June 2022

Climate Change and Youth Mental Health

Oregon Health Authority
PUBLIC HEALTH DIVISION

Acknowledgments

Oregon Health Authority

Julie Early Sifuentes, M.S.
Emily York, M.P.H.

University Of Oregon Suicide Prevention Lab

Richie Thomas, Ph.D.
John Seeley, Ph.D.
James Sinclair, Ph.D.
Kaliq Fulton-Mathis
Nicole Barney
Maryanne Mueller
Lauren Hval
Aubrey Green

Partnering organizations

The Hearth
Our Climate
Rogue Climate
Youth Era
The Klamath Tribes
Sisters Youth Transition Program (YTP)

Spotlights

Northwest Portland Area Indian Health Board (NPAIHB)
Phoenix-Talent School District

Sifuentes JE, York EA, Thomas, JR. Climate Change and Youth Mental Health. Oregon Health Authority [Internet]. 2022 May. Available from:

Contents

Foreword

Around the world and here in Oregon, devastating effects of climate change are hitting hard. Heat domes, dry wells, wildfires and hazardous smoke – the consequences of these events pose not only imminent threats to physical health, but immediate and long lasting impacts to our mental health. Facing the threat and uncertainties of climate change can be daunting for all of us. For youth who see their future lives and wellbeing at stake, the burden and weight of climate change can seem both overwhelming and unfair. Young people see their future at stake at decision-making tables where climate action is being debated, and yet they are not able to represent themselves at those tables.

In Executive Order 20-04 I directed the Oregon Health Authority to study the impacts of climate change on youth mental health and depression as a component of a broader youth mental health crisis, a crisis further exacerbated by a global pandemic. Drawing from youth themselves as well as experts in public health, education and mental health, this report identifies what can be done in these sectors to build resilience among our youth and help them navigate these challenging and uncertain times.

OHA's report spotlights the effect of the enormous burden of climate change on our youth. We see their determination and resilience to make change. We also see a clear-eyed assessment that the adults and institutions with power over their lives are not doing enough to address the causes of climate change. The strength and resilience of youth are calling us to relentlessly step up our efforts to protect the future of our youth, the planet and future generations.

Governor Kate Brown

Executive summary

As the effects of climate change grow, researchers and experts have become more concerned about how it will affect our mental health. Mental health impacts on youth are of particular concern as there is a growing youth mental health crisis in the United States. This report, in response to Governor Brown's Executive Order 20-04, shares study findings of how climate change is affecting the mental health of youth in Oregon. The study included: a literature review, focus groups with youth, key informant interviews and learnings from youth story circles. Youth were engaged throughout the study to provide input.

Research is showing three main pathways climate change adversely affects our mental health:

- Increased extreme weather events and climate-related disasters
- Chronic climate stressors, such as water and food insecurity, and
- Increased awareness of climate change, leading to climate anxiety.

Study participants reported significant distress consistent with what youth across the globe are reporting. Youth in this study reported experiencing a range of feelings:

- They are experiencing feelings of hopelessness, despair, anxiety and frustration about climate change
- They feel dismissed by adults and the older generation.
- They feel angry that not enough is being done to protect their future.
- They understand climate change as closely linked with systemic racism and oppression. They believe both need to be addressed at the same time.

Youth and key participants identified these strategies for nurturing hope and resilience:

- Create space for youth to come together and share their feelings about climate.
- Engage together in making social change.
- Nurture a stronger relationship with nature and our physical environment.

Decision-makers, educators, mental health professionals and environmental professionals support youth mental health and resilience in the face of climate change when they:

- Share power with youth in decision-making about climate and mental health policy and solutions to increase youth's sense of hope, belonging and agency
- Educate themselves about the connection between climate change and youth mental health and healing centered approaches to engage with youth
- Increase investments in school and community mental health services. These investments are needed to meet increasing demands to support youth, family, and community well-being.

Introduction

How climate change affects mental health

As climate impacts grow, so have our awareness and understanding of how climate change affects our mental health and emotional well-being. Research is showing three main pathways climate change adversely affects our mental health:

1. Increased extreme weather events and climate-related disasters
2. Chronic climate stressors, such as water and food insecurity, and
3. Increased awareness of climate change, leading to climate anxiety.

Communities affected by ***climate-related disasters*** such as wildfires may experience severe psychological and emotional distress after the disaster. Disasters can damage and even destroy homes, communities and safe spaces, and disrupt services critical for meeting basic needs such as housing. The process of recovering these basic needs can take a long time. In terms of mental health outcomes and risk factors, extreme weather events and disasters are known to cause:

- Trauma and shock; post-traumatic stress disorder
- Anxiety and depression
- Stress-related physical health symptoms
- Strains in social relationships, and
- Community displacement and migration (1,2)

As climate-related disasters increase in severity and frequency, we can expect more communities to experience significant negative effects on their mental health and well-being.

Chronic climate stressors also have significant effects on mental health and well-being. Chronic stressors are the slower-moving changes to our environment resulting from droughts, rising temperatures, and water and food insecurity. Research has found that specific chronic stressors are associated with poor mental health outcomes, such as drought, declining air quality, and increased temperatures.

For example, studies show an increased number of suicides following heatwaves and extremely high temperatures, a relationship which may be due to reduced economic outputs, increased conflict and societal violence and/or disturbed sleep (1)

Changes in our climate can also lead to changes to our landscape and ways of life and livelihoods, which in turn can result in significant losses to:

- Important and sacred places
- Family income
- Personal and occupational identity
- The sense of autonomy and control, and
- A community's culture.

These types of effects have been documented in indigenous and farming communities for many years. (2,3) The effects can negatively impact the mental and emotional well-being of people and communities.

Finally, emerging research is showing that the overarching threat of climate change is negatively affecting the mental and emotional well-being of people globally through what is being called ***climate anxiety*** or eco-anxiety. Although the term focuses on the anxiety, worry and fear related to climate change, climate anxiety involves a range of other emotions including:

- Anger
- Grief
- Despair
- Guilt, and
- Shame.

