



Climate Change & Your Mental Health

CLIMATE & HAZARD RESILIENCE AS IT RELATES TO MENTAL HEALTH

Chad Andersen, Noah Hirshorn, Tyler Kimmel, and Lonnie Olson | SUST 6000 | May 6,

2021

Project Scope

Include a short summary of the project. Update if necessary.

Our project focused on Climate and Hazard Resilience in Utah as it relates to mental health. We created an informational and interactive 2-page pamphlet in partnership with the Center for Student Wellness and University of Utah Counseling Center. The pamphlet mentions various ways climate change will affect Utah (inversions, fires, droughts, blizzards, heat waves, floods) as well as other natural hazards specific to Utah (tornadoes and earthquakes). In addition, the pamphlet addresses the mental health challenges one may face around these hazards (e.g. depression, anxiety, PTSD) and useful ways of managing one's mental health as it relates to these hazard events (e.g. emergency preparedness, movement, breathing, etc.) The pamphlet also contains a list of useful resources for hazard resilience as well as a list of resources for mental health resilience. Finally, a message of hope is included in the pamphlet to show that progress is being made to better the environment.

Importance & Objectives

Explain why this project is important, timely, and how it relates to our class theme (climate and hazard resilience)

Climate change is the challenge of our generation. While it affects all humans, research and communications have generally focused on physical impacts to the planet. Other impacts such as the societal and psychological consequences have received much less attention and research. As a result of post-disaster recovery, extreme weather events, or just the looming threat of climate change, people are reporting instances of anxiety, depression, trauma, and other psychological conditions.

Adequate information is available detailing the natural hazards facing Utah; however, there is a need for resources that address mental health as it directly relates to climate change. With reports of mental health deteriorating, especially in the midst of the COVID-19 pandemic, it is more important than ever to ensure that mental health is considered when discussing climate change. Specific findings from a report issued by the U.S. Global Change Research Program authored by Crimmins et al. detail the impacts of climate change on mental health which include:

- Exposure to climate and weather-related natural disasters can result in mental health consequences such as anxiety, depression, and post-traumatic stress disorder. A significant proportion of people affected by those events develop chronic psychological dysfunction.
- Some people are at higher risk for mental health consequences from weather-related disasters. Among them are children, pregnant and postpartum women, people with

pre-existing mental illness, people who are economically disadvantaged, those who are homeless and first responders to the disaster.

- Representations of climate change in the media and popular culture can also influence a person's stress response and mental well-being.
- Extreme heat increases both physical and mental health problems in people with mental illness, raising the risk of disease and death. In part, that's because many psychoactive prescription medications impair the body's ability to regulate temperature.

Motivated by the need to connect mental health and climate change, our group decided to create a pamphlet that includes resources on hazards in Utah, how they may affect mental health, and how to take action to improve mental health. Included in the pamphlet are direct connections between hazards and mental health, suggestions on how to improve mental health, links to emergency preparedness resources, and other items that can help the viewer improve their mental health as it relates to climate change. The pamphlet is also the result of partnerships with the Center for Student Wellness and the University Counseling Center.

Mental health directly relates to the themes of climate and hazard resilience by intervening at the societal pillar of sustainability. Regardless of the situation, resilience is the ability to confront, adapt to, and overcome challenges. Resiliency is not easy and requires courage, perseverance, and flexibility; all of which are traits that are improved with strong mental health. Improved mental health allows for people to focus on confronting climate hazards effectively. We hope that this important project can normalize connecting climate change to mental health, thus helping people learn resilience and increase their capacity to cope with the uncertainty and trauma caused by climate change.

What were the immediate benefits (or objectives) this project had?

The main goal of the pamphlet is to provide an available resource that campus members can use when they or someone they know experiences a natural hazard, mental health issues, or a combination of the two. Based on conversations with stakeholders, the pamphlet can serve as a resource that validates feelings of distress as a result of the looming threat of climate change.

The pamphlet will begin to benefit campus once distribution starts. Working with our collaborators at the Center for Student Wellness, and the University Counseling Center, we aim to distribute the pamphlet to a wide audience. The Center for Student Wellness has expressed interest in sharing this pamphlet on their social media and their blog. The University of Utah Counseling Center would like to have paper copies of the pamphlet to distribute (we currently are working on figuring out how we can do this and include all of the resources embedded in the pamphlet). By communicating the pamphlet to the campus, the campus community will be more resilient to, and able to address the threat climate change poses while also working to improve their mental health.

What might be the long-term benefits (or objectives) this project may have.

