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CLIMATE CHANGE AND BEHAVIORAL HEALTH

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SESSION DESCRIPTION

The April 2025 issue of *Health Psychology* features a Call to Action statement from the Behavioral Medicine Research Council on the connection between behavioral health, climate change, and sustainability. Join us for a discussion with the authors and other experts to learn about how we can work with our communities and institutions for change and discover practical steps we can take to improve both our health and the environment.

Any opinions, findings, and conclusions or recommendations expressed by the presenters in Essential Science Conversations do not necessarily reflect the views, policies or positions of the American Psychological Association.

TRANSCRIPT

Shandol Hoover: Hello, everyone, and welcome. Thank you for joining us today. I am Shandol Hoover, senior director of APA Science Special Projects and Implementation. Before we get started with today's session, I want to share a few quick announcements. Today's session is being recorded. About two to three weeks after our live session, everyone who registered will receive a link to the recording, a transcript, and related resources. Any opinions, findings, and conclusions or recommendations expressed by the presenters for APA's Essential Science Conversations do not necessarily reflect the views, policies, or position of the American Psychological Association.

This program is part of an APA series called Essential Science Conversations, where panelists and audience members can engage in open dialog about emerging topics in psychological science. We hope you will visit apa.org/science to learn how APA is elevating psychological science to subscribe to *Science Spotlight*, a free newsletter delivered to your inbox every two weeks that has the latest news, funding opportunities, upcoming events and more, and that you'll also subscribe to Editors Choice, a weekly newsletter that delivers articles to your inbox for free.

Thanks to everyone who submitted questions for today's program when you registered. You can also ask a question as the program is taking place in real time using the Q&A box. If you experience any technical difficulties, please let us know using the Q&A tool. I'll now turn things over to Dr. Kim Boller, senior director for Science Innovation.

Kim Boller, PhD: Oh, thank you so much, Shandol. Just ahead of Earth Day 2025, APA is very happy to host this webinar on the release of the Behavioral Medicine Research Council's joint published statement, *Transforming Health Psychology and Behavioral Medicine to Address the Climate Crisis: A Call for Strategic Research and Advocacy*. With us today are four of the 13 esteemed co-authors of the article that's being published today, in *Health Psychology*, *Annals of Behavioral Medicine*, and the *Biopsychological Science and Medicine Journal*, and two panelists providing an outside perspective on the article and its Call to Action.

As you're going to hear, the authors propose a new 1, 2, 3 transformational model for climate change that's rooted in behavioral and climate science. The model addresses three key objectives, and advances both the behaviors and the systemic changes necessary to reach them. Our goal today

is to delve into a lively discussion of the changes the authors put forward to advance research, intervention, and the education and advocacy needed to address the health impacts of climate change. As Shandol said, please put your questions in the Q&A box, and we'll get to as many we can, including those submitted in advance.

This hour will go very quickly. As I turn to each panelist, I'll do a brief introduction. Let's jump in with Dr. John Ruiz, professor and director of the Social Risk and Resilience Factors Lab at the University of Arizona. John, as the editor of *Health Psychology* and past president of the Behavioral Medicine Research Council, what is the weight of publishing a consensus statement across multiple journals and organizations at the same time on this topic?

John Ruiz, PhD: Thank you, Kim. Thank you, everyone, for joining us this morning, and welcome to this important moment. The Behavioral Medicine Research Council, or BMRC, is the umbrella organization that represents the collective voice of the US-based Behavioral Medicine organizations, including as you noted, the society for Health Psychology, the society, Behavioral Medicine, society for Biopsychosocial Science and Medicine, any Academy of Behavioral Medicine Research. This BMRC statement reflects the field's perspective on the role of behavior in the climate crisis and makes recommendations for action.

By publishing in the three journals, we increase visibility of the perspective across the field. I also just want to take a moment to note the timing of this statement. This statement comes at a time when science is under threat, and the work such as this is specifically targeted. Publishing this statement now speaks to both the issue and the perseverance of our science and its unbiased approach to the data. It was just 19 years ago next month that the film *An Inconvenient Truth* was released documenting Vice President Al Gore's work to highlight the issue of climate.

We marked this year's Earth Day with the release of this statement, *An Inconvenient Truth* in the context of climate denial and efforts to roll back federal efforts. What it cannot roll back is literally everything else outside of federal support, scientific publishing, state-level policies, and of course, the growing awareness of these issues remain vibrant and under our control to move forward as the evidence tells us. My thanks to Dr. Epel, the BMRC, and the scientific community for this important advancement.