Mental health experts emphasize that these emotions are common and understandable responses to observing significant and irreversible harm to the environment that could affect the well-being and livelihood of self, family and communities for generations to come. (2,4)

Youth mental health and climate change

Children and young people are especially vulnerable to a range of health impacts from climate change. The mental health of youth in the United States is of particular concern. The rate of young people suffering from helplessness, depression and suicide had already been increasing before the COVID-19 pandemic began in 2020. (5) From 2009 to 2019, the proportion of high school students reporting persistent feelings of sadness or hopelessness increased by 40%. (6) Between 2007 and 2018, suicide rates among youth ages 10-24 in the US increased by 57%. (7) The pandemic exacerbated the crisis by increasing disruption and isolation. Fortunately, Oregon has not seen an increase in youth suicide during the pandemic. However, the state continues to experience a higher youth suicide rate than the national average. (8)

The mental health impact of climate change may further add to this burden. In November of 2021, the U.S. surgeon general issued an advisory to highlight the urgent need to address the nation's youth mental health crisis. The report identifies "climate change" as a factor that shapes the mental health of young people. (5)

Recent studies have found that climate change is a significant factor that affects youth's sense of emotional and mental well-being. In the largest study to date, 59% of 10,000 youth surveyed reported feeling very or extremely worried about climate change. Also, 84% were at least *moderately worried*. Moreover, youth also reported feeling the following about climate change:

- Afraid
- Angry
- Powerless
- Guilty
- Ashamed
- Despairing
- Hurt
- Grief, and
- Depressed.

They made comments such as:

- "Humanity is doomed"
- "The future is frightening," and
- "People have failed to care for the planet." (4)

Climate anxiety is a potential source of chronic stress. As such, it could significantly affect a young person's nervous system and body. (9)

It is well established that the most marginalized such as Black communities, Tribes, other communities of color, and rural and low-income communities disproportionately experience adverse health effects from climate change. Governmental decisions, such as in housing and land use policies, made through the generations have left such communities at higher risk of these impacts. (10) While climate and health researchers, until recently, have focused on physical health, emerging research is showing similar disproportionate burdens in terms of mental health. (11,12) Additional populations that may be at higher risk for adverse mental health impacts related to climate change include people with pre-existing mental health illnesses or mental health conditions and young people. (1)

Purpose of this study

The purpose of this study is to better understand the effect of climate change on the mental health of youth in Oregon through a review of the literature. After that, the research team conducted interviews and focus groups with:

- Oregon youth
- Mental health professionals

- Public health professionals, and
- Education professionals.

In March 2020, Governor Kate Brown's Executive Order 20-04 directed the Oregon Health Authority (OHA) to study the impacts of climate change on youth mental health and depression. Public health professionals in Oregon expressed concern about how climate change may worsen existing and ongoing rates of depression and anxiety, particularly among youth. The directive for this study was in part a response to that. The OHA Climate and Health Program first identified mental health as a health effect of climate change in the 2014 Oregon Climate and Health Profile report. It was identified again in the 2020 Climate and Health in Oregon report.

This study was designed to center the voices of youth, especially tribal youth and youth of color in Oregon. OHA recognizes the intersectionality of climate change and mental health issues with other long-standing human crises from colonization, racism and other forms of systemic oppression.

Study design and methods

OHA contracted and worked closely with the University of Oregon Suicide Prevention Lab (UOSPL) to conduct a literature review, develop the interview guides and recruit participants. UOSPL did the following:

- Conducted the focus groups and the key informant interviews
- Conducted a preliminary analysis, and
- Authored a report of the findings, which can be found here. (13)

Below are the main inputs for the study:

- Literature review
- Five focus groups with youth ranging from ages 15-25 years:
  - » Tribal youth (Klamath Tribes youth)
  - » Youth with disabilities (Sisters Youth Transition Program), and
  - » Three multicultural, multiracial groups focused on:
    - Youth Advocacy (Youth and Young Adult Engagement Advisory)
    - Climate activism (Our Climate, and Rogue Climate).
- Interviews with eight key informants: Professionals with diverse ethnic and racial identities working in mental health, education, or public health.
- Community-based storytelling project: OHA funded The Hearth, a non-profit based in Ashland to facilitate story circles with middle and high schoolers from communities severely affected by the 2020 wildfire. The main

purpose of this project was to inform this study and provide support to youth during this challenging time. The other purpose was to better understand how storytelling could promote social connection and improve well-being among youth affected by a climate-related disaster. Two story circle facilitators acted as key informants.

The research team drew from three frameworks or approaches in designing the study:

The Prevention Institute's pillars of well-being: The Prevention Institute developed reports and frameworks that acknowledge the role of structural violence in community trauma and resilience and help identify culturally-grounded and equitable strategies that improve community mental health and wellbeing.

OHA's Social Resilience Project: This project highlighted research that shows the importance of social relationships in physical and mental health outcomes and in weathering the stressors related to climate change. Specifically, OHA brings attention to bonding, bridging and linking relationships as being key to social resilience.

The Hearth's community storytelling approach: The Hearth has been teaching and promoting storytelling as a way of personal healing and building social connections under challenging circumstances in a community.

Finally, OHA partnered with the University of Oregon, Youth Era and Our Climate to host a virtual youth gathering to share preliminary findings and gather more input (Summary of input available here).

Voices of Oregon youth

This section includes a summary of what we heard from youth in the focus groups. It includes common themes and quotes that reflect these themes.

Youth in the focus groups talked about how they and their communities experience and observe the negative impacts of climate change. They highlighted extreme weather events, particularly experiences with wildfires, severe drought and water quality problems. Two of the focus groups, Klamath Tribes youth and Sisters Youth Transition Program, also discussed the loss of important community places and food due to climate change.

Feelings of hopelessness, despair, anxiety and frustration

Youth across all focus groups talked about feeling scared, frustrated, helpless and hopeless.

> ***I think it can be very overwhelming, just thinking about this, like our future.***
>
> ***I'm rapidly going between, like, apathy and like hopelessness, helplessness … the climate doomism.***

Some youth talked about climate change affecting the way they think about their future plans. They also had fears about how it will impact their younger siblings or family members.

> ***My friend started talking, like … why even have kids – why plan our future that far ahead? Because you might not have the opportunity … or we could be bringing someone into a world where they might not have that long to live or be able to breathe clean air, swim in clean water …***
>
> ***I feel scared because I think about my future and my siblings' future because I'm the oldest and how they're gonna have to grow up. Like, for example, California. With all the fires, I think what if more fires come up, like, how will it be for my little siblings? How will they experience all the trauma that's happening around them?***

A few youths spoke about how anxiety about climate change exacerbates existing mental health struggles.

It is a huge weight … just really overwhelming and I already have generalized anxiety. So now I have to also deal with the climate crisis. It's just really scary and frustrating. I just wish I could be ignorant and not care.

I have noticed a lot of people in my age group having a second wave of feeling suicidal because of (climate change). Like a lot of my close friends who also struggle with mental illness. It peaked when I was 14 and 15 and then went away for a while. But [for] me and my close circle, it's been something that's been coming up again and especially if you're raised in Oregon, this summer was not okay. It was a panicky hot summer.