The campus will reap the long-term benefits of the pamphlet once distribution has begun. To start, the pamphlet will help students from outside of Utah be prepared when moving here. If implemented successfully, this could draw more students, showing that the University understands the intersection of climate hazards and mental health. Hazards will increase, and mental health will be affected; having resources available to help cope with the mental toll can become a model for other universities to follow.

Since the relationship between mental health and climate change is an interdisciplinary topic, the release of the pamphlet can also start to connect different organizations on campus. If future iterations of the pamphlet are created (a few years down the road), the best team to work on the product would include representatives from the GCSC, Center for Student Wellness, University Counseling Center, and students from a variety of disciplines. As time passes, the purpose the pamphlet serves may need to be adjusted, but the initial pamphlet that we have created can serve as a solid foundation to build upon.

Project Deliverables & Reflection

Describe what you were able to accomplish (your deliverables) this semester.

The deliverable our group created is a two-page pamphlet that details relevant information on caring for mental health in the face of climate change and the resulting hazards. The pamphlet includes a message of hope, ways to cope with mental health challenges, a list of climate and natural hazards common in Utah, and a directory of resources (both phone numbers and links) targeted for people living in Utah. Having access to this pamphlet alone may be enough to lessen some mental health challenges faced by the campus community or point them in the right direction for additional help if needed. We see it as a resource that people can use to empower their mental well-being as it relates to climate change.

Reflect on what you learned throughout this team project process. Some reflection components might include challenges, the approach to complex environmental problems, or insights you realized along the way.

While our project addresses all three pillars of sustainability (environmental, economic, and societal), the deliverable has the greatest focus on the intersection between the environmental and societal pillars. Mental health affects everything, but it is most closely correlated to the societal pillar of sustainability. While most research is focused on what changes occur to society as a result of environmental change there is a small body of

emerging research that focuses specifically on the ways climate change is impacting mental health. The current pandemic has brought this topic of research more into the forefront of the public's mind. Namely mental health effects to global behavior change as a result of environmental stimulus. Although most consider the pandemic in the context of its negative impacts we may be just beginning to see the positive impacts.

What other "takeaways" did your team come away with from this experience?

There were several lessons learned as we worked in a group on this project. The first is to collaborate with stakeholders such as experts and focus groups. Incorporating a systems thinking approach necessitates synthesizing information from an interdisciplinary team of experts. The second is that while collaborating with experts is a great approach, the reality is that there is no substitute for a trained professional. While our pamphlet may include excellent and useful information it cannot replace a certified mental health professional. The third and final lesson learned is that wording is important. In a pamphlet, less is more regarding the amount of text. Space is at a premium, so it is essential to effectively convey what you can in the least amount of space possible. In addition, it is necessary to ensure the text conforms to the professional standards of the subject matter represented. This will help shape some of the content as well as how the content is conveyed. For example, in our pamphlet, we were advised to not make definitive statements regarding mental health and to remove references to one specific mental health condition (paranoia) which typically requires professional help.

Visuals

A link to download the interactive pdf can be found here. To access the links within the pamphlet, it must be downloaded:

<https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:331edofa-1283-420d-a64e-816499bf05a9>

CLIMATE CHANGE

Intro

Climate change is the challenge of our generation. While climate change affects all humans, research and communications have generally focused on physical impacts to the planet. Other impacts such as the societal and psychological consequences, have received much less attention and research.¹

As a result of the looming threat of climate change, an extreme weather event, or post-disaster recovery mental health is impacted and these occurrences can lead to anxiety, depression, secondary trauma, and other psychological conditions.

For Utah residents, there are many climate change related hazards that one must prepare for. However, impacts of climate change on individuals and communities will vary widely. We hope that this important project can normalize connecting climate change to mental health, thus helping people learn resilience and increase their capacity to cope with uncertainty and trauma caused by climate change.

There are two ways climate change can affect mental health. First, people experience direct exposure to the effects of climate change. The other way is indirect exposure - such as watching a disaster unfold from afar.



A Message of Hope

A 2020 study found that communicating climate change in a doomsday manner is more likely to engage people who were not concerned with climate change.⁴ For those who have consistently acknowledged climate change as a risk, these pessimistic narratives can make it seem that there is no hope.

Over the past few years there has been progress in addressing climate change. It is important to acknowledge this progress because the battle against climate change is not lost. Here are some important updates:

- For the 5th year in a row, 2019 experienced more renewable installations than coal, gas, and nuclear combined on a global scale.³
- 150 Cities across the US have pledged to run on 100% renewable electricity by 2035.⁴
- Multiple cities in Utah, including Salt Lake City, are aiming to run on net-100% renewables by 2040 in collaboration with current energy providers.⁵
- Additionally, almost 200 large companies (3M, Apple, Nike) have pledged to go 100% renewable by 2050 or in most cases, much sooner.⁶

Action now increases the likelihood that the negative effects of climate change are lessened. With the United States rejoining the Paris Climate Agreement, steps are being taken to continue addressing climate change. There is work to be done but this work should not distract from the important progress that has been made.