Kim Boller, PhD: Thank you, Dr. Elissa Epel, you're the co-lead author on the article, and professor and vice chair in the Department of Psychiatry at the University of California, San Francisco. Why did you and Dr. Kristi White decide to write this paper, and what do you want to lift up as the most important message to the research and the academic community?

Elissa Epel, PhD: Thank you, Dr. Boller, for hosting this, and thanks to APA, and I'll invite Kristi to answer this with me. This really was a joint effort that would not have happened without each other, without our finding each other, really. I had seen Kristi's posts on Twitter for a while. She was one of the very few people from the Behavioral Medicine field who was raising our awareness about climate, climate and health, and climate and clinical psychology. We connected and said we have to write something for our field, Behavioral Medicine, Health Psychology.

We are so relevant, and it's not in our clinical training yet, it's not in our seminars, where there's so little research. At that time, even research funding is available for thinking about behavioral and social change and climate behaviors. We're the masters of really what are essential climate behaviors, making dietary choices, influencing both social groups, institutions, and individuals toward behavior change. All of these are really critical and essential skills. Kristi and I were

planning a paper, we thought American psychologists would be a great home to reach the largest audience.

Then John Ruiz just announced we needed to line up the topic for the next 5 to 10 years that we wanted a call for action for. The BMRC was considering several topics. I brought this up and everyone, of course, enthusiastically agreed that this would be a great opportunity for our field. Kristi, I'd love you to add anything to that. You've been in this, you are in this field at least 10 years earlier than most of us, and I've learned so much from you.

Kristi White, PhD: Thank you, Elissa. Yes, so it's really interesting that John mentioned *An Inconvenient Truth* because it was 19 years ago. I was a second-year graduate student when I saw that film. I've always been an environmentalist at heart. It wasn't really until that moment that I saw that movie, and I was being trained as a health psychologist that it occurred to me that as somebody who was learning how to help people make meaningful behavior change around their health and wellbeing, that I had a role to play as a health psychologist to address this very important public health issue, climate change and how it affects our health.

For a very long time, I was searching for other health psychologists who were interested in this work, and I couldn't find anyone. I was trying to convince people in the field. It wasn't until 2019 when I was actually at the APA conference in the Division 38's Happy Hour, where I met John and actually one of Elissa's colleagues, Aric Prather. He and I were talking about this topic around health psychology and climate change. I was talking about how I was searching for other health psychologists who were interested in doing this work, but I hadn't been able to find anyone for almost a decade.

He mentioned that his colleague Elissa was interested in this work, and I had seen some of her stuff on Twitter at the time as well. That gave me the courage to reach out to her and say, "Hey, maybe we could do this together and form a collaboration." It's just been off to the races since then. We met on Twitter in 2019, and the rest is history.

Kim Boller, PhD: Dr. White, you bring a number of perspectives to the article from your work as a board-certified clinical health psychologist and assistant professor at the University of Minnesota's Department of Medicine, can you reflect a bit on how climate change and health comes up in your practice as a clinical psychologist, and how the article is addressing different roles and what they play in climate change and behavioral health?

Kristi White, PhD: Thank you for that question, Kim. This comes up in my clinical practice all the time. As a clinical health psychologist, I work at the intersection of psychological and physical health. My areas of specialty are in stress and cardiometabolic disease. I work with a lot of patients who have heart disease, diabetes, weight management concerns, and then also a variety of other patients with a number of chronic health conditions. Environmental concerns come up quite a bit in my clinical work.

For example, if I'm working with somebody who has diabetes, one of the things that we're often talking about is how can you protect yourself and keep yourself safe when we're having a heat wave. There are certain things about the physiology of somebody who is living with diabetes about thermo regulation, they're at greater risk of heat-related illness, and so I'm often making a heat safety plan for my patients who have pulmonary illnesses, and we're managing wildfire smoke or poor air quality. We're talking about what are the ways in which these environmental concerns are affecting your health, and how can we keep you safe?

Then there are other ways that we talk about how can connecting with nature bring you joy. It's a mode of behavioral activation for a lot of people. It's a means of connecting with community for a lot of people. This is how it comes up clinically when I'm working directly with patients. Then as somebody working in healthcare, I'm also working in my healthcare system to talk about some of the systemic changes and ways in which we in healthcare can address the health impacts of climate change. It comes up pretty regularly.

Kim Boller, PhD: Fabulous. Let's just take a moment before we get some outside perspectives from those who were not co-authors on the paper. Would either of you like to take a moment to just say a few words about the science grounding of the 3-2-1 framework, and really, what its objectives are? That would be great. Elissa?

