

Sanya Virani:

Hi, I'm Sanya Virani and I welcome you to Finding Our Voice, Fresh Perspectives in Psychiatry, a podcast series hosted by me. This podcast has been developed with the goal to address current issues as they pertain to psychiatry, with a special focus on including the viewpoints and opinions of younger groups, resident fellow members, and early career psychiatrists. Thank you for joining me as we continue our discussions on this new segment of the podcast series about social determinants of mental health.

Today's episode will focus on the impact of climate change on mental health. I would like to welcome to this fourth episode of the new segment Dr. Elizabeth Haase from the University of Nevada, Reno School of Medicine and Dr. Joshua Wortzel from the University of Rochester. Dr. Haase is Medical Director of Psychiatry for Carson Tahoe Regional Medical Center and an Associate Professor of Clinical Psychiatry at the University of Nevada at Reno School of Medicine.

She Chairs the committees on climate change and mental health for the American Psychiatric Association and the Group for the Advancement of Psychiatry, and is a founding member of the Climate Psychiatry Alliance. Dr. Haase is currently working on a book on interdisciplinary responses to climate distress in young people with Kelsey Hudson, a psychologist and researcher at the Center for Anxiety and Related Disorders at Boston University. Welcome, Dr. Haase to my podcast.

Dr. Elizabeth Haase:

Thanks. Pleasure to be here.

Sanya Virani:

Thank you. And Dr. Joshua Wortzel is a Chief Resident in psychiatry at the University of Rochester, and he will be starting his Child and Adolescent Psychiatry Fellowship at Brown University in June. During residency, he's pursuing a Master's in Health Professions Education at the University of Rochester. His current research involves studying the impacts of climate on mental health, including studying the relationship between ambient heat and the prevalence of psychiatric disorders, calculating the carbon footprint of the American Psychiatric Association's annual meeting and modeling how to reduce it, and studying what is currently taught to psychiatry residents and fellows about the effects of climate change on mental health.

He's a member of the APA Committee on Climate and Mental Health, a steering committee member of the non-profit Climate Psychiatry Alliance, and a participant of the Group for the Advancement of Psychiatry Climate Committee. He also serves as the Chair of the APA/APAF Leadership Fellowship. Welcome Josh, to the podcast.

Dr. Joshua Wortzel:

Thanks so much.

Sanya Virani:

Thank you. Let's get started. According to the latest Healthy Minds monthly poll from the American Psychiatric Association, and this was just recently put out in the psych news article from March 2022, 58% of adults believe that climate change is already impacting the health of Americans, and nearly half, 48% agree that it is impacting the mental health of Americans. Half of the adults, 51% are anxious about the climate change's impact on the future generations. Among the 2,210 adults in a nationally representative sample, polled by the Morning Consult between March 19th and 21st 2022, more were worried about the impact of climate change on the planet, 55% than on their mental health, 39%.

They were split on how news about climate change affected their mood, with 42% saying that it affected them some or a lot and 43% not much or not at all. Young people though were more anxious about climate change. 66% of those in the age bracket of 18 to 34 worried about its effect on the planet, and 51% were worried about its impact on mental health. 59% worried about its impact on future generations. They were also more likely to believe that it is already having an effect on the health, 64% of them thought so, and mental health, 57% of them thought so.

Now, among those polled, 53% believe that climate change is caused by human activity and 16% believe that the cause is not determined. Some believe that it is caused by something other than human activity and 8% people don't believe in climate change at all, while some of them just didn't have an opinion. With that as a background and knowing what the younger generation thinks about the whole issue of climate change and its impact on mental health and this very erratic and rather long winter that is just beginning to be behind us now, let me turn it over to Dr. Wortzel who will take us down a case about Jim, which I might mention is actually a fictitious case, although this one is a conglomerate of many different issues relevant to climate mental health.

Dr. Joshua Wortzel:

Thank you so much. It's such a pleasure to be here today. Yeah, I'll tell you about Jim. So Jim was a 54-year-old farmer who presented to MyCare, again, fictitiously, but we've seen a conglomerative patients who have various features of this, but presenting to MyCare with depression, citing financial stress and drought related crop failure issues as a real contributing factor. He reported that he had farmed since he was a child, but he had really been struggling for most of his career with transitioning to organic farming, but had done so over time, and he actually got to the point where he was so skilled that he became the local chapter head of his organic farming association. He was quite proud of that.

Sanya Virani:

I see. So it seemed like Jim obviously did a bunch of things to adapt to changes in the climate, right? Like the drought in this instance, right?