YOUR MENTAL HEALTH

An Interactive PDF with 30+ Embedded Links

*All Outlined text are clickable hyperlinks

LEGEND

- Depression** - A mood disorder that causes a persistent feeling of sadness and loss of interest. It affects how you feel, think and behave.
- Anxiety** - Encompasses feeling worried, afraid, or like something is wrong for no reason.
- PTSD** - Post traumatic stress disorder (PTSD) occurs as a result of experiencing traumatic events which can include natural hazards.
- Somatization** - When psychological concerns are converted into physical symptoms.
- Stress** - Any type of change that causes physical, emotional, or psychological strain.
- Anger** - An emotional state that varies in intensity from mild irritation to intense fury and rage.

Natural Disasters

Natural disasters such as Large earthquakes, tornadoes, and landslides are uncommon in Utah, but are possible. There is a 1 in 4 chance of a large earthquake in the Wasatch Front in the next 50 years.¹¹ Studies have found exposure to natural hazards can increase PTSD, anxiety, and stress.¹² When natural disasters happen, it is important to stay informed, be optimistic, and have a plan in place, knowing someone's contact information outside of the region and having a preparedness kit.¹³

Wildfires

On average, Utah experiences around 1,300 wildfires a year, with trends showing increased fire activity in recent years.⁷ Studies have found exposure to wildfire events can increase PTSD, somatization, depression, anxiety, and stress. When wildfire events happen, it is best to stay informed and have plans if you would face evacuation, like a place to stay and items you need (people and pet supplies, prescriptions, papers, personal needs, and priceless items).⁸

Heat Waves + Drought

Climate data shows that Salt Lake City will slowly shift to a climate of modern day Las Vegas by the end of the century.¹⁴ As of April, 2021, 100% of the state is in the moderate drought category, with 57% of the state in the highest category of "exceptional drought".¹⁵ Studies show that severe drought and longstanding drought conditions can lead to stress, anxiety, and depression. In order to mitigate the adverse mental strain from these events, planning for the future, positive thinking, acceptance and reframing of the problem, and utilizing social support have all been proven to help.¹⁶

Inversions

Wintertime inversions commonly contribute to deteriorated air quality. Utah experiences numerous days a year that fail to meet national air quality standards.⁹ Recent studies have found that long term exposure to bad air quality can increase the likelihood of experiencing depression, anxiety, and being upset.¹⁰ In order to prepare for bad air quality days, consider alternative transportation and practice self-care.

Blizzards + Extreme Cold

Some studies have shown that cold temperatures may have an immediate impact on mental health. In cases where severe weather events (such as blizzards) occur, research has shown these can have a significant negative effect on mental health. In many parts of Utah minimum temperatures will warm faster than maximum temperatures. Furthermore it is expected there will be a decrease in winter storm risk at low elevations as well as an increase in winter storm risk at high elevations.¹⁷

Ways to Cope

Nothing can replace seeking professional care. If at any point your mental health is inhibiting your ability to function, it is time to reach out to a licensed professional. Below, find ways and resources to improve your mental health:

- Breathing:** The 4-7-8 breathing technique aims to reduce anxiety, anger, and help you sleep. Start by breathing in for 4 seconds, holding that breath in for 7 seconds, and exhaling for 8 seconds.
- Communicating:** Communicating how you feel can be one way to address feeling anxious. Practice communicating your feelings by either keeping a journal or talking with a trusted family member or friend.
- Movement:** Body movement and exercise has well documented physical and mental benefits. Thirty minutes 3 days a week is beneficial. Start with enjoyable activities whenever you have energy whether indoors or outdoors. There are plenty of free videos and routines on the internet.
- Mindfulness:** Mindfulness, which focuses on self care and understanding your emotions, utilizes many of the techniques detailed here. To learn techniques for improving mindfulness, register for this free course: <https://mindfulnesscenter.utah.edu>.
- Comfort:** When you sense yourself growing increasingly anxious, engaging in a routine that provides you comfort can help. People find comfort in many things such as: reading, limiting news intake, or hanging out with a pet.
- Get Involved:** You can take action and improve the climate by volunteering on sustainable initiatives. The University of Utah Bennion Center organizes sustainability focused volunteer projects such as planting trees: <https://bennioncenter.org/>.