Elissa Epel, PhD: Sure. We have seen fields around us blossom into really raising the red flag and using a megaphone to get their health professionals oriented to climate and health messaging. We'll hear from Ed Maibach soon, who is really one of the world's experts on how do we share information so that people can hear it without being too threatened, without shutting down, and empowering them with messages. We are really well set up in our professional field because of how we train people through education, through clinical work, because of how we do research to start infusing climate science wherever we can.

The Call to Action is really around three areas, looking at the research we're doing, and asking, can we include climate science in some way? Their climate change affects every part of our lives, our health, our mental health, our built environment. There are so many ways that we can find the sweet spot where climate becomes relevant to some of the research designs we're already doing. For example, for doing health interventions, we can measure aspects like pollution, so climate change in different local environments, we can measure climate mental health, and we can also see the carbon impact of our interventions.

One example I put in the paper is we have implemented a sales ban across the University of California hospitals and campuses. We could quantify, because we were selling less soda in cans and bottles, what the savings was in greenhouse gas emissions. When we quantify improvements to behavior and how that also is carbon saving, that is another way to synergize our current ongoing research with important climate outcomes. Conversely, when we're trying to improve the air quality, for example, with biking days, we can look at the effects on asthma symptoms and how active people are, et cetera.

There's so many different ways. Just in our daily environment, we can think about how can we bring this climate discussion to work to when we are building curriculum for our classes, when we're having seminars, and in our training, both for research and clinical work.

Kim Boller, PhD: Thank you. Kristi, anything to add before we hop into asking a few more questions?

Kristi White, PhD: I would just really echo what Elissa said. One of the things that I think about as a clinician is I consider myself a clinical scientist, so all of my clinical work is grounded and rooted in science, and that makes me a better clinician. I think a lot of what went into this paper for me is thinking about how can we draw from the science about climate change, how it impacts health, and how can we start to infuse that into our clinical practice and into our educational systems as well so that we can continue to disseminate science-based interventions and clinical and educational practices.

Kim Boller, PhD: Fabulous. Thanks so much. Dr. Vickie Mays, you are a distinguished professor of psychology at the UCLA College of Letters and Science and Health Policy and Management at the Fielding School of Public Health. Given you are not one of the authors of the jointly published statement we're looking at, and again, everyone can see that linked in the chat, can you help us understand its importance and the potential impact on behavioral and public health more broadly? While this Call to Action is coming from psychology, is this part of what's called Health in All Policies, and how do we make that happen?

Vickie Mays, PhD: First of all, let me just start by congratulating my colleagues because this is a home run. When I read it, I felt very proud to be a psychologist. I'm a clinical psychologist at that. Of course, Elissa and I worked together, so it was just fantastic to see this. It's a time in which those who stand up can change history right now. The bravery that we're seeing in psychology is something that I think we should all be just very proud of.

At the same time, this Call to Action, I think psychology is a field that intersects with so many other fields that with this Call to Action, the framework that's called Health in All Policies, we're perfectly poised to be able to have those kind of collaborations. What I'm looking forward to now-- Elissa and Kristi, I don't want to put more on you, but I'm looking forward to the G20 where psychology is convening, all other sectors that go from-- everything from the food industry to transportation to housing.

Everybody is at the table understanding that they have a role to play in terms of their policies, have implications for the health of others. Sometimes they don't know it. We think of them as bad people, and we think of them as bad actors because of the commercial determinism that's there. I think what we need to think about is, can we all come to the table? Psychology, particularly APA, is very good about having those kind of connections. I just want to say thank you for this Call to Action. It has really elevated my sense of as a person trained in health policy, what I need to be doing.

Elissa Epel, PhD: Vickie, you have stepped right into the thick of it. When we first started this conversation several years ago, you were co-teaching a class on climate health and mental health, and very quickly, you were unsure at first, but you are the main teacher, you are informing students, empowering them with the collective efficacy that they can make a difference. None of us got this scientific background in climate science, and yet, we need to be quick studies and dive in there and teach our relevant science. That's exactly what you've done with your UCLA class.

Vickie Mays, PhD: Thank you.

Kim Boller, PhD: Thanks so much. Turning now to Dr. Jeannette Ickovics, the Samuel and Liselotte Herman Professor of Social and Behavioral Sciences at Yale School of Public Health, and the chair of the APA Board of Scientific Affairs. You bring a perspective, an outside perspective. You're not one of the co-authors of the paper on this article and its global scope and its grounding in science. In your work with the Resilient Cities Network, a global network of 100 different cities, what have you learned, what are the things you've learned, and how can these findings and recommendations be applied more globally?