A study of 10,000 youth across the globe found that it's not just youth's thoughts and feelings about climate and environmental threats that negatively affected them but also what they see as the ***inaction of governments*** on climate change. (4) This connection between inaction and anger and frustration also came up in these focus groups.

It's gonna just keep getting worse, and just it's really frustrating and is that exasperating … so honestly, I'm like pissed off.

Another related theme that emerged in the focus groups and our engagement with youth was a ***sense of burden*** that older generations have placed on youth to "fix" the climate problem. From younger people's perspective, this is frustrating because:

- Their lives will be affected more than adults
- Action needs to happen now to meaningfully reduce those effects, and
- They do not currently have the political and economic power adults have to address the problem.

Adults may remark in a well-intentioned way that they are inspired by the passion and determination of youth in advocating for action on climate change. However, youth may perceive that as adults alleviating themselves of the responsibility and placing it on youth.

…they've already lived their futures if that makes sense. But I still don't know what mine's gonna look like because of this existential threat. And so, it's like yelling at the wall about like, this really scary thing, but not really hearing anything back.

My parents, they're from Mexico, they've just become accustomed to just living that way. When I've been in Mexico, there's litter, and just not a good environment that really supports the earth. So, they've just become so accustomed to it and they feel like it's more of a

problem for the future. But I don't think they understand that we are the future and it is our problem now.

I remember growing up hearing you can fix the world, and your generation is going to be the one to fix it...and somehow they saw it as empowering like, you guys, you got this, you can do this. But like, I just grew up with that pressure and yeah, we have to do it, but it's not really a decision that we got to make.

Some communities are more or uniquely affected, or both by climate change

The frustrations we heard from youth about climate change inaction are compounded by ***the racial injustices connected with climate change***. There was discussion across focus groups that:

1. Some communities are more impacted, uniquely impacted by climate change than others, or both, and
2. Systems that have created climate change and oppressive systems have marginalized Black, Indigenous and people of color for centuries.

It's like a constant thing. … it affects all things and includes the wildfires on top of the settlers on top of their violence. And then thinking more broadly and globally, because I'm also indigenous to the islands of Tonga, a lot of our people are climate refugees and are no longer able to return home to the islands because it's sinking and cemeteries are underwater. And that's also settler-induced climate change … I feel like climate change cannot be talked about without talking about settler colonialism, white supremacy and, like, genocide ...

Klamath Tribes youth reported climate change issues unique to Native communities, such as: environmental racism, impacts on hunting, fishing, and gathering resources; treaty rights; and struggles to access adequate healthcare. Klamath Tribes youth and Sisters Youth Transition Program focus groups reported their communities experienced harm due to the intersectionality of white settler colonialism, white supremacy, and climate change.

The number one thing that we try to protect is our hunting, fishing and gathering rights. You can't fish, the fish that we use to, or we can't gather the things that we used to because they no longer grow here or like, or we don't want to gather wocus out of the lake because the lake is so gross, like, like that affects our livelihood, or even if it's not our livelihood anymore, our connection to our ancestors, our

connection to our culture, our traditions. So just because climate change is affecting our rights to our traditions, I think that that's one of the things that could be affecting our mental health and our physical health.

For American Indians, Alaska Natives and indigenous communities worldwide, culture and identity are tied to the land. How environmental degradation and climate change have negatively impacted indigenous culture, identity, livelihood and well-being are well documented. (12)

Rogue Climate participants reflected on the effect of drought and fires on the entire community of Latina, Latino and Latinx migrant families. They talked specifically about the effect on farmworkers, including the death of a member of their community.

And I think about the man who died, the farmworker. And that is what it took, it took someone to legitimately die in our fields for OSHA to make new rules about heat and smoke. It's just so heartbreaking and so frustrating … We are on the front lines and very rarely spoken to about it, very rarely highlighted.

Young people across focus groups emphasized the need to address climate change and racial injustice together. They highlighted the history of exclusion of Black, Indigenous and people of color in the climate and environmental activism communities. Youth brought forward the need to address climate change and support youth mental health by addressing:

- Historical practices that continue to minoritize and oppress Black, Indigenous and people of color
- Systems that perpetuate consumerism and waste, and
- Practices that damage the earth.

Youth also expressed a sense of hope and resilience

When asked about hope and resilience in the face of climate change, youth talked about family, community, knowledge and focusing on the positive.

But I think the one person that gives me the most hope is my younger sister. She is five. So, in about, like, a couple [of] years, it'll be pretty hard for her to be here. But, um, I guess, you know, she's a very big reason why, like, I fight this fight, because, you know, she deserves to kind of live in [sic] a good planet

It's like important to kind of appreciate the small wins because those small wins can oftentimes lead to like, bigger, bigger things, but it [sic] can often be overlooked in the grand scheme of things.

I learned about how climate change is intersectional … how it's kind of a structural problem. That gave me a lot of hope because I realized that there was [sic] a lot of solutions that are good for climate change, and good for people and good for like low income and Black, Indigenous and people of color. The way it had been framed up to that point for me was, either you save the climate and sacrifice the economy and everyone who has a job will lose their job, or you save the economy and sacrifice the climate. And that was the dichotomy that had been perpetually framed for all of us for a long time. And so like, getting involved with activism, and like learning that there are good solutions that benefit people and deconstruct racism and deconstruct colonialism, while also reducing carbon emissions. The fact that that exists is so powerful. And like brought me a lot of hope.

Cross-sectoral perspectives

Eight professionals from the public health, mental health and education sectors were interviewed about climate change impacts. The themes that emerged among this group were similar to the youth focus groups. Key informants reported youth expressing a lot of distress related to climate change.

> ***I see an equal number, if not more youth, who are spending a lot of [time with feelings of] hopelessness and despair that there will not be a planet for them to grow older.***
>
> ***[Youth] don't feel like they're in control of their destiny. That has very poignant mental health implications.***
>
> ***The uncertainty is created over the future … what are things going to look like? What can we sustain with climate change?***
>
> ***I think these kids are disconnected from the earth and each other. And so, I think in terms of mental health, they're suffering in solitude and isolation in ways we've never seen***

Many key informants pointed out that anxiety and depression are normal and healthy responses to the climate crisis:

> ***I don't like the mental health industry very much because we don't acknowledge the world and the absurdity of the world often enough. We focus on individuals and their problems … With the way we talk about mental health … it's all about their depression, their anxiety, the things that are wrong with them, and how they don't interface with the world well enough. Climate change is such a specific example of why that is an absolutely a [sic] useless model, the world is the problem, the world will not look the same, it will not exist the same way. It needs to be fixed.***
>
> ***And reaffirming that we are in some serious shit right now. And if you're feeling depressed or anxious or hopeless, that's an understandable response. So how can we mobilize to change that together?***

Participants reported personal experiences living in communities affected by wildfire and smoke. Some key informants working in schools in Southern Oregon reported how youth mental health was impacted by recent extreme weather

events, including youth experiencing re-traumatization, anxiety, depression, and compounded isolation from COVID-19 and smoke from fires.

