

# A Climate Health Survey: The Attitudes and Behaviors Surveys (TABS) on Health

Attachment B

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**Prepared by:**

Nicholas Stoll, MPH

Naomi Perlman, MPHc

Kathy James, PhD, MSPH, MSCE



**Glenwood Springs;** Photo credit: iStock

## **The Attitudes and Behaviors Surveys (TABS) on Health**

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# The Attitudes and Behaviors Surveys (TABS) on Health

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## The Attitudes and Behaviors Surveys (TABS) on Health

### Executive Summary

#### Purpose

The Mountain West Hub (MWH) seeks to understand how rural and urban communities in the Mountain West are experiencing climate stressors (drought, air quality, heat, and wildfires), and what current and future actions they envision to build climate resilience and advance health equity. The Mountain West Hub currently is focused on two communities, the rural San Luis Valley (SLV) of Colorado and urban West Denver. To help guide our efforts and promote community-driven action, we collected primary data from Colorado residents to inform our understanding about how residents experience climate stress.

#### Method

The Attitudes and Behaviors Surveys (TABS) on Health is an ongoing population-level survey of adults providing detailed information about individual, community, and social-environmental factors related to risk factors that affect the health of Coloradans. We administered a climate health survey to TABS participants. Two waves of recruitment were used to obtain our sample.

The survey was divided into three sections: 1) recognition of the occurrence of climate change through climate stressors and extreme weather events (EWEs); 2) known health risks which are associated with climate stress and EWEs that occur within the region; and 3) actionable items respondents are currently taking, and that are being taken within their community.

#### Results Summary

When identifying stressors, participants indicated an increase in temperature and a notable decrease in water resources and precipitation. A chi-squared test reveals statistically significant differences in perceived changes of average temperature ( $p < .01$ ), wildfire ( $p < .001$ ) and days of poor air quality ( $p < .001$ ) when stratified by geographic location.

Nearly three quarters of participants (71%) indicated some level of agreement (42%, somewhat agree; 14%, agree; 8% strongly agree) with the statement “climate stressors will affect my health over the next 5 years.” Regardless of geographic location, the top five concerning health outcomes were cancer, allergies, mental health, cardiovascular disease, and infectious diseases from people.

When asked which groups of people are at the greatest risk for negative health outcomes, groups that garnered the highest level of concern were older adults (ages 65 and older), people with chronic physical health conditions, and people with physical disabilities. Participants also reported a high level of concern for children (less than 5 years old), outdoor workers, and people with limited resources.

The top three protective actions identified by both rural and non-rural participants were wearing face masks during AQ alert days, using indoor recreation spaces, and installing energy efficient windows. To identify barriers to personal action, participants were asked why they did not take specific actions to reduce their health risks from climate stressors. The three most common

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responses were not knowing what to do, not having resources to act, and having other concerns.

### Next Steps

The information provided in this report can be used by researchers, policymakers, and community members to better understand how residents in Colorado experience climate stress. Overall, these findings highlight both strengths and gaps in climate health preparedness. Coloradans recognize key climate stressors and their health impacts and are eager to take action but often lack the necessary information or resources. This presents an opportunity for capacity building.

### Introduction

The Mountain West Hub (MWH) seeks to understand how rural and urban communities in the Mountain West are experiencing climate stressors such as drought, air quality, heat, and wildfires. We also want to understand what current and future actions they envision to build climate resilience and advance health equity. While the MWH has placed special focus on communities of the San Luis Valley (SLV) and West Denver (WD), it is also committed to climate resilience throughout all Mountain West communities. To help stimulate informed decision making at the local, regional, and state levels, we administered a Climate Health Survey to investigate attitudes and behaviors on climate stressors in Colorado.

We partnered with the Community Epidemiology & Program Evaluation Group (CEPEG) at the Colorado School of Public Health to follow-up with participants of The Attitudes and Behaviors Surveys (TABS) on Health from 2022. By reaching this cohort, we were able to leverage existing rapport with residents and pair our survey measures with demographic and health data from the initial 2022 TABS survey.

Initial analysis focused on identifying response bias between demographic groups, then assessed weighted demographic differences in attitudes and behaviors. Overall results from the survey indicate that respondents had high awareness of climate impacts relevant to the region, as well as climate-related health risks. Respondents felt they had capacity to take action to protect their health from climate stressors and indicated that they were already engaging in quite a few behavioral and structural adaptations. However, some easily adoptable protective actions were not frequently chosen as current mitigation strategies. This report concludes with recommendations for future capacity building, specifically regarding targeted messaging to demographic groups and leveraging existing communication channels such as early warning monitoring systems.