Jeannette Ickovics, PhD: Thank you, Kim. Thank you to Elissa and all of the authors of this important paper. I want to second what Vickie Mays said, congratulating you on this important work. I know it was a long time in coming, and it was worth the wait. It's really so critically important locally, nationally, and globally. As Kim mentioned, I am working with the Resilient

Cities Network, a network of 100 cities around the world in low, middle, and high-income countries.

Last year, we did a survey of nearly 200 city leaders in 118 cities and 52 countries. Much of what is reported here, and particularly the recommendations, are directly applicable to, of course, the global environment as well, because climate change is global, but the action is local, and the experience of it is often local. I'm just going to do a quick sidebar and tell you a few of the key findings from the city survey, because I think it'll open up some of the discussion among the panelists and also with the audience.

Not surprisingly, we did find that cities, city leaders, these are government and civic leaders, recognizes severe climate threats like extreme heat and flooding, and ironically drought, which often can even co-occur, air pollution, and the consequent health threats that they pose. Even though they recognize these threats, they're really not ready, that very few cities are ready to really integrate climate health and equity in the way that we, at Resilient Cities Network and in our initiative called Urban Pulse, think are so important, and I think reflect what's in the paper.

While 60%, 6 out of 10, have climate resilience plans, but only about 1 in 4 integrate health, actively talk about health, and mental health in their climate resilience plans. What this Call to Action is across the behavioral medicine research community is to really do that integration in a seamless way to recognize the health and mental health consequences, and to take a prevention and a population-based approach to address them. I will also say that in addition to identifying priorities in climate and health and the threats, it was also really important to us to identify solutions in the work that we were doing with cities.

Again, I think this dovetails nicely with the report. We asked city leaders about the solutions that they're already doing. I want to say that we are in a place of severe threat, and I'm sure we'll talk more about that, and particularly today, and particularly in the US, but we also have the behavioral and technological solutions at our fingertips. As psychologists and behavioral scientists, we need to mobilize action. We need to mobilize people. What the city leaders called for what they thought were the most important things that they were doing right now were greening interventions. That was number one.

Number two were health-related interventions. For many of these low and middle-income countries, this was related to the threat of infectious disease, dengue and malaria, but there are clearly behavioral interventions again that really intersect here. The use of bed nets, wearing clothing, thinking about when you go out during day and night. Kristi, you were talking about patients that are facing maybe chronic illness, and of course, advising exercise, for example. We need to think about this in the context of climate, and we need to work with cities to reduce the risks and to promote prevention. There's a lot more I can say, but I'll pause there for now. Thank you.

Kim Boller, PhD: Fabulous. Thank you so much. Dr. Ruiz, turning it back to you for a moment before we dive into audience questions, what do you really want to see coming out of today's release for the science of climate change, specifically with regard to behavioral health and evidence-based science action? John, over to you. Oops, okay. We'll go on to asking a question of Dr. Ed Maibach. You're the distinguished university professor and director of George Mason University Center for Climate Change Communication.

As we heard from your co-authors, someone really focused on this for your career. What language or strategies do you recommend to people who want to raise awareness about climate change? You can come on camera, that'd be great.

Ed Maibach, PhD: There we go. Now, I'm on camera. Thanks, Kim, for the question. I'd like to take actually a step back, a big step back, and acknowledge the enormity of climate change. Global climate change, it is changing almost everything in our lives and in our world, as Elissa said. Almost everything, the way we live our lives is also, in turn, exacerbating climate change. It all feels so huge and overwhelming. I know because I feel that, too. The important thing for us to all keep our eyes on is what Jane Goodall says. Got this incredibly beautiful saying.

She said, "No one can do everything, but everyone can do something." That absolutely holds true for what we, as health professionals, can do with regard to helping rise to the challenge of the climate crisis. Communicating about it is one of those things. There are also some other things that, before we talk about communicating, I want to put it in further the communication in further context. I loved Kristi White's origin story, the fact that during graduate school, she needed to find her-- She knew she had to be involved, and she wanted to find her people.

That is so darn human, Kristi, I just love that that's how you started. That's probably common to everyone of this in this conversation, both as speakers and listeners today. We need to find our people, because when we are together, we are stronger. We will have a bigger impact. We help to address, we will be better able to address the enormity of this challenge. That's the first and most important thing. Find your people. Guess what? All of you here today, we've all now found our people. If this is your first meeting to your people, great. Stay in touch. We want you to be with us. We want to be with you.

One, I'll just do a little plug for my team. At George Mason University, we've organized the Medical Society Consortium on Climate and Health. We have 60 medical societies who are our members. We've incubated state clinician for climate action groups in 30 states. Not all 50, but 30 out of 50. If you would like us to be your people, we would like you to be our people, too. Come join us. We will stand with you. That's the first thing. Find your people. Join the climate health movement. Second thing is simply to talk about it. Share your concerns about climate change.