Resources and Preparedness

One way to address feeling anxious or overwhelmed is to focus on aspects of emergencies that can be controlled. Being prepared for emergency situations can lessen feelings of anxiety. The University of Utah Department of Public Safety (DPS) has comprehensive resources and training that can assist with emergency preparedness.

From the standpoint of hazard resiliency, a good tool to have is an emergency preparedness kit. Check out the links below to see what to include in a short-term emergency kit, as well as a long-term preparedness kit.

[Short-Term Preparedness](#)

[Long-Term Preparedness](#)

PHONE CONTACTS

- Emergencies: 911
- SLC Police Non-Emergency: (801) 799.3000
- Suicide Hotline: (800) 273.8255
- Substance Abuse Hotline: (800) 662.4357
- Recorded Weather Forecasts (801) 524.3057
- Disaster Distress Hotline: (800) 985.5990
- University of Utah Crisis line: (801) 587.3000

IMPORTANT LINKS

- Woebot: Mental Health**
- SafeUT App**
- Bennion Center**
- NOAA SLC**
- Be Ready Utah**
- U Counseling Center**
- Mindfulness Center**

AUTHORS + COLLABORATORS | CITATIONS

Pamphlet References

1. **Citation 1:**
"Mental Health Impact of Climate Change News from BACP." *Mental Health Impact of Climate Change*, 15 Oct. 2020,
www.bacp.co.uk/news/news-from-bacp/2020/15-october-mental-health-impact-of-climate-change/
2. **Citation 2:**
Morris, B.S., Chrysochou, P., Karg, S.T. *et al.* Optimistic vs. pessimistic endings in climate change appeals. *Humanit Soc Sci Commun* 7, 82 (2020).
<https://doi.org/10.1057/s41599-020-00574-z>
3. **Citation 3:**
"Renewable Capacity Highlights." International Renewable Energy Agency, 31 Mar. 2020,
www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Mar/IRENA_RE_Capacity_Highlights_2020.pdf
4. **Citation 4:**
O'Bryan, Drew. "150 Cities (and Counting) Are Ready for 100% Renewable." *Sierra Club*, Sierra Club, 24 Dec. 2019,
www.sierraclub.org/articles/2019/12/150-cities-and-counting-are-ready-for-100-renewable
5. **Citation 5:**
"Climate Positive 2040." *SLC's Climate Plan | Sustainability*, Salt Lake City,
www.slc.gov/sustainability/climate-positive/.
6. **Citation 6:**
RE100 Members, RE100, www.there100.org/re100-members.
7. **Symptom:** Depression:
Torres, Felix. "What Is Depression?" *Depression*, American Psychiatric Association, Oct. 2020, www.psychiatry.org/patients-families/depression/what-is-depression.
8. **Symptom:** Anxiety:
Office of Public Affairs. "Coping With Anxiety." *University of Utah Health*, University of Utah Health, 16 Nov. 2016, 12:00A.M.,
healthcare.utah.edu/healthfeed/postings/2016/11/coping_anxiety.php.
9. **Symptom:** PTSD:
Keeshin, Brooks. "Trauma and PTSD Assessment and Intervention." Project ECHO.
physicians.utah.edu/echo/pdfs/2018-12-12-trauma-and-ptsd.pdf.
10. **Symptom:** Somatization:
Mayo Clinic Staff. "Somatic Symptom Disorder." *Mayo Clinic*, Mayo Foundation for Medical Education and Research, 8 May 2018,
www.mayoclinic.org/diseases-conditions/somatic-symptom-disorder/diagnosis-treatment/drc-20377781.
11. **Symptom:** Stress:
"For You." *Coping With Stress - Counseling Services - University of Utah Counseling Center - The University of Utah*, The University of Utah, 30 June 2020,
counselingcenter.utah.edu/self-help/coping-stress/for-you.php.
12. **Symptom:** Anger:
"Controlling Anger - Before It Controls You." *American Psychological Association*, American Psychological Association, 2005, www.apa.org/topics/anger/control.
13. **Citation 7:**