> ***When you think about the fact that 30% of our students lost their homes and lost their community, lost the ability to be here in their community and be connected with them, that has just had a huge impact on our entire school, and our entire community. And so of course, that's climate change.***
>
> ***Even though it is not likely another fire is going to happen. I think that there are things that will trigger a response, like the wind, like really hot, really dry days, like the smoke. In terms of other things that I see happening with kids; isolation has created some real anxieties and [for] some students and some depression in some students.***
>
> ***And so, I think these kids are like, well, fire is going to happen again next summer, right? Or it's just a constant state of fear as opposed to a one-time event. I think that's where the anxiety is really living.***

The research team conducted these interviews during the COVID-19 global pandemic, almost a year after the September 2020 wildfires. The interviews were also just a month or two after the extreme heat wave that hit parts of Oregon in the summer of 2021. Some key informants drew connections between the pandemic, climate change and social isolation.

> ***The pandemic and climate change both have had a really huge impact on [mental health] with people. It's led to people being isolated, it's led to people losing their social support network.***
>
> ***If it's too hot outside, people can't go see one another, they can't recreate. If the air is unsafe to breathe, they will be locked inside.***

Youth resilience and wellbeing in the face of climate change

Across focus groups and interviews, youth talked about the resilience and well-being that they experience. Key informants also talked about observing these qualities among youth. These themes from their responses point to needed changes or to expanding current strategies and approaches.

Community and culture

Community and culture are themes that came up in a few different ways:

- Creating a stronger sense of community
- Moving away from individualism and toward relationships, and
- Celebrating cultural identity

Youth talked about the importance of community, and how working on climate action with other youth significantly helped them. Youth specifically spoke to the benefits of having space to talk about the range of feelings related to climate change and climate inaction. Many youths acknowledged the focus group as an example of an activity that builds connection and resilience in the face of climate change.

> ***things that get us all connected to each other and open up space for us to have conversations and holding [sic] space for the heaviness of what it can feel like to talk about it.***
>
> ***People like you all, who are also passionate about this, and also going through this and it's so sad sometimes to realize that we're both feeling these feelings, but at the same time, it's like, I'm not alone. If I need to talk to someone, which is the way I cope with things, I can go to people, I can talk to people, we can all be mad together and find out what to do. And so just moments like these, yes, they're bittersweet. Meeting people like you all gives me hope.***
>
> ***When we first met [I wondered] what this is gonna look like. But I was like hearing myself and I was like, wow, I really, really love this space. Right now. I love these questions. I love the shared stories and shared experiences. I love hearing people's thoughts and how they process stuff.***

Key informants also spoke about the importance of creating spaces for youth to connect and share their feelings about climate change They also spoke about how individualism is a barrier to making these connections.

> ***We can create therapeutic spaces by just making space for relationships, and that can help build resilience to address whatever comes along. But it has to be genuine. And it also has to be trauma-informed, and culturally responsive. … a big part of this is, students should not be required to participate, they should not be told how it looks, what it looks like, what it should look like, if they want to dance, let them dance, if they want to do art, let them do art, if they want to sing, let them sing. But they need to be able to express themselves in ways that honor their ways of being known.***

> ***I really think that just the American culture of individualism is the biggest obstacle. People feel like they're having to navigate a lot of these things on their own.***

One key informant identified culture and identity as key to supporting the mental health and well-being of Native youth. This informant stated:

> ***Culture is prevention. Because you feel you have trust, you have a sense of belonging, and you feel like you have control over your destiny.***

Celebrating culture, racial identity and heritage is an evidence-based approach to fostering well-being by nurturing a sense of belonging, place, and purpose. A strong connection to culture and identity can build resiliency and increase the ability to cope with and recover from trauma and chronic stress. (14,16) This is particularly true for communities who have suffered trauma, oppression or violence due to their cultural heritage or racial identity. Studies have found that American Indians and Alaska Native youth are less likely to experience poor mental health outcomes who:

- Engage in learning their Tribes' native language, and
- Participate in cultural practices. (15)

Connection with nature and the land

Participants suggested spending more time in nature and nurturing a relationship with the land, the earth, or our natural environment to improve mental health and community well-being. The importance of this relationship to well-being is central to many indigenous worldviews. It is also recognized by a growing body of scientific research. (17,18) The importance of this connection or relationship was expressed differently across the youth focus groups and with the key informants.

In response to the question, "What makes our communities more resilient?" a youth focus group participant responded:

> ***I would say get people outside. As cheesy as that may sound like, I missed the days where [sic] you would have to run over to someone's house and knock on their front door be like, "Hey, so and so home?" Now it's like, "hop online, let's play some Fortnite." Maybe if we were around our own climate a little bit more that would just make us more aware.***

The same theme was also expressed by another youth participant, who highlighted the importance of engaging less in the virtual world and connecting more with the physical environment and other tangible things that sustain us.

> ***… our whole lives have become very virtualized where so much of what we do is through a screen and so much of our activism is through a screen … And trying to reconnect with the actual physical things that sustain us, is really, really important. Just being connected to your food systems and your community, and repairing your own things, and making your own things, not like buying so many things… We've been growing this separation between ourselves and the things that sustain us. And bridging that back is super, super important. And it builds community.***

The importance of our relationship with the land was discussed among Native youth and key informants. A Native key informant who works closely with Tribes spoke about the importance of leaders and social workers understanding this connection. When asked about what can be done to address and prepare for the mental health effects of climate change, she responded:

> ***Taking leadership from indigenous communities around [the] land, land management, environmental management, resource management, and taking the lead from us and really highlighting for our leaders that there is a connection between people's mental health and their relationship to the land.***
>
> ***Social workers need to understand people's relationship to the land and that healing can happen to that relationship.***

Increased mental health services

The need for greater mental health support and services was another theme across generations. Key informants stressed the need as they processed the effect of climate change on youth mental health.

There probably is a looming mental health crisis that could occur as a result of climate change. And recognizing [sic] there's going to be this increased demand.

We need to prepare youths for being able to face a real problem that is facing their future….

One youth participant expressed the need for mental health services specifically for youth working in climate activism.