Your concerns as a health professional, as a mental health and/or physical health professional, share those concerns with the people you know. Your colleagues, they're not all necessarily concerned as you are, your family members, your neighbors, people in your community. That is super important. That's something we can all do, is talk about it, share what we know. I'm going to come back in a minute, and give you some pretty simple guidance on how to do that. Another thing we can all do is lead by example, both at work and in our own personal lives.

What do I mean by that? I'll tell you, over many years, my wife and I have decarbonized our home 100%. It took a long time because there were a lot of steps we had to take. Now that it's done, I feel so good about it. We both feel so good about it, and people who come to our home want to know about it. In many ways, we're leading our decarbonization efforts through our own lives. I do the same in my work at George Mason. I'm on the Institute for Sustainable Earth advisory crew and working very hard to help George Mason decarbonize.

Another thing many of us, not all of us, but many of us can do because we are teachers, we can share what we know through our teaching. To some degree, for those of us who do research, we have the opportunity to do research of consequence. That's really what this Call to Action was primarily about. Finding ways to use our work to address the enormity of this challenge. One last

point before I go into how we can talk about it. We have to acknowledge that as of the inauguration day this year, we are living under a regime that is actively trying to erase any public conversation, any acknowledgement, any public action on climate change.

That is an erasure that is so performative and so fundamentally antithetical to human health and wellbeing. I can't say enough about it. It makes everything we need to do more important. It also makes everything we need to do a lot harder, because we are now working heading straight into the headwinds of the Trump administration. All of that was just my setup, my somewhat long-winded setup to your answer, Kim, and that is, how do we talk about it? How do we share what we know? This is my day job. I do research on how to communicate climate change.

I've specifically focused on how to communicate it as a human health issue. Despite the complexity of climate change and the health impacts, it's really pretty simple about how to talk about it. Our evidence supports this. The first thing you have to identify or to speak to is you got to establish the problem. You got to explain to people that climate change is harming people's health in a whole variety of ways. Air pollution's harming our brains, our lungs, our hearts. Heat waves are making people sick and killing many people. Violent storms are injuring and killing people.

Vector-borne illnesses, serious illnesses are being spread more frequently by mosquitoes, ticks, and rats. As well, of course, the thing that brings us all together in this conversation are the mental health problems that are being caused by all of those problems I just mentioned, including, and perhaps especially the climatic extreme weather events. Just the persistent worry of knowing that we're essentially undermining the future viability of life on this planet for our children and our grandchildren. That's the first thing we need to do. We got to establish the problem.

Climate change is not just a problem for plants, penguins, and polar bears. It's a problem for people. Second thing we need to do is point to the solutions and articulate their health benefits. The most beautiful part of our narrative is, yes, we have to be a bit like chicken little, but the very things that we collectively need to get done in our world are not only good for the climate, they're profoundly good for our health. The health benefits are immediate, and the health benefits are local. When my geographic community takes these actions, it's the people in my community who are the primary beneficiaries. We benefit first in terms of improved health.

What is it we need to do, when we need to switch our energy supplies from fossil fuel to clean renewable energy? We need to improve our modes of transportation away from burning things, burning fossil fuels, and towards electrification. We need to improve the mobility, the safe mobility around our community, enabling walking and cycling, enabling better mass transportation. The third thing we need to do is improve our food supplies, our food systems, because climate smart foods are also health smart foods. A plant forward diet is fundamentally the key of that idea.

We need to improve our buildings so that they waste less energy, and they create a healthier environment indoors as well as outdoors for us to live in. Finally, we need to improve the design of our communities. We have built our communities around automobiles, and that is totally antithetical to human health and wellbeing. To have a car-centric communities, we need to have communities with more green space, more open spaces, more water permeable surfacing, and that fundamentally prioritize people and not automobiles. The third thing we need to talk about is really important and really simple.

That is that most climate concern, people feel like they are alone in their climate concerned. That is fundamentally not true. We need to establish the existence of the supportive social norm out there in America. Most people are worried about climate change, and most people are supportive of

climate solution, yet most of those worried and supportive people feel like they are in a small minority. By teaching people that, "Yes, in fact, if you're climate concerned, you're part of the majority." That's incredibly helpful in terms of bringing them into the conversation with the rest of us.

The next thing that I believe we need to do, and my research, my team's research supports this, we need to do something that we're not all comfortable with. We need to point our finger at the opposition. We need to call out the fossil fuel industry CEOs and their lobbyists and the politicians who are in their back pocket, because those are the people who are stopping us from enacting climate and health smart public policies, which is the most important thing we need to do.