Dr. Joshua Wortzel:

That's right. Yeah. So really, in some ways he's exemplifying here an example of climate adaptation, also climate mitigation and this term called transformational resilience. So Jim is working to make... I'm throwing out a bunch of terms here, but another one is called adjust transition, that is to adapt by trying to adopt sustainable ways of living. And he's also tried to foster community resilience by educating his fellow farmers about changes in how to try to be more sustainable.

Sanya Virani:

So I heard a few terms here. One of them was climate adaptation, climate mitigation, transformational resilience, and just transition. What I found particularly interesting was transformational resilience. Now, can you speak to if this is specific to a climate change situation about the origin of this term and why it was going, and then maybe you could tell us about Jim?

Dr. Joshua Wortzel:

I believe that the term transformational resilience was developed by Bob Doppelt in his book by that name, and it builds upon concepts that have been promulgated in behavioral psychology. Basically, it refers to post-traumatic growth that allows people and communities to try to transition to being more sustainable in the future. So this involves thinking and acting in healthier ways compared to some of our

ongoing unhealthy practices that contribute to our situation. Also using adversities as a transformational catalyst to try to find meaning and hope and direction in our lives, and also trying to remain actively involved in initiatives that perhaps will address climate change constructively.

Basically over the following month, after having first met Jim, Jim began to show increased emotional upset about having to sell several of his prized animals and also the physical decline of his lands due to several consecutive years of drought. His son had died of leukemia when he was a boy and his daughter had moved to a local city to get a check job and she didn't have any children. He felt pretty distressed knowing that he was not going to have someone to take after the farm after him, and he felt also even currently trapped by debts that he owed and also just a loss of some of the farmers and the migrant workers that had been able to help him initially, but he wasn't able to employ due to new immigration policies.

As part of my evaluation, and I completed a MoCA on him because I had some concerns that he was exhibiting some short-term memory loss during our session, and I actually was surprised that he had scored a 21 out of 30, which is quite low for his age, given that he actually completed college. We did a laboratory workup and it was notable only for him having microcytic anemia. Given that he had had several attempts on SSRIs that his PCP had prescribed before, I had tried him on Bupropion or Wellbutrin, but later in the summer he actually had a seizure during a particularly hot day, and he just was further discouraged by his ability to recover.

And unfortunately, Jim really thought of care at that point with me after missing a couple of appointments, and ultimately I found out from his wife who called our office that he had completed suicide during the final summer months during another heat wave.

Sanya Virani:

This is so tragic, Josh. It really brought back memories of when I would watch documentaries as a child growing up in India and read those news articles about the deplorable state of farmers in India who were really at the mercy of regular rains to grow crops and pay off some of them mounting debts. I was too young to understand then and connected to climate change and global warming and all those things, but what I learned was that climate change may have actually contributed to suicides of nearly 60,000 Indian farmers and workers over the past three decades. And this was by a study that was done at the University of California and Berkeley, which examined the toll rising temperatures already taking on vulnerable societies, and they found that an increase of just one degree Celsius on an average day during the growing season, which by the way is associated with more farmer suicides than the non-growing season, and that number was 67.

So in 2015, which was one of the worst years on record, about 12,602 farmers had killed themselves across India. Now, overall, more than 300,000 farmers and farm workers have killed themselves in that country since 1995, a little over two decades from now. The skulls and bones that were said to have belonged to the farmers that killed themselves had been piled up at one point at Jantar Mantar, which was just within walking distance from the Indian Parliament in New Delhi at the time. These were apparently brought by farmers from Tamil Nadu, which was a state in South India suffering its worst drought in 140 years, which the protestors claimed had triggered hundreds of suicides in the past months, but worse than the parch crops were actually the bank loans which loomed over the farming community in India at the time. It's really, really sad.

Now, obviously this is a problem worldwide and something that climate scientists for a while have been trying to draw attention to, and it reminds me about a film that you told me about Dr Haase, Don't Look Up, which was released recently and won several accolades. So this opinion piece that was published in The Guardian by a climate scientist called Peter Kalmus who said, "Don't Look Up is a satire, but

speaking as a climate scientist doing everything I can to wake people up and avoid planetary destruction, it is almost the most accurate film about society's terrifying non-response to climate breakdown I've seen."