We need a support group for activists, specifically climate activists, because a lot of us know the research, we know the policy … just like how many times I've had to go deep into policy and research, and I know what the hell is happening. We need … at our university, a therapist or a coordinator or somebody who is doing student wellness because we are dealing with this every day. And a lot of folks have been doing this work, since they were like 12 or 13 years old, working on these climate justice issues. And people are not taking them seriously that this is causing serious mental health issues.

Engaging youth in decision-making

Knowledge about climate change could be overwhelming for many youths. However, they also talked about climate activism as a source of hope and resilience. This theme is woven through many of the quotes in this report. Key informants also spoke about the connection between well-being and engaged youth:

One of the things that I've seen that really kind of creates a sense of hope is actually being involved in policy and advocacy and activism. I think that's really, really important. There's something that happens when folks go from being passive bystanders in their community to actually being active. And not only recognizing that they can do something but then actually doing something. And then if something actually comes out of that advocacy, and you have a success, that's even better.

We'll start making them feel empowered by just creating a space for them to sit and for us to say 'we created this problem and we need your help in terms of how it's impacting you and what to do about it.'

Spotlights

Through the focus groups, key informant interviews and youth virtual gathering, participants expressed the importance of community, social connection, our relationship with nature, and engaging youth in decision-making, projects, and activities that support their wellbeing and contribute to social change. In this section, we spotlight three projects in our region that embody these themes and values.

49 Days of Ceremony: Accessing Traditional Indigenous Knowledge to Heal Trauma and Improve Health and Well-being in Tribal Communities

> *"49 Days of Ceremony is about connection; reconnecting with the land, our ancestors, our culture and with ourselves, each other and all living beings."*
>
> *–Danica Love Brown, Northwest Portland Area Indian Health Board*

In collaboration with the Center for Disease Control, Alaska Native Tribal Health Research Consortium, Good Medicine Tribal Public Health Consulting Services and Tribal Elders in the Pacific Northwest– the Northwest Portland Area Indian Health Board is working to develop a public health intervention for AI/AN young adults (18-24 years) designed to heal trauma and promote optimal health and well-being through accessing traditional Indigenous ways of knowing. This intervention could be adapted for adolescents.

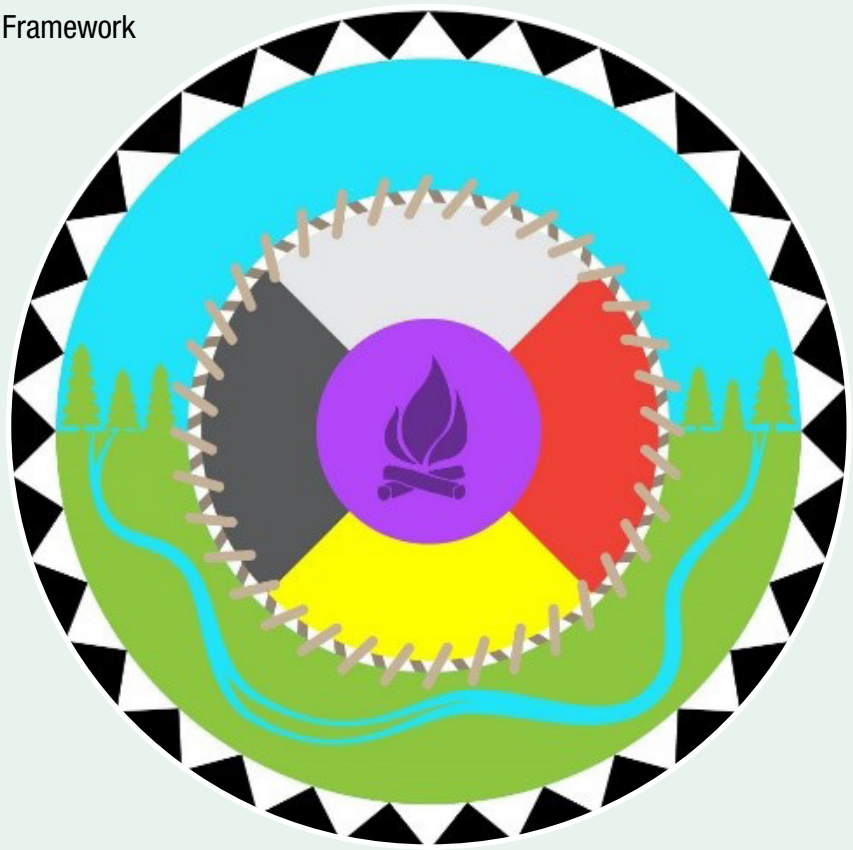
This intervention, 49 Days of Ceremony, applies an Indigenous framework for conceptualizing health and encourages people to live full and balanced lives through:

- Engaging in traditional Indigenous wellness and healing practices
- Applying ancestral knowledge, and
- Reflecting on Indigenous teachings. (21)

The 49 Days of Ceremony conceptual framework is based in seven aspects of health and wellness: mental, emotional, physical, and spiritual components, Mother Earth (representing our connection of all living things), Father Sky (representing our connection to our ancestors and the spiritual realm), and Sacred Fire (representing the fire within ourselves and our communities that propels us forward on the path to healing and wellness, or volition). (Figure 1)

Figure 1

49 Days of Ceremony Framework



49 Days of Ceremony can be applied to a project or activity centered on cultural practices such as canoe journey, building a longhouse or sweat lodge. The framework points to learning areas that can be integrated into the health or wellness activity. The NPAIHB will be piloting this intervention with two Native communities in the Pacific Northwest.

Phoenix-Talent School District Story Circles

The Hearth is a non-profit organization based in Ashland, Oregon. The Hearth teaches and promotes storytelling to build and strengthen relationships within

and across communities. In the wake of the 2020 wildfires, The Hearth trained volunteers in:

- Compassionate listening techniques
- Collecting survivors' stories and
- Making connections to individuals, resource sites, nonprofit organizations and relief efforts across southern Oregon.

Relying on their Compassionate Listening Team, comprised equally of Latinx and White English-speaking leaders, The Hearth invited students to learn about mutual social-emotional care through "story talk" — narrating personal experiences to peers who listened compassionately. Facilitators led sessions with students in both the Phoenix High School and Talent Middle School. Classes ranged from eight to thirty students in a class and were made up of 7th, 8th, 11th, and 12th graders. Students engaged in exercises that allowed them to write, reflect, listen, and share their personal experiences and stories. The objectives in each class were to:

- Help students connect with themselves and with one another through sharing personal experiences.
- Learn skills for compassionate listening.
- Understand how the language of the story functions.
- Explore and practice telling and listening to stories.
- Notice the elements of good storytelling (for example, listening, sensory details, and desire).
- Learn skills for offering peer-to-peer emotional care.