Our research shows that, when health professionals point to fossil fuel CEOs and their lobbyists as the people, the small relatively small number of people who are standing in the way of progress, it really helps build public will for climate solutions as well as, interestingly, it builds public trust in us as health professionals. Finally, and perhaps maybe even really I should have led with this, we can clarify why we are acting as health professionals, why we are concerned health professionals, and why we are standing up to be counted.

That people don't care how much you know until they know how much you care, and why you care. Making clear that why we care as health professionals, that's just a fundamentally important part of a compelling climate and health narrative. Kim, with that, thank you for that opportunity and I turn it back to you.

Kim Boller, PhD: Thank you so much, Ed. John Ruiz, question for you. Just going back to the science, you mentioned *An Inconvenient Truth*, and how the years have gone by since that was released. What are you seeing as how science has impacted this field and the perspectives that are outlined in the public statement? What do you want to see come out of the statement with regard to science?

John Ruiz, PhD: Yes, that's a great question. As scientists, as an informed evidence-based community, we rely on the evidence to help us not only show associations but show causal pathways. I think the evidence over the past decade and a half, two decades has really become much more robust, mature, and specific in pointing, not just at the relationships, but at the causal direction and the role of human factors in those outcomes. Importantly, evidence that those effects are modifiable, that those through behavior change, through efforts, through policy, those climate impacts can be reversed.

It's important to have a note of hope in all this, that it's not too late. In many ways, these efforts that we've seen globally point to the feasibility of implementing those kinds of behaviors that can have those positive effects. While we may see right now that there is a rollback in federal support in the US for those, those are not shared globally, and as Ed was noting, many of those behaviors can be taken on by the individual. It is important for science to speak up then both in terms of providing specific pathways and guidelines, but also simply for our field's own credibility to step up into the void and to provide direction during times of chaos.

In that space, this particular set of guidelines really helps to refine what individuals, what healthcare providers, and what policy makers can do to put us on better footing. I think for many of us who are feeling a degree of angst about where we are in Earth Day 2025 in regards to the state of science funding and whatnot, part of that is due to the immense progress that has been made in recent years and the degree of grief about seeing some of that rolled back. Again, people are aware of these issues, and the film was a wonderful way.

It was, in many ways, a catalyst for folks like Kristi and many others to really engage in our professional lives and make contributions to our broader healthcare effort.

Kim Boller, PhD: Fabulous. This really makes us think here at APA, we're focused on population health, and that is a major goal for us when we think about population behavioral health. Let me toss it over to you, Jeanette, to say a few words about population health and what you see as the relationship between what's in the recommendations, in the statement, and that work.

Jeannette Ickovics, PhD: Thanks, Kim. Population health has become really a cornerstone initiative for the American Psychological Association. Kim herself is working on this quite closely with Dr. Arthur Evans and others. I think many of us, collectively, many people, perhaps on this call, don't see themselves as necessarily population health scientists, but perhaps we all should. I certainly do, and I know my co-panelists do as well. Population health is really about focusing on improving the health of the entire population. Not person by person, but community by community, and region by region, and nation by nation, and globally.

We do that by addressing what we often call social determinants of health, or more specifically, social economic and environmental factors that influence health outcomes. It is often a transdisciplinary science, which I think dovetails again with the call for action here. There's an emphasis in population health, and perhaps because I sit in a school of public health, I am a health and social psychologist, but I really see pub health with an emphasis on prevention and health promotion, and also, health equity.

If we take all of that together, climate is the perfect area to ground APA's population health initiative. I think it's something as we look forward to accelerating this work individually and collectively. I think population health provides an excellent framework for us to do that.

Kim Boller, PhD: Thanks so much. Let's turn back to the co-authors. Elissa, why don't you start and say a few words? What did you hear in this discussion so far that sparked some ideas or some excitement on your part? Then up next will be Kristi.

Elissa Epel, PhD: Yes, thank you. I am excited that we got a summary of Ed's points. They are on a website. He can probably put it in our chat. These are points that have been promoted by the medical community through an organization he helped co-found, which was a consortium of healthcare workers nationally. They have wanted to know how do we, as a trusted doctor or nurse or healthcare provider, reach people with this messaging. Messaging is one thing. I am focused on the students and how they are seeing the world.

They're reading the news, they are seeing only the doom and gloom, and over half of young adults globally feel that humanity is doomed. It's probably gotten worse since that survey that found that. We have a level of hopelessness, which is absolutely understandable and natural. We have climate distress, pain, grief about the losses that we see that are irreversible already, and that is natural. Our job is not to convince people to reduce their feelings of sadness because they're valid and they're inevitable, but rather to see the other half of what is happening across the globe.