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### Methods & Results

#### Survey Development

A review of the literature was conducted to orient the research team on existing survey tools and landscape of research. A notable portion of existing research focused on participant perceptions of climate change and a relatively small portion of published studies focused on health behaviors. Our aim of engaging mountain-west communities with relevant and actionable climate health activities dissuaded our team from pursuing data collection with existing surveys from external sources. The development of our survey was guided by these generalized questions:

1. Do Colorado residents recognize the occurrence of climate stressors?
2. Do Colorado residents connect the occurrence of climate stressors with health outcomes?
3. Do Colorado residents recognize that certain populations are at higher risk for health impacts due to climate stressors and extreme weather events?
4. Do Colorado residents know adaptation strategies for climate stressors and extreme weather events?
5. How concerned are Colorado residents with climate stressors?
6. For all the above, are there differences in perceptions based on demographics (e.g. sex, age, ethnicity, education), social determinants of health (e.g., neighborhood, working status), geography (e.g. rural vs urban), and current health status (e.g., mental and physical health)?

The survey was divided into three sections. The first focused on recognition of the occurrence of climate change through climate stressors and extreme weather events (EWEs). Questions were tailored to the climate stressors and EWEs which are relevant to the state of Colorado. The second section focused on known health risks which are associated with climate stress and EWEs that occur within the region. Additionally, we asked respondents to identify vulnerable populations who are at greater risk for adverse health outcomes. In the third section, we asked respondents to identify actionable items that they are currently taking, and that are being taken within their community.

#### Recruitment

The Climate Health Survey utilized a quasi-stratified sampling strategy as a follow-up to The Attitudes and Behaviors Surveys (TABS) on Health.

#### The Attitudes and Behaviors Surveys (TABS) on Health<sup>1</sup>

TABS is an ongoing population-level survey of adults providing detailed information about individual, community, and social-environmental factors related to risk factors that affect the health of Coloradans. The purposes of the study are to help identify the most widespread, influential and changeable risk factors; to determine how such factors vary by sociodemographic and other characteristics; and to help evaluate the impact of Colorado's Amendment 35 funded grant programs.

The survey is directed by the Community Epidemiology & Program Evaluation Group (CEPEG) at the Colorado School of Public Health (ColoradoSPH), on behalf of the Colorado Department

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of Public Health and Environment (CDPHE). TABS was first conducted in 2001 (N=13,006) and repeated in 2005 (N=12,257), 2008 (N=14,156), 2012 (N=15,005), 2015 (N=8,618) and 2019 (N=12,971). Previously, the study provided detailed information regarding adult tobacco use, attitudes towards tobacco-related issues, and how these both have changed over time; it was referred to as CO TABS (Colorado Tobacco Attitudes and Behaviors Survey). The survey has been funded in the past by tobacco litigation settlement proceeds (2001), and a voter-approved tobacco tax increase (2005). Since 2015, funding for the survey came from the CDPHE. TABS was based on the California Tobacco Survey and the tobacco-related questions of the Behavioral Risk Factor Surveillance System (BRFSS), which is conducted by the Centers for Disease Control and Prevention (CDC). While previous waves focused solely on tobacco, 2012 TABS incorporated additional risk factors and conditions that influence health. The 2012 TABS and subsequent iterations included question modules related to certain chronic diseases (specifically high blood pressure, diabetes and high cholesterol), plus modules about policy, voting, and social trust.

The 2022 survey was conducted in English and Spanish with respondents 18 years or older in Colorado. The sample for the current survey wave was selected from multi-frames including random digit dial (RDD) frames of landline and cell phone telephone numbers and an address-based sample (ABS) frame. The telephone data collection protocol consisted of contacting sampled telephone numbers up to 10 times. Attempts were spread across weekdays, weekday evenings, and weekends. Telephone respondents received a \$10 Amazon.com gift card for completing the interviews. Data collection protocol for the ABS consisted of three successive communications: (1) an invitation letter, (2) a reminder postcard, and (3) a final reminder letter. The letters and postcards included the URL for the survey and a unique respondent ID. ABS respondents received \$1 in the invitation letter and a \$10 Amazon.com gift code for completing the web survey. At the conclusion of recruitment, 14,262 surveys were completed.

Additional information on sampling design, geographic stratification, questionnaire design, and data collection protocol can be found in the 2022 TABS methodology report.<sup>1</sup>

### TABS Follow-up – A Climate Health Survey

The Climate Health Survey was administered in 2024 through the online Qualtrics platform, using force-response settings to ensure participants fully answered all questions. Participants who completed the full survey received a \$10 electronic gift card of their choice.