Adding to that, climate scientist, Michael Mann also expressed support for the film, calling it a serious sociopolitical commentary, posing as a comedy, and in an article for the Scientific American, Rebecca Oppenheimer questioned the film's use of a comet impact as an effective metaphor for climate change, given the large differences in timescale of these differing potential extinction crisis events and the nature of their impacts.

Dr. Haase, could you please speak to us about any progress that has been made on an organizational level in the past two decades, something that you're actually happy about?

Dr. Elizabeth Haase:

I think on a general and global level, the awareness of climate change has really gone up dramatically in the last five years. And so we've seen a shift from 30% to 40% of people being concerned about it across America to really 70% or 80% of people being significantly concerned about it, and from about 15%, 20% of people thinking that it might actually impact them personally up to almost 50%, although that number still really lags. So I think that the penetrance of the ideas is much better and people really starting to talk about it more normally.

In terms of institutional change, just within our American Psychiatric Association and within psychiatry, the concern and response to climate change has increased dramatically in the last five years, going from a position statement to a number of action papers, very active now in doing surveys and producing information for psychiatrists and training, post graduate psychiatrists and the general public about the mental health impacts of climate change.

So I do think we're seeing a tremendous amount more penetrance and yeah, we still have this sort of disconnect between all of that and how we actually live, and I think that disavow is really where we're kind of stuck and we can see that right now with the Biden administration trying to push through some of the climate measures and then we're confronted with another crisis, which stresses us in terms of oil availability and we have to kind of continually rework this relationship between our climate reality, which is that we need to change fast and our social reality, which has so much inertia built into it.

Sanya Virani:

Thank you, Dr. Haase. Now, if that's the case, then it's certainly more promising than I thought it was, so I hope that the good work continues in the right direction. Now let's come back to Jim, Josh, and I'm so sorry for interrupting Jim's case and stories so many times, but I do want to ask you, what impact did all of this have on Jim? First of all, he had this loss of land, then his son had died when he was very young from leukemia. His daughter was an only child that lived very far away and had a very modern kind of job, which had nothing to do with farming. On top of that, Jim being an enormous debt.

Now, what would be the takeaways for psychiatrists in practice who would be treating somebody like Jim, for example, if they ever came across someone in a similar circumstance?

Dr. Joshua Wortzel:

So there are certainly a whole lot of pieces to this case. We'll just kind of go through them one by one. Studies have shown that violent suicide rates increase during heat waves. So when thinking about why he ultimately may have completed suicide, heat may have been an issue. Jim also has some of those traditional demographic factors that we worry about that put him at increased risk of suicide, including

being an older white male, having access to guns, things like that. Separation from his animals, and maybe the degradation of his land may contribute significantly to Jim's anxiety and sense of identity instability.

Solastalgia is a term that has been used to describe this longing for older landscapes and ways of life, often disrupted by climate change. There are different policies that favor education of women leading to having fewer children and better sustainability for our planet. All of these things are obviously good. They just compete with some older values that were lifestyle choices that allow certain people to feel connected to the land, community. And so we call this a wicked problem where solving one sustainability issue can actually contribute to the worsening of another.

Aside from pseudo dementia that might come from depression, Jim also has risk for cognitive symptoms due to depression from zinc and iron deficiencies. There have been fascinating studies that have shown that crops grown in warmer climates and in atmospheres with higher ratios of CO<sub>2</sub> for what they expect we'd even have by 2050, they absorb fewer nutrients and they also accumulate more toxins. And this phenomenon's called the, "Poisoned chalice." He had microcytic anemia and this very well may have been due to iron deficiency, and it's notable that it wasn't in this case here, but there are certain vector-borne illnesses with neuropsychiatric sequelae that we need to think about. Things like polycaine disease because these are becoming endemic in areas that they currently hadn't been seen before. So psychiatrists need to be aware that when they see these possible psychiatric symptoms, that there may be ideologies that they currently don't think about that have to do with climate change.

And then lastly, kind of thinking about the medicine piece. So psychotropics, especially antipsychotics and anticholinergics can significantly alter patient's ability to thermoregulate. Serotonin interestingly, plays actually a key role in regulating temperature homeostasis in the hypothalamus and changes in ambient heat had been shown to be associated with direct changes in serotonin production and the dorsal raphe nuclei. Dehydration can also increase risk for medication side effects and that was likely the case here with Jim, where he became significantly dehydrated during that heat wave while on Wellbutrin.

And just to fill that in, metabolic arrangements from dehydration can certainly exacerbate the risk for seizures, which can occur with Wellbutrin. At least they lower the seizure threshold. So bottom line is you can see that there are a number of ways that in this case, changing climate significantly affected Jim's mental health.