That is amazing progress at greening, policy changes, technology changes, all of the solutions are here and at our fingertips. It's about the will to implement them at this point, as John was saying. I think that we need to talk about the obstacle of hopelessness. I put something in the chat about how if we shift our view to a systems level, we understand that we are powerful, especially when we work collectively together. Both in terms of advocacy and helping with policy, but also in our work locally in communities, which is really the change that we control right now.

I want to just mention the quote by Rebecca Solnit, "The fact that we cannot save everything does not mean that we cannot save anything, and everything we can save is worth saving." At times, when I see what's happening in the last month or so with climate, it's devastating. I could dwell on the despair and sadness of the regulations being rolled back, no more federal funding for climate projects. I could easily think, "We don't have time to wait. Let's do some other research for a while. Let's put that on hold. We can't wait."

This is the time to double down and do what we can with private funding, with our institutions, and in our communities.

Kim Boller, PhD: Thank you so much. Kristi, what did you hear that sparked an idea? I know your focus was a lot on the educational aspects. As you see in the chat, we've got questions about undergraduate involvement. We've got questions about teens and dealing with their reactions, their emotional reactions, and behavioral reactions, turning it to you.

Kristi White, PhD: I would really just echo what Elissa said is to honor and acknowledge the real difficult emotions that are coming up for a lot of people and not pathologizing them. We should not be well adjusted to what is happening right now, because that's concerning and problematic. It's normal to have a stress response to something that is incredibly stressful. There are things that we can do with that. We can leverage that response in a way that provides some tangible things that we can do to address the concerns.

I would just also echo what Ed said about finding your people. In that time where I was searching for other health psychologists and couldn't find them, I was connecting with people in the medical field, pharmacists, my fellow physicians, nurses, lots of other people in public health, other professions were really leading the way around the climate change and health movement. I became part of the Medical Society Consortium. The health professional community was very welcoming. I was able to do a lot of the early work that I did in this area through those kinds of connections.

There are all kinds of communities and organizations, and resources out there that have been doing this work for a really long time. We've talked about this idea of thinking about individual and systemic. When I'm working with patients, I'm working with them one-on-one, but I also think about them within their specific context. Some of the patients I work with don't have access to equitable biking infrastructure. That's one of the things that I can do in my community is I can talk with the local policy makers around, how do we make access to biking more feasible for everybody?

How can we change policing habits so that our black cyclists are not pulled over more than our white cyclists? What are the ways in which we can make sure that the system puts in place opportunities so that people have the choices that we're encouraging them to make, and that it is safe for them to do that? Thinking about not only how can we help people at the individual level, create collective action, but also how can we at the systems level make it easier for individuals to do what they need and want to do in the service of these concerns.

Kim Boller, PhD: Thanks so much. Ed, how about you? Some thoughts about what you heard others say, things you would like to emphasize.

Ed Maibach, PhD: Yes, I love that quote from Rebecca Solnit. I hadn't heard that before. That's absolutely beautiful. It reinforces something that I think about every day and that I try to share with fellow health professionals as often as I can. That is the fact that the world is almost certain to blow through the 1.5 degrees of warming. There have been days that we have already blown through it,

but days don't matter, years and decades are what matter. We're still at about 1.3 degrees of warming, the goal of the world, 197 countries soon to be 196 because the US will be pulling out of the Paris Climate Agreement.

The goal is to keep the warming at under two degrees, ideally close to 1.5 degrees. The thing that I want all of us to keep in mind is that every one-tenth of one degree counts, because for every one-tenth of one degree of additional warming that we allow, it creates profound worse health problems, public health catastrophes will accrue on nearly an exponential basis for every additional one-tenth of one degree. The world collectively, I used to say, we've already shaved one-tenths of one degree off one.

We've already shaved a degree of warming off the business-as-usual scenario over the past 20 years. I'm fearful that we're backsliding on that and that we're now, instead of 2.7 degrees is the most likely the new business-as-usual scenario. I'm worried that we're going back over three, but the point that I want all of us to keep in mind is if we blow past 1.5, and we will, let's aim for 1.6. If we blow past 1.6, let's aim for 1.7 because every 10th of a degree of warming averted is a profound gift to the health and wellbeing of our children, our grandchildren, and their children and grandchildren.

Kim Boller, PhD: Thank you.