Participant contact information from the 2022 TABS survey was aggregated and cleaned. Due to resource limitations, the survey was only administered via email, and participants who had not previously provided a contact email were excluded from recruitment. To confirm the identity of participants, Qualtrics skip logic, validated response, and embedded data were used to confirm the age of each participant. Two waves of recruitment were used to obtain our sample. For each wave of recruitment, participants were invited to participate on Monday and reminded on the following Thursday. Two additional reminders were sent the following week on Monday and Thursday.

**Wave 1.** Up to thirty TABS participants were randomly selected from each Colorado county and invited to participate. If there were fewer than thirty participants in a county who provided an



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email, only those participants were invited – no replacements were selected from neighboring counties nor by alternative contact methods.

**Wave 2.** Recruitment targeted all remaining TABS participants from Colorado counties not containing a suburban or metropolitan area. This wave intentionally focused on rural and frontier residents to promote rural representation in the sample.

### Weighted Analysis

Survey weights were computed to correct for disproportionate sampling probabilities introduced by the sampling design in the original TABS survey, including unequal probabilities due to regional stratification and the minority oversampling and to correct for differences in demographic characteristics of the sample versus the population, reducing the risk of nonresponse and coverage biases in substantive estimates that may be associated with those demographics. Detailed information on sample weights can be found in the 2022 TABS methodology report.<sup>1</sup>

### Analysis Results and Discussion

A total of 3,982 TABS participants were contacted with this follow-up Climate Health Survey. With a response rate of 25%, 980 members of the TABS cohort participated. Of those participants, there was a mean completion rate of 98%.

Demographic distributions are highlighted in Table 1, including age group, race/ethnicity, sex, LGBTQ+ status, geographic location, length of Colorado residence, level of education, and income. We note that this sample is skewed away from younger adults and is predominantly white, with a slight elevation in female representation. The proportion of rural and non-rural residence of participants is approximately 1:3, and most respondents receiving some form of higher education.

### Response Bias

To assess potential response bias, we performed chi-squared tests with demographic variables, stratified by their completion rate. The completion rate was converted to a binary variable with a non-response category and a response category (partial or full completion). The distribution of sex and LGBTQ+ status were not statistically significant. Statistical differences were observed for age ( $p < .001$ ), race and ethnicity ( $p < .001$ ), income ( $p < .01$ ), education ( $p < .001$ ), and geographic location ( $p < .001$ ).

### Recognition of Climate Stressors

Participants were asked to indicate possible changes in climate stressors and extreme weather events that are most likely to occur within the Rocky Mountain region. Table 2 shows the distribution of perceptions (increases, no change, decreases, uncertainty) for each stressor/event, stratified by geographic location.

Overall, these results are consistent with forecasted trends for potential regional climate stressors including drought, heat waves, wildfires, and poor air quality.<sup>2</sup> An overwhelming number of participants indicated an increase in temperature and a notable decrease in water resources and precipitation, but uncertainty or “no change” for the presence of insect vectors. A

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chi-squared test reveals statistically significant differences in perceived changes of average temperature ( $p < .01$ ), wildfire ( $p < .001$ ) and days of poor air quality ( $p < .001$ ) when stratified by geographic location.

A MANOVA test was used to determine if there were significant differences across questions based off of a demographic grouping variable. Questions included those asking about neighborhood climate stressors, anticipating that climate stressors would affect one's personal health in the next five years, and belief that one could take action to protect themselves and their family from climate change. Grouping variables that showed a significant difference in the combined responses from these questions were mental health status ( $p < 0.05$ ), physical limitation ( $p < 0.01$ ), cancer status ( $p < 0.05$ ), and poverty status ( $p < .0001$ ).

Concerns for climate stressors as they pertain to respondents' neighborhoods (Table 3a-b) are also consistent with forecasted trends for the region<sup>2</sup>. Respondents continue to be less concerned with insect vectors. A chi-squared test reveals statistically significant differences in response distributions for air quality due to wildfires ( $p < .001$ ), air quality due to motor transportation ( $p < .001$ ), air quality due to dust/particulate matter ( $p < .05$ ), and average temperature ( $p < .05$ ) when stratified by geographic location. Not surprisingly, respondents from rural areas are less concerned by air quality due to motor transportation. However, it appears that rural residents are also slightly less concerned about poor air quality due to wildfire and dust/particulate than their non-rural counterparts.

Participants were also directly asked to rate their agreement with the statement, "climate stressors will affect my health over the next 5 years," on a 7-point Likert agreement scale. While not statistically significant when stratified by geographic location, 71% indicated some level of agreement (42%, somewhat agree; 14%, agree; 8% strongly agree).

