intent and what materials they chose to use. This was intentional.
**GK:** The umbrella directive guiding all...even though it might look like everyone was doing their own thing, what we were pushing for was authentic self-expression. In the moment, can we capture visually whatever's going on with you? It might be different things for different people and that to me is the key element here. Not that everyone needs to do the same activity but what reduces stress for you might be different to what reduces for someone else. For example, I'm thinking of some of the artwork. For one person, being able to break free and try something new was special for her because she felt like she was often constrained and restricted in her work and whatever she did. So, to bust out of that and make something new was exciting for her.

For someone else it was containing what they felt was overwhelming distraction, that they are constantly pulled in different directions. The art material and just playing with it helped them contain themselves in that moment. The qualifier and unifying thing here is can we capture, and can we acknowledge what each person is feeling in the moment and validate it and make it acceptable? Which to me is authentic self-expression and to me that is what is helpful. Do you have a space? Do we have a space in our lives where we can full be ourselves in the moment and be heard and seen for that?

**KR:** Since the dawn of civilization and especially the agricultural revolution, which saw crafts, art and self-expression become a vocation or profession, certain members of our society have risen above others and distinguished themselves in terms of their artistic skills or abilities. Practiced and polished individuals gain opportunities, not only to hone their own skills, but spend valuable time in the practice of artmaking.

And, this is key. It doesn't matter how polished you are, simply that you're practicing self-expression without expectation.

**GK:** I found that very often we didn't find a difference between those that said they had a lot of experience with art making and those who didn't, and it almost seemed to help people who didn't have a lot art experience. A question that I get often is, can someone who doesn't have many art skills participate in art therapy and I would say absolutely and it's almost preferred because you don't set unnecessarily high expectations on yourself. What I would find in a few of our participates is those who self-identified as artists tended to have higher standards and no matter how much we said it doesn't matter what the final product is, they'd place a high expectation on themselves or the quality of the product.

There were a few people for whom their cortisol levels went up. I have some theories about that. One is that perhaps this whole experience stirred up things for them and they needed more time to process and work through and we were staying within the research paradigms, that might have been one reason. Some people, as I said, put a very high expectation on themselves so they were probably not as happy with the product. For some people they were just really energized by the end of it and excited by what they had done and that probably affected their levels as well.

For the majority of participants, the sessions seemed to lower their levels.

**KR:** So why is it that, generally speaking of course, producing art or expressing oneself authentically, helps to reduce stress levels?

**GK:** I think it helps in many different ways and my theory is again, it helps you manage this perceived threat.

So, cortisol is a response to perceived threat and what the artmaking does is, and again it differs for different people, for some people it might be that it distracts you from whatever is worrying you or whatever feels threatening to you. For someone else it might be gaining perspective. You've created this visual image and now you're like “Oh, I see my situation a little differently. I have this external object which reflects back to me what I'm going through. Maybe I have channelled, or I have expressed what is going on with me through this product.”

For someone else it might be being with the Art Therapist in the session and being able to share whatever is going on with them, positive, negative, challenging, any of these experiences. My theory around this, is that when you are working with someone in this open studio format, someone who is trained Art Therapist, they help you feel safe and they help you feel validated. To feel safe and to feel validated helps with a sense of belonging. What do all those things do? Reduce that sense of threat and reduce that fear that you're alone and facing all these challenges in the world by yourself. That's a big part of managing stress and that perceived threat.

**KR:** This statement draws many questions around what threats are we perceiving in our daily lives and what are we doing to make sense of the perceived pressures in work, study, family, social settings.

The complex society we've created for ourselves, a large part of which exists in a digital or virtual space, is not lived in the real world. Part of our human existence must be experienced in the moment and this is where mindfulness come in.

**GK:** What is mindfulness? Mindfulness is mainly about encouraging you to be in the moment. To not be in the past. To not be in the future but to be in the present moment. By default, that's what art will do. It forces you to be in the moment because you're creating something with your hands and you're looking at it with your eyes. Your touching it and sensing it with your senses. It keeps you in the moment. In that sense, it definitely has an element of mindfulness in it.