Sanya Virani:

Wow, that was a lot of things packed into that case, and thank you for that very robust discussion and the information you shared. So with those illuminating concepts at hand, Josh, and thank you for those clinical pearls as well about the psychotropic medications, let me turn it over to Dr. Haase to tell us about Hannah. Dr. Haase?

Dr. Elizabeth Haase:

Hannah was a 30-year-old post-doctoral theoretical physicist that I saw in the emergency room. She had come in on a legal hold with the report that she'd blacked out, was agitated and was expressing homicidal ideation towards some local authorities. She said, "They're killing the native people in the lands. They should be stopped, and that's the only way." And she was really furious, really uncooperative. She felt that her actions were fully justified after the use of excess force by the police and what she considered to be an unlawful arrest while she was protesting an oil pipeline on Native American land over the July 4th holiday.

She'd actually taken the whole summer off to participate in that protest and she had the time to do that because her grant had been cut and she wasn't finding other work. She was actually a specialist in electromagnetism and she just railed on and on about the callousness of the oil companies putting the pipeline in and they're completely ignoring a recent environmental assessment that showed that the well that they were going to be drilling was going to significantly impact their local environment, and she had sent them this report over and over again without any response.

And she reported that the police had used excess force against the tribe members, including using tear gas, driving through a group of elders and children who had been organizing to demonstrate their connection to the land, and even killing one of their pets. She said, "The oil executives are killing more people than I ever could. I want them to die too." At that point when she was talking about the pet, she actually started to cry and started to talk in a kind of disorganized way about something called Birthstriking that I hadn't heard of and about her decision not to have children.

So I did an assessment and I diagnosed her with either depression, NRS or acute stress disorder and let her go. But it was an interesting case because of her concern about the climate and her connection to that situation.

Sanya Virani:

Yeah, that was really very interesting, Dr. Haase. I feel like Hannah's case is one that we don't see too often, but when we do see something like that, it's usually people who are really passionate about the climate change issue and almost always have suffered some consequence of something gone wrong like in Hannah's case as it pertained to the oil situation. So given her job and the amount of psychological distress that she was in, and obviously the work failure that she was experiencing as a result, you brought up concepts in application, Dr. Haase, of just transition and the birth tracking that Josh had mentioned and introduced to us earlier on with Jim's case.

Clinically, I believe that there used to be a V code in the DSM-5 on the section titled Other Conditions That Might Be a Source of Clinical Tension to Accommodate The Impact of Climate Change on Mental Health. But the text revision of the DSM-5 has actually made a modification regarding that. I don't think that that particular accommodation for climate change exists, but it is now best suited to be included in the problems related to social environment, I believe in the section Other Problems Related to Social Environment.

But getting back to Hannah, Dr. Haase, what were the various problems that you saw with her, pertinent into her case specifically?

Dr. Elizabeth Haase:

Hannah demonstrates a number of psychological stresses faced by those people confronting the climate crisis. Just developmentally, she's been held back in her career because there hasn't been adequate grant funding for the new kinds of energy such as electromagnetism that she works on. These are actually important for the transition from fossil fuels. So she's experiencing a work failure and the failure of a just transition where we help our workers develop these new careers. She's suffering from Cassandra syndrome and that's the depression that climate scientists feel when they're faced with the relentless denialism of the fossil fuel industry, and this can also be found in the general population as well when they try to raise concern about climate change. And we can also give her a label of [inaudible 00:22:38], which is the rage that those who care about nature feel when they see it exploited and destroyed.

So these are two examples of eco distress or eco anxiety that are having significant negative impacts on her psychological development. And I would mention also that it leaves her in kind of a regressive and

oppositional position of protest as she's trying to develop her leadership skills in her career. There's a kind of psychological split that we have in our society where we either idealize or deny the killing that occurs when we destroy large swaths of land in life in order to support our economy and our way of life, and pathologizes and stigmatizes the retaliatory urge that people like Hannah have to fight back, which is a kind of subtle form of environmental injustice.

And underneath this rage you saw immediately coming out, her ecological grief, which starts to show as she breaks down, as well as her grief over the personal losses that she will have because of climate change. And these include the loss of her right to bear children into a world which protects and nurtures them with basic human rights such as clean air and water and land. And that was what led her to participate in the Birthstrike movement, a movement of women who will not bring children into a climate destroyed world.