### Individual Health Concerns

Participants were asked if they were concerned or unconcerned about a variety of health outcomes in regard to their personal health (Table 4). Regardless of geographic location, the top five concerning health outcomes were cancer, allergies, mental health, cardiovascular disease, and infectious diseases from people. Health outcomes where at least 30% of participants responded that they were concerned include respiratory diseases and infectious diseases from mosquitoes. Responses between rural and non-rural participants were similar; the only statistically significant difference was for infectious diseases due to ticks ( $p < .05$ ), where 22.2% of rural participants reported concern and only 15.2% of non-rural participants reported concern. The least concerning health outcomes across both rural and non-rural participants were infectious diseases from animals, hunger/malnutrition, kidney disease and reproductive outcomes.

When stratifying responses to this question by other demographics, there were notable differences across age groups. A chi-squared test showed significant differences across age groups when it came to concern for cardiovascular disease ( $p < 0.05$ ), infectious diseases due to humans ( $p < 0.01$ ), mental health conditions ( $p < .0001$ ), respiratory conditions ( $p < 0.001$ ), and reproductive outcomes ( $p < .0001$ ). Figures 1a-e show that older populations were more

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concerned with cardiovascular disease, infectious disease due to humans, and respiratory conditions, whereas younger respondents were more concerned by mental health conditions and reproductive outcomes.

### Identified At-Risk Populations

When asked “which groups of people are at the greatest risk for negative health outcomes”, the level of concern was very similar across rural and non-rural participants (Table 5). Groups that garnered the highest level of concern were older adults (ages 65 and older), people with chronic physical health conditions, and people with physical disabilities. Participants also reported a high level of concern for children (less than 5 years old), outdoor workers, and people with limited resources. The only statistically significant differences between rural and non-rural participants related to concern for rural communities ( $p < .05$ ) and unhoused populations ( $p < .05$ ). Among non-rural participants, 7.3% reported concern for rural communities, whereas 12.9% of rural participants reported concern for this group. Concern for unhoused populations was 44.1% among non-rural respondents and 34.1% for rural respondents.

### Adapting to Climate Stressors

Participants were asked to rate their agreement on a 7-point Likert scale regarding the statement “I can take actions now to protect my family and community from the effects of climate change”. A rating of 1 indicates strong disagreement, 4 indicates neutrality, and a 7 indicates strong agreement. For both rural and non-rural participants, the average agreement was a 4.6. Seventy-one percent of rural participants and 70% of non-rural participants expressed some level of agreement with the statement.

Participants were given a list of protective actions and asked, “what actions have you taken over the past year to reduce the impact of climate stressors on your personal health?”. The top three protective actions identified by both rural and non-rural participants were wearing face masks during AQ alert days, using indoor recreation spaces, and installing energy efficient windows. Other highly recognized protective actions were installing cooling systems, using in-home air purifiers, monitoring early warning systems and staying informed on climate stressors and health impacts. Protective actions wearing sunscreen or protective clothing, reducing outdoor activity (peak heat hours), and reducing outdoor activity (poor AQ days). The only statistically significant difference based on geographic location was for the action of using indoor recreation spaces ( $p < .05$ ), where 82.9% of non-rural and 91.4% of rural participants identified using this action.

Participants were then asked, “what actions do people in your community currently take to reduce contributions to climate stressors?” and given a list of options. Planting trees and reducing household water usage were the two most highly identified community actions across geographic regions. For non-rural participants, reducing electricity consumption during peak-use times was another popular answer, whereas rural participants identified reducing agricultural and landscaping water usage as another common action being taken. Regardless of geographic location, installing green or cooling roofs and retrofitting homes were two community actions that participants noted were not common in their communities. This may be due to the upfront financial cost or the knowledge required to complete these actions. The more popular options chosen by participants were things that they could adapt to quickly and without much further

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research. There were quite a few community actions that differed significantly across geographic locations; the most highly significant differences were for reducing electricity consumption during peak hours ( $p < .001$ ), electric/hybrid vehicles ( $p < .001$ ), and public transit systems ( $p < .001$ ). Other significantly different responses included landscaping to increase public green spaces ( $p < .01$ ), utilizing a carpool or carshare ( $p < .01$ ), landscaping with drought-resistant vegetation ( $p < .05$ ), and education campaigns on climate stressors ( $p < .05$ ).