The Art Therapist may or may not encourage that with the directives and the processing, but I think any kind of artistic activity is inherently mindful because you're there in the moment, actively engaging in it.

They say those who live in the past are depressed and those that live in the future are anxious.

**KR:** Although many people would report through creativity or authentic self-expression, that they feel better, biologically speaking there was virtually no evidence that art-making actually works to reduce stress levels. We asked Girija why she felt it was important to undertake this research and subsequent studies like it.

**GK:** One of the things I think about a lot is, a lot of the research and psychology in our fields is what someone says. You do a session and the person says, “yeah ok, I felt better, I felt worse.” That's great. We do want to know that. I do that a lot as well in my studies, but I wanted to see if there was anything, we could track that is the body speaking to you. Is this good for me? Sometimes it might be that we don't know what's good for us and our body's trying to tell us what's good for us. The analogy I think of is of eating. Sometimes the stuff we like might not be right for us but it's important for us to know how these things impact physiological health. Might there be things that are good for us and helpful for us long-term that we're not even aware of, as I think is a common perception of the arts, is that it's a luxury or it's dispensable. It's extra.

What I want to highlight through studies like this, and I think people are increasingly coming to this realization, that creative expression, the arts are fundamental to who we are. These are not extra. These are not
extraneous. Our brain is, and this is sort of a related issue and related topics, our brain is not a computer. Our brain is actually a creative machine because what it is doing, is not just processing information it gets from the senses, but it’s predicting what is good for you and what will could keep you alive. In that sense, the arts are a way of practicing for the future and to practice different outcomes. To imagine possibilities that we might never have considered.

In that sense, I feel like it's a fundamental part of who we are and it's essential to our existence and not just to survive but to thrive. I'm hoping with research like this, where we can demonstrate outcomes that are biological and physiological as well as psychological, that we can demonstrate how creative expression can help human health and wellbeing.

**KR:** Our brains are not computers, they are creative machines capable of practicing for the future, not living in it. Although we are capable of forecasting for the future, it's vital that we remain cognitively and creatively anchored in the present.

**GK:** This is a finding from cognitive science, where for the longest time we would think of the brain as a computer. In information processing, you take information in and it’s processed, and you spout something out. What cognitive scientists have identified is that the brain is not just processing information. It’s processing information to determine what to do next.

What does the brain need to do? Fundamentally, it needs to keep you alive. All the decisions that it’s making is to keep us alive. What should you wear? What should you eat? Where should you go? Where should you not go? All these are decisions that are made based on the information that we have. Which is why I think sometimes mindfulness is hard because we are always trying to make sure, right what do I need to do for tomorrow? What do I need to do for dinner? What do I need to prepare my report for tomorrow? What do I need to do for the next meeting? In a sense, we have to be prepared for the future and that's what our brain is constantly trying to do. How can I be best prepared? What the mindfulness folks rightly identified is that you cannot really be prepared if you’re not fully aware of what is going on in the moment. If you don't stay in the moment and process and input the information that you really need, you cannot make good predictive choices.

In that sense the brain is a predictive machine and I think the arts help us become a creative, predictive machine.

**KR:** Imagine a society where children were taught that not only is art and self-expression an important part of what makes us human, but is an essential part of what’s required in navigating and dealing with our complex modern lives. That sounds like a society in which I’d like to live.

The next time you reach for your phone to check your social media feed or to stream the latest episode of your favorite show, ask yourself this. Is this going to contribute to my wellbeing and help me thrive in this moment? We talked with Girija about what this means.

**GK:** I think a lot of people cite it. I've had people say to me that I can go with this study to my supervisor and say “Hey, this is why we need to have clinicians in place.” It’s not just we might be nice to have but here's some evidence of the impact that we might have, even with one session with participants. I think it’s helped people make a case for hiring Art Therapists and keeping Art Therapists in practice to some extent, in a small way.