A climate sensitive clinical assessment of Hannah might include not only assessing her violence risk, which could be higher in the higher temperatures of the summer, but also exploring phase of life issues, validation of her scientific realities behind the position that she's taking on climate change and support for self-care and community building around the things that she cares about, maybe through a referral to something like climate cafes. We could also help her with some psychotherapy focused on her climate grief.

Sanya Virani:

Thank you very much, Dr. Haase for closing Hannah's case with those important clinical pointers about considering the situation from several different angles, like you pointed out, the violence risk and all of that stuff, which could be escalated in the summer in addition to where she was at in her life and all the realities that were behind her position, et cetera. Just viewing it from different angles to get a full picture of the person that was standing strong in protest.

When I looked at the work that you both were doing as it related to climate change, I came across this article about the carbon footprints that you both had authored. Josh being the first author, and Dr. Haase, you being the senior author. Josh, I was wondering if you have any closing thoughts, comments, so just anything, insights to share from that article? It was such a meaningful piece. I did get a chance to read a little bit of it, but I'd like to hear from you?

Dr. Joshua Wortzel:

Sure. Thanks so much. I'm so excited that you got to see it. The premise of the piece was during the COVID-19 pandemic, we were struck by how so many meetings that had been just de facto in-person international meetings were held virtually or not held at all. And we were curious what the carbon footprint was that we were saving by not having our meetings. Obviously a lot was lost by not having the meetings, but we were curious if that was a piece that was gained. And we found that by looking at the attendees for the 2018 and 2019 meetings and then modeling the as the crow flies distances that they would've traveled to the meetings in New York City and San Francisco respectively, that they were quite large footprints. They came out to be around 20,000 metric tons of CO<sub>2</sub>. And to give you a sense, that's like 22 million pounds of coal.

Another number that kind of put that in context for us was the intergovernmental Panel on Climate Change recommends that each person in the United States, it differs by country just based on resources, but in the United States, each person should only produce 1.4 to 1.6 metric tons of CO<sub>2</sub> per year. And just attending this conference alone put the average participant at their annual quota of CO<sub>2</sub> production. So we're not dealing with a small number. And so given everything we have been talking about and that our various groups have been realizing in terms of the effects of climate on mental

health, we felt like it was really ethically imperative that the APA take a stance on trying to reduce its carbon footprint and to create ways in which its members don't have to use their entire annual quota of CO2.

So that's what the paper basically did is we looked at ways in which we could reduce that footprint significantly, and we're very excited that the APA had passed just this past November, an action plan to try to reduce the carbon footprint by at least 50% to not entirely by 2030. So we're excited to see what comes with that.

Sanya Virani:

Thank you so much for sharing that, Josh. It's really fascinating to be, but more than that important work that finally is finding its place in the times that we are in. So I really appreciate everything that you both are doing and I'm going to share, we are going to share this link on the podcast page so that any of you that are interested can go look up this article, which was published in the JAMA Network Open not too long ago. And thank you for those closing thoughts Josh and Dr Haase. So with that, we come to the end of the 11th episode of Finding Our Voice. This is the fourth one of this new second segment dedicated to issues of social determinants of mental health.

Our deepest gratitude to our guests, Dr. Haase and Dr. Wortzel. We are so thankful for your time, the stories you discussed and the insights you provided. We really enjoyed learning from you about your various experiences with clinical and research work about the impact of climate change on mental health. We greatly value what you have shared with us today. This discussion can certainly find a lot of application in daily clinical practice. Thank you.

Dr. Elizabeth Haase:

Thanks so much. It was a lot of fun.

Sanya Virani:

So human influence has warmed up our planet considerably, that we all know by now. Sir David Attenborough, who is the founder of WWF, ahead of the COP26 Climate Summit in Glasgow stated, "If we don't act now, it'll be too late." And then he added that, "The richest nations have a moral responsibility to help the world's poorest," when he was talking on this issue of climate change. With that, I'd like to leave you with one final thought.

Elizabeth Kubler-Ross, the celebrated Swiss American psychiatrist once said, "I have never met a person whose greatest need was anything other than real, unconditional love. You can find it in the simple act of kindness towards someone who needs help. There is no mistaking love. It is the common fiber of life, the flame that heats our soul, energizes our spirit and supplies passion to our lives." Thank you.

Finding Our Voice would not have been possible without help from Dr. Francis Lu, my mentor who has been on this project with me, guiding me at every step along the way. And finally, I'd also like to thank APA Publishing for being instrumental in recording, editing and releasing this podcast.

Speaker 4:

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