Increasing evidence associates storytelling with improved health indicators and outcomes. Digital storytelling with the elderly has been studied recently. It was associated with improved brain health, memory and social engagement. (22) Similar findings have been observed for younger age groups too; one recent study found that a group of children recovering from illness in the hospital who engaged with stories had decreased cortisol when compared to a group who had a different kind of social interaction with adults. (23)

> *"Circles themselves are healing. To be heard and accepted by your community is healing. This is different than Western models of therapy where emotional trauma is hidden in professional offices and dealt with by specialized trained therapists. These Western models treat hard life experiences as shameful and dangerous. In circles students normalize difficult situations, recognize they are not alone, and discover that within the group there is enough care and wisdom to hold one another."*
>
> *–Facilitator, former school counselor*

Storytelling is a community healing strategy adaptable to different cultures and contexts. It can help people make meaning out of suffering and support healing from different kinds of trauma. In the research literature, storytelling has been used to help children and adults heal from:

- Family violence
- Physical illness
- Disasters, and
- Environmental and climate-related trauma. (24–28)

A more detailed description of this project can be found here.

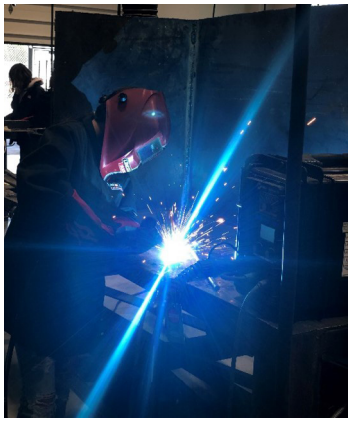
Healing-centered engagement: The Manzanita Project

Healing-Centered Engagement (HCE) is a holistic approach to healing trauma that involves "culture, spirituality, civic action, and collective healing." It views trauma as a shared experience rather than an individual one. It contrasts with more deficit-based Western models by focusing on the possibility of well-being rather than focusing on illness. It also draws from community healing practices used across cultures and times. (29,30)

The Manzanita Project, a partnership between the Phoenix School District and Talent Maker City is a beautiful example of HCE in the context of disaster-related trauma and recovery. These partners engaged students in creating an art installation along the Bear Creek Greenway, an area significantly affected by the 2020 wildfires. The purpose was to commemorate the strength shown by the Rogue Valley following the Almeda fire. Talent Middle School and Phoenix High School students contributed to the project by creating metal sculptures and watercolor paintings depicting manzanita trees and creating interpretive signs.

> *They chose the manzanita tree as a symbol of resilience because it needs fire in order to regenerate and grow.*
>
> *–Sandra Tringolo, Phoenix Middle School Teacher*

Several summer school classes in the Phoenix-Talent area took part in this project. Students had an opportunity to reflect on their own resilience as they learned about the resilience of nature and plants. Many of them had lost their homes in the fire. Middle school students created four interpretive signs that were placed along the Bear Creek Greenway. The signs were about the wildfire event, the restoration plan, the importance of a healthy creek habitat, and why the manzanita tree is a symbol of resilience. They conducted the research, wrote the text and designed the signs. They also determined that the signs should be in Spanish.



As part of the class, students walked through the city and the greenway that were just starting to show signs of recovery. They wrote poems based on their observations of recovery and on the signs of encouragement that community members had posted around the area. When asked to reflect on their experience of observing the regrowth in the greenway, a few students shared:

> ***Seeing the water, flowers and trees makes me have hope for life to be restored. I can see it might take a couple of years to be restored completely, but it is worth it.***
>
> ***I have hope for the trees because seeing how the bark is regrowing gives hope that the trees could recover and have lots of green leaves. Even though the trees look burned, the roots stay strong.***

Future directions and partnerships

As climate change accelerates, it will continue to affect emotional and mental well-being. Recent studies have found that climate stressors including climate anxiety are disproportionately affecting the well-being of our youth. They are reporting feelings of hopelessness, powerlessness and despair as they face the accelerating climate crisis. This is of particular concern given that youth have already experienced a decline in mental health indicators over the last decade. The simultaneous youth mental health crisis and climate crisis may create a situation that uniquely and disproportionately harms the well-being of youth.

There are many governmental agencies, educational institutions, non-profit organizations, community groups and corporations working on either of these two intersecting crises. In addition to amplifying these efforts, we see a growing need for collaboration and cross-pollination across these sectors to leverage resources to support youth mental health as we collectively face the escalating threat and uncertainty of climate change.

Below are areas for growth, improvement and investments based on this study and input from professional and youth advisors.

Increase youth agency, belonging and hope by sharing power in decision-making about climate and mental health policy and solutions.

- Take youth seriously as equal partners to adults in addressing the climate crisis and the youth mental health crisis.
- Invest in programs, organizations and projects where youth meaningfully engage in these topics and policy changes that affect them.
- Provide stipends, funding or both to youth for their engagement.

Build upon solutions and actions already identified to address each of these crises:

- Educators and mental health professionals:
  - » Learn about climate change and its impacts on future generations and take youth's concerns seriously.
  - » Learn about how climate change can contribute to and exacerbate depression and anxiety. Also, learn how to engage with youth on this topic.
  - » When you talk about mental health and wellness, acknowledge the

relationship of mental health with historical inequities, governmental policies and climate change environmental degradation.

  - » Make space for youth to process emotions related to climate change.
  - » Look for opportunities to acknowledge and strengthen youth's connections with each other, the larger community, and the natural and physical environment.

- Climate change and environmental professionals:
  - » Learn how to apply healing-centered principles when you engage and communicate with youth about climate change. A healing-centered approach involves culture, spirituality, civic action, and collective healing.
  - » Prioritize climate solutions that have mental health co-benefits.
- Government and agencies:
  - » Take action to reduce greenhouse gas emissions that drive wildfires, excessive heat and other climate change impacts, and invest in measures to help communities adapt to existing and anticipated impacts.
  - » Co-develop policies and legislation with youth that address the root causes of both climate change and its effect on mental health.
  - » Learn about the mental health impacts of climate change and the effect on different communities and populations.
  - » Take leadership in advancing youth-identified priorities.
  - » Create systems for accountability to youth.

Increase investments in school and community mental health services to meet increasing demands to support youth, family and community well-being.

- Expand mental health services and expertise. Include prevention and early intervention when young people are stressed and distressed before their health and well-being are significantly affected.
- Provide social and emotional learning in schools and youth and family-serving agencies to increase skills for youth, families and communities to manage stress and depression.
- Fund mental health services and community supports in every district to create school safe havens for cultivating student and educator resilience and healing that is culturally and linguistically responsive, trauma-sensitive, and multi-tiered mental health services and community supports in every district to create school safe havens for cultivating student and educator resilience and healing.