Ed Maibach, PhD: Oh, one last thing. I'm sorry. I just also wanted to riff on something that Kristi said, and really, Elissa said as well, and that's to differentiate individual behavior change from collective behavior change. Behavioral Medicine, Health Psychology, to some degree is mostly focused on individual behavior change, but what we really need now, more than anything, is collective behavior change. We need to find our people, we need to link arms with them, and we need to lean in to make the case for climate and health smart public policy.

Whether that's in our city, our county, our state, our nation, and the world we live in, all of that is the most important thing we need to get done.

Kim Boller, PhD: Thanks so much, Ed. Turning to you, Vickie, I just wanted to say a word or two to address the question in the chat about teenagers and actual steps to take to address their emotional responses and mental health responses to climate change and the issues we're talking about today. I wanted to let everybody know that APA has worked in collaboration with ecoAmerica over the years to put out reports, science-based discussions of the impact of environmental changes and of climate change on mental health and wellness.

There just was one that was released recently on children and mental health meant for the health professions, also for parents, also for educators, but it does touch on what youth are doing and what youth can do to make a difference. Vickie, let's just turn a minute to mental health providers, to community-based focus. Can you say a few words about the risks that mental health providers might be at from secondary trauma while working with climate disasters? They may have experienced them themselves and have their own issues. Turning it to you. Thank you.

Vickie Mays, PhD: One of the interesting things is that when we think about going out and being a participant as a helping person in a disaster, I think for those who when it the first time, you will always remember. I can remember the emotions for every disaster that I've actually responded to. It isn't that what you want to be so worried about is, "Well, I'm afraid to do this because I'm going to get traumatized," but instead you prepare. You will have strong emotions. You will have emotional

memories. You don't necessarily have to then see that as you're going to advance to PTSD or some other negative thing.

One of the things, and I'm going to actually point to Elissa again, is that this is what we're trying to teach the young people in our classes, is that they feel very much left with a big problem. They worry about it. They blame us for what we've done and enjoyed and we haven't left them with the way the world should be, but what we're doing is saying you can be a climate scientist. You can be a climate advocate. You can be a climate activist, but these are the ways in which you actually learn methods to be able to be in the midst of this and to still walk away and be healthy.

That's what I would say to any of my colleagues who want to go out and volunteer, is to remember, first and foremost, why are you there? It is to help. It is not about you, but it's about what you give and bring and can do. Again, part of what we were talking about in class is there is gratitude in what you have been given and the capacity that you have to be able to make a change. If you start to think about being there, while you're there, and what you bring, you then will mitigate some of what you're seeing as this trauma.

No, you are having a very strong emotional experience. We hope that by arming yourself with the kind of training that psychology actually provides, and mindfulness and meditation, that you will be able to understand those emotions and be able to use them each time to be more fortified from when you go to the next event,

Elissa Epel, PhD: Oh, Vickie, it's so incredible to hear you say that. This is happening this semester in Vickie's class, and all 10 UC campuses students are eating this up. They need this. They are saying every student should have this class. One of the most important skill sets of our moment is the ability to see, witness, and be with the distress that we feel, and feel the hope, the joy, the empowerment of being part of the solution. That's a skill set that even most adults don't have.

We're teaching these emotional resilience skills so that we can focus on what's meaningful in our life and make it the best life possible, given that we're in this incredibly influential moment when what we do matters to future generations more than any other generation right now.

Kim Boller, PhD: Super. Thank you so much. I just can't believe we're down to two minutes left. I really just wanted to go back to you, John, again for any wrap up and, Kristi, any wrap up on, so what's next?

John Ruiz, PhD: This is a really important moment for the issue of climate and for the field, but it's a beginning. It's a beginning for us. We hear a lot these days about the 3.5% rule that a small minority can create great change, and that has to begin somewhere. Why not here? Why not with us? I would encourage folks to have agency, be the lead of science climate work. Don't just talk about impacting policy. Become a policy maker and decide the policy for yourselves on behalf of your values. Take this moment to be that change.

Kim Boller, PhD: Thank you so much. I think I'll just take a second to say we're lifting up psychology here today, but this is a multi-disciplinary issue. I think it comes through in the statement. We want to thank all of you for participating today. We hope you enjoyed the discussion. There's a one-minute survey. Please fill it out. You'll get it after the broadcast. We really value your feedback and all the questions that we received. We want to know what you'd like to hear in these essential science conversations and more. Just email us science@apa.org with your recommendations.

Also, please subscribe to Science Spotlight. It's a source for news and information for psychological scientists. We really hope to see you all in the audience at future events. Thank you for your feedback in the survey, and thank you to the panelists. Again, this is not the end, this is the beginning. There are lots of resources we'll be sending you after this when you get the recording and the transcript. Again, thank you so much.