- “Catastrophic Wildfire Reduction Strategy.” Utah Department of Agriculture and Food, May 2019.
<https://ag.utah.gov/wp-content/uploads/2019/05/Catastrophic-Fire-Current-Situation.pdf>
14. **Citation 8:**
Brown, M.R.G., Agyapong, V., Greenshaw, A.J. *et al.* After the Fort McMurray wildfire there are significant increases in mental health symptoms in grade 7–12 students compared to controls. *BMC Psychiatry* 19, 18 (2019).
<https://doi.org/10.1186/s12888-018-2007-1>
 15. **Citation 9:**
Utah Department of Agriculture and Food, State of Utah, ag.utah.gov/.
 16. **Citation 10:**
Xue, T., Zhu, T., Zheng, Y. *et al.* Declines in mental health associated with air pollution and temperature variability in China. *Nat Commun* 10, 2165 (2019).
<https://doi.org/10.1038/s41467-019-10196-y>
 17. **Citation 11:**
“Earthquake FAQ.” *U Of U Seismograph Stations*, The University of Utah, 2021, quake.utah.edu/earthquake-information-products/earthquake-faq.
 18. **Citation 12:**
Beaglehole, B., Bell, C., Frampton, C., Hamilton, G., & McKean, A. (2015). The impact of the Canterbury earthquakes on prescribing for mental health. *Australian & New Zealand Journal of Psychiatry*, 49(8), 742–750. <https://doi.org/10.1177/0004867415589794>
 19. **Citation 13:**
Carbone, Eric G., and Erin Thomas Echols. “Effects of Optimism on Recovery and Mental Health after a Tornado Outbreak.” *Psychology & Health*, vol. 32, no. 5, 2017, pp. 530–548., doi:10.1080/08870446.2017.1283039.
 20. **Citation 14:**
“Utah Department of Public Safety.” *DPS – Emergency Management*, State of Utah, dem.utah.gov/hazards-and-mitigation/.
 21. **Citation 15:**
“Utah.” *Drought.gov*, National Integrated Drought Information System, 23 Apr. 2021, www.drought.gov/states/utah.
 22. **Citation 16:**
Vins, H., Bell, J., Saha, S., & Hess, J. J. (2015). The Mental Health Outcomes of Drought: A Systematic Review and Causal Process Diagram. *International journal of environmental research and public health*, 12(10), 13251–13275.
<https://doi.org/10.3390/ijerph121013251>
 23. **Citation 17:**
“Utah Department of Public Safety.” *DPS – Emergency Management*, State of Utah, dem.utah.gov/hazards-and-mitigation/.
 24. **Preparedness Kits:** Minimum Short-Term Preparedness:
“16/12 Student Preparedness.” *Emergency Management*, The University of Utah, emergency.utah.edu/16-12/.
 25. **Preparedness Kits:** Long-Term Preparedness:
“Get a Kit.” *Be Ready Utah*, State of Utah, www.utah.gov/beready/family/get-a-kit.html.
 26. **Important Links:** Woebot:
“Mental Health Chatbot.” Woebot Health, Woebot Health, 1 Apr. 2021, woebothealth.com/.

27. **Important Links:** SafeApp:
"SafeUT." *SafeUT Crisis Chat & Tip Line*, 3.3.5, University of Utah Health, 25 Oct. 2015, healthcare.utah.edu/hmhi/safe-ut/.
28. **Important Links:** Bennion Center:
Bennion Center - The University of Utah, University of Utah, 9 Apr. 2021, bennioncenter.org/.
29. **Important Links:** NOAA SLC:
Salt Lake City, UT, NOAA's National Weather Service, www.weather.gov/slc/.
30. **Important Links:** Be Ready Utah:
Be Ready Utah, State of Utah, www.utah.gov/beready/index.html.
31. **Ways to Cope:** Breathing:
"Anxiety/Stress Reduction." *Anxiety/Stress Reduction - U of U School of Medicine - | University of Utah*, University of Utah, 19 Mar. 2021, medicine.utah.edu/students/current-students/wellness/what-is-wellness/self-help-resources/anxiety-stress-reduction.php.
32. **Ways to Cope:** Communicating:
Watson, L Renee, et al. "Journaling for Mental Health." *Journaling for Mental Health - Health Encyclopedia - University of Rochester Medical Center*, University of Rochester Medical Center, www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=1&contentid=4552.
33. **Ways to Cope:** Exercise:
"Exercise for Stress and Anxiety." *Exercise for Stress and Anxiety | Anxiety and Depression Association of America, ADAA*, Anxiety and Depression Association of America, 13 Mar. 2021, adaa.org/living-with-anxiety/managing-anxiety/exercise-stress-and-anxiety.
34. **Ways to Cope:** Mindfulness:
Mindfulness Center - The University of Utah, University of Utah, 22 Mar. 2021, mindfulnesscenter.utah.edu/.
35. **Ways to Cope:** Comfort:
Good News Network, <https://www.goodnewsnetwork.org/>
36. **Ways to Cope:** Get involved:
Bennion Center - The University of Utah, University of Utah, 9 Apr. 2021, bennioncenter.org/.