- Invest in supports that foster healing-focused, trauma-responsive workplaces for all school employees. Support districts with these whole-school efforts to become safe havens and strengthen resilience for every student and educator.

Trauma-informed (similar to trauma-sensitive, or trauma-responsive) care is a strengths-based framework that:

- Is grounded in an understanding of and responsiveness to the impact of trauma.
- Emphasizes physical, psychological and emotional safety for both providers and survivors, and
- Creates opportunities for survivors to rebuild a sense of control and empowerment.

Appendix

Key Oregon initiatives and actions to support youth well-being

Healthier Together Oregon is Oregon's 2020-2014 State Health Improvement Plan (SHIP) developed with input from representatives of 69 organizations across the state. The plan identifies five priorities to improve the health of people in Oregon. Of these five, three are particularly relevant to youth mental health and climate change:

- Adversity, trauma and toxic stress
- Behavioral health, and
- Institutional bias. (31)

Child & Family Behavioral Health Policy Vision was developed by OHA's Office of Behavioral Health in 2020. It outlines the vision and five-year work plan for policy and program direction to be co-created with consumer and stakeholder input. (32)

Youth Suicide Intervention and Prevention Plan 2021-2025 was developed by OHA in partnership with the University of Oregon Suicide Prevention Lab and the Oregon Alliance to Prevent Suicide. It captures the lessons learned over five years since the pervious plan. It also lays out a vision for what else we must address to keep moving toward health and wellness for Oregon's youth. (33)

Integrated Model of Mental Health is a framework to promote youth mental health support in schools developed by the Oregon Department of Education. It recognizes and emphasizes the strengths, resilience and ways of knowing each person in a school community and prioritizes voice, choice, empowerment and transparency. (34)

References

Endnotes

1. Lawrance E; Thompson, R; Fontana G.; Jennings, N. The impact of climate change on mental health and emotional wellbeing: current evidence and implications for policy and practice [Internet]. Imperial College London, Grantham Institute; 2021 May [cited 2022 Apr 25]. Available from: https://spiral.imperial.ac.uk/bitstream/10044/1/88568/7/The%20impact%20of%20climate%20change%20on%20mental%20health%20and%20emotional%20wellbeing%20-%20current%20evidence%20and%20implications%20for%20policy%20and%20practice%20%281%29.pdf
2. Clayton S, Manning CM, Krygsman K, Speiser M. Mental Health and Our Changing Climate: Impacts, Implications, and Guidance [Internet]. Washington, D.C.: American Psychological Association, Climate for Health and ecoAmerica; 2017 Mar [cited 2022 Apr 25]. Available from: https://www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf
3. Austin EK; Handley T; Kiem AS; Rich JL; Lewin TJ; Askland HH, et al. Drought-related stress among farmers: findings from the Australian Rural Mental Health Study. The Medical Journal of Australia [Internet] 2018 July 30; 209(4):159-165. Available from https://onlinelibrary.wiley.com/doi/abs/10.5694/mja17.01200 doi: 10.5694/mja17.01200
4. Hickman C, Marks E, Pihkala P, Clayton S, Lewandowski RE, Mayall EE, et al. Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. The Lancet Planetary Health [Internet]. 2021 Dec 1 [cited 2022 Apr 25]; 5(12):e863-73. Available from: https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00278-3/fulltext
5. Protecting Youth Mental Health: The U.S. Surgeon General's Advisory [Internet]. HHS.gov, Office of the Surgeon General 2021 Dec 6 [cited 2022 Apr 25]. Available from: https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf
6. Curtin SC. State suicide rates among adolescents and young adults aged 10–24: United States, 2000–2018. National Vital Statistics Reports [Internet]. 2020 Sept 11 [cited 2022 Apr 25];69(11). Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr69/nvsr-69-11-508.pdf

7. Suicide-related Public Health Surveillance Update. Oregon Health Authority [Internet]. 2022 Jan 18 [cited Apr 25]. Available from: https://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/SAFELIVING/SUICIDEPREVENTION/Documents/Monthly_Suicide-Related_data_report.pdf
8. For 2019, Oregon sees increased suicide rates across all ages, but youth deaths decline [Internet]. The Oregon Health Authority and the Oregon Department of Human Services. [cited Apr 25]. Available from: https://content.govdelivery.com/accounts/ORDHS/bulletins/2c537c8
9. Shonkoff JP, Famri JBR, Levitt P, Bunge S, Cameron JL, Duncan GJ, et al. Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper 3 [Internet]. Harvard.edu National Scientific Council on the Developing Child [cited 2022 Apr 25]. Available from: https://developingchild.harvard.edu/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf.
10. York EA, Braun MJF, Goldfarb GG, Sifuentes JE. Climate and Health in Oregon: 2020 report. Oregon Health Authority [Internet]. 2020 Dec [cited 2022 Apr 25]. Available from: https://www.oregon.gov/gov/Documents/Climate-Health-Oregon-2020%20-Full-Report.pdf
11. Hayes K, Blashki G, Wiseman J, Burke S, Reifels L. Climate change and mental health: risks, impacts and priority action. International Journal of Mental Health Systems [Internet]. 2018 Jun 1 [cited 2022 Apr 25];12:28. Available from: https://ijmhs.biomedcentral.com/track/pdf/10.1186/s13033-018-0210-6.pdf doi: 10.1186/s13033-018-0210-6.
12. Middleton J, Cunsolo A, Jones-Bitton A, Wright CJ, Harper SL. Indigenous mental health in a changing climate: a systematic scoping review of the global literature. Environmental Research Letters [Internet]. 2020 Apr 23;15(5). 053001. Available from: http://dx.doi.org/10.1088/1748-9326/ab68a9
13. Report on Climate Change and Youth Mental Health in Oregon [Internet]. University of Oregon Suicide Prevention Research Lab (UOSPRL) [cited Apr. 29]. Available from:
14. Henson M, Sabo S, Trujillo A, Teufel-Shone, N. Identifying Protective Factors to Promote Health in American Indian and Alaska Native Adolescents: A Literature Review. The Journal of Primary Prevention [Internet]. 2017 Apr.;5–26. Available from: https://pubmed.ncbi.nlm.nih.gov/27826690/ doi:10.1007/s10935-016-0455-2
15. Chandler MJ, Lalonde C. Cultural continuity as a protective factor against suicide in Canada's First Nations. Horizons --A Special Issue Aboriginal Youth, Hope or Heartbreak: Aboriginal Youth Canada's Future. 2008 Jan;10(1):68-72. doi:0803973233

16. Cohen L, Davis R, Estes LJ, Mikkelsen L, Berthold J, et al. Back to our Roots: Catalyzing Community Action for Mental Health and Wellbeing [Internet]. Prevention Institute. 2017 Sept [cited 2022 Apr 25]. Available from: https://www.preventioninstitute.org/sites/default/files/publications/Back%20to%20Our%20Roots-Catalyzing%20Community%20Action%20for%20Mental%20Health%20and%20Wellbeing.pdf

17. Capaldi CA, Dopko RL, Zelenski JM. The relationship between nature connectedness and happiness: a meta-analysis. Frontiers in Psychology. 2014 Sept 8;5:976. Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2014.00976/full doi: 10.3389/fpsyg.2014.00976

18. Pritchard A, Richardson M, Sheffield D, McEwan K. The Relationship Between Nature Connectedness and Eudaimonic Well-Being: A Meta-analysis. Journal of Happiness Studies [Internet] 2020;21(3),1145–1167. Available from: https://doi.org/10.1007/s10902-019-00118-6

19. Greenwood, M, Lindsay, NM. A commentary on land, health, and Indigenous knowledge(s). Global Health Promotion [Internet]. 2019 Apr 9;26(3_suppl):82–6. Available from: https://doi.org/10.1177/1757975919831262

20. Jimenez MP, DeVille NV, Elliott, EG, Schiff, JE, Wilt GE, Hart JE, et al. Associations between Nature Exposure and Health: A Review of the Evidence. International Journal of Environmental Research Public Health [Internet]. 2021 Apr 30;18(9):4790 Available from: http://dx.doi.org/10.3390/ijerph18094790 doi: 10.3390/ijerph18094790

21. Northwest Portland Area Indian Health Board: Indian Leadership for Indian Health. 49 Days of Ceremony: A Culturally Responsive Intervention to Wellness. 2021

22. Stargatt J, Bhar S, Bhowmik J, Al Mahmud A. Implementing Digital Storytelling for Health-Related Outcomes in Older Adults: Protocol for a Systematic Review. JMIR Research Protocols [Internet]. 2019 Dec 20;8(12):e15512. Available from: https://www.researchprotocols.org/2019/12/e15512. doi: 10.2196/15512

23. Brockington G, Gomes Moreira AP, Buso MS, Gomes da Silva S, Altszyler E; Fischer R. Storytelling increases oxytocin and positive emotions and decreases cortisol and pain in hospitalized children. Proceedings of the National Academy of Sciences (PNAS) [Internet]. 2021 May 24;118(22):e2018409118. Available from: https://www.pnas.org/doi/full/10.1073/pnas.2018409118 doi: 10.1073/pnas.2018409118

24. Anjarwati E. Trauma, Memory and Transformation: Southeast Asian Experiences [Internet] Malaysia: Strategic Information and Research Development Center. ResearchGate.net; c2014 Storytelling as a Means for Healing Children's Trauma: Peace Education in Southern Thailand; Chapter

5:99-122; [cited 2022 Apr 26]. Available from: https://www.researchgate.net/publication/323150827_Storytelling_as_A_Means_For_Healing_Children%27s_Trauma_Peace_Education_in_Southern_THailand

25. Anderson K, Wallace B.; &. PP. Digital storytelling as a trauma narrative intervention for children exposed to domestic violence. In Cohen JL, Johnson JL, editors. Video and filmmaking as psychotherapy: Research and practice. Routledge/Taylor & Francis Group; 2015. p. 95–107
26. Sakakibara C "Our Home Is Drowning": Iñupiat storytelling and climate change in Point Hope, Alaska. Geographical Review. 2008 Oct;98(4):456–75. doi:10.1111/j.1931-0846.2008.tb00312.x.
27. Kargilli, C, Kako M, Gillham. Disaster survivors: a narrative approach towards emotional recovery. Australian Journal of Emergency Management [Internet]. 2014 Apr [cited 2022 Apr 26];29(2):30. Available from: https://knowledge.aidr.org.au/resources/ajem-apr-2014-disaster-survivors-a-narrative-approach-towards-emotional-recovery/
28. Nagamatsu S, Fukasawa Y, Kobayashi, I. Why Does Disaster Storytelling Matter for a Resilient Society? Journal of Disaster Research [Internet]. 2021 Feb 1[cited 2022 Apr 26];16(2):127-34. Available from: https://www.fujipress.jp/jdr/dr/dsstr001600020127/
29. Ginwright, S. The Future of Healing: Shifting from Trauma Informed Care to Healing Centered Engagement [Internet]. Medium. 2018 May 31 [cited 2022 Apr 26]. Available from: https://ginwright.medium.com/the-future-of-healing-shifting-from-trauma-informed-care-to-healing-centered-engagement-634f557ce69c
30. Soto-Aponte M. Crosswalk: Youth Thrive & Healing Centered Engagement Youth Thrive An initiative of the Center for the Study of Social Policy (CSSP) [Internet]. 2021 May [cited 2022 Apr 27]. Available from: https://cssp.org/wp-content/uploads/2021/05/Crosswalk-Youth-Thrive-and-Healing-Centered-Engagement.pdf
31. Priorities. Healthier Together Oregon [Internet]. Healthiertogetheroregon.org. 2022 [cited 2022 May 6]. Available from: https://healthiertogetheroregon.org/priorities/
32. Child & Family Behavioral Health Policy Vision. Oregon Health Authority [Internet]. Oregon.gov. 2020 Oct [cited 2022 May 6]. Available from: https://www.oregon.gov/oha/HSD/BH-Child-Family/Documents/draft-vision-paper2020.pdf
33. Seeley JR, Hammond M, Fulton-Mathis K, Wright J, Rochelle J, Thomas J, et al. Youth Suicide Intervention and Prevention Plan. Oregon Health

Authority [Internet]. State.or.us. 2021 Nov [cited 2022 May 6]. Available from: https://sharedsystems.dhsoha.state.or.us/DHSForms/Served/le8875.pdf

34. Integrated model of mental health. Oregon Department of Education [Internet]. Oregon.gov. [cited 2022 May 6]. Available from: https://www.oregon.gov/ode/students-and-family/equity/SchoolSafety/Pages/Integrated-Model-of-Mental-Health.aspx

Oregon Health Authority
PUBLIC HEALTH DIVISION

You can get this document in other languages, large print, braille or a format you prefer. Contact the Climate and Health Program at 971-673-0440, climate.health@dhsoha.state.or.us. We accept all relay calls or you can dial 711.

OHA 4212 (6/2022)