### Reasons for Inaction

To identify barriers to personal action, participants were asked, “which of the following are reasons why you may not take specific actions to reduce your health risks from climate stressors?” and given a list of options. The three most common responses, regardless of geographic location, were not knowing what to do, not having resources to act, and having other concerns. The only reason for inaction that significantly differed between rural and non-rural respondents was not owning a home ( $p < .01$ ); 12.6% of non-rural participants and 5.0% of rural participants identified this as a barrier to action.

When stratified by age group, there were significant differences in multiple reasons for inaction: not knowing what to do ( $p < 0.005$ ), not having the resources ( $p < 0.01$ ), and not having time ( $p < .0001$ ). A similar trend was seen across these three reasons for inaction; respondents in the 18-24 age group had opposite answer patterns compared to older respondents. As seen in figures 2a-c, respondents younger than 24 years old felt that not having knowledge, resources, or time were all reasons for inaction, whereas participants older than 24 years old did not identify these as reasons for inaction.

## Discussion

### Recognition and Concern

In general, respondents of the Climate Health Survey demonstrated a strong awareness of and concern for climate stressors, recognizing their presence at both broad and localized levels. Rural and non-rural respondents did have slightly different concerns with neighborhood stressors when it came to air quality. Non-rural participants were largely more concerned with air quality, specifically poor air quality due to motor transportation. This concern is likely influenced by higher population densities in urban areas, leading to more traffic congestion and increased pollution. Additionally, the Front Range, which encompasses most of the non-rural communities in Colorado, has consistently struggled with exceeding the National Ambient Air Quality Standard for ozone<sup>2</sup>. Residents of these communities are likely more concerned about this specific local climate stressor because it is one that they have been exposed to more frequently.

A higher percentage of non-rural respondents felt that average temperatures, wildfires, and days of poor air quality had increased in the last five years when compared to rural respondents. For these same climate indicators, a higher percentage of rural respondents answered that they were “not sure” how the indicator had changed compared to non-rural respondents. Research shows that Colorado is trending towards more frequent hot days, increased wildfire risk, and worsening air quality<sup>2</sup>. The differing perceptions between rural and non-rural respondents may be due to several factors. Colorado’s geographic diversity results in

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numerous microclimates, meaning climate trends are not experienced uniformly across the state. Differences in climate information access can further contribute to the perception gap. For example, rural residents may be less aware of declining air quality, as monitoring stations and public advisories are more common in urban areas.

Respondents were also aware of relevant health issues facing our state, such as cancer and cardiovascular disease<sup>3</sup>. Interestingly, participants showed a lot of concern for increasing temperatures and heat waves, but ranked kidney disease – a health impact associated with increasing temperatures<sup>4</sup> – as one of their lowest concerns. This disconnect suggests a potential gap in public awareness about the full spectrum of climate-related health risks. Health concerns varied significantly by age group, with older adults more likely to express concern about chronic conditions such as cardiovascular disease and respiratory illnesses, as well as human-transmitted infectious diseases. This is likely because the incidence of cardiovascular disease and respiratory illness increases with age.<sup>5,6</sup> Additionally, coming out of the COVID-19 pandemic, the general public seems to be more aware of the looming threat of infectious diseases. Older adults were more vulnerable during the pandemic, accounting for a higher number of hospitalizations and deaths due to the virus<sup>7</sup>.

In contrast, younger respondents prioritized concerns related to mental health and reproductive health outcomes. This emphasis may reflect growing recognition of climate anxiety and stress-related disorders, particularly among younger generations who are increasingly engaged in climate activism and discussions about mental health. The concern for reproductive health outcomes being more prevalent in younger age groups makes sense, as older populations have a lower fertility rate and are therefore not susceptible to these kinds of health effects. Reproductive health concerns may be increasing based on emerging research on how climate stressors—such as extreme heat and air pollution—can impact pregnancy outcomes, fertility, and maternal health.<sup>8,9</sup>

### Resilience and Adaptation

The majority of participants indicated that they felt they could take protective actions against climate stressors for themselves and their family. Interestingly, three out of the four least identified actions related to protecting oneself against extreme heat - one of the most pressing climate impacts for Colorado<sup>2</sup>. These protective actions - drinking more water, wearing sunscreen or protective clothing, and reducing outdoor activity – are also mostly free or low cost, indicating a possible area for outreach and capacity building. Respondents may not realize the impact that small actions can have; according to the CDC, drinking enough fluids is one of the most important ways to prevent heat illness, yet only 1 in 5 respondents indicated that they had taken this action.<sup>10</sup>

A hopeful result from this section is that many respondents indicated that they utilize early warning systems (69.5% of non-rural respondents; 75.3% of rural respondents) and stay informed on climate and health impacts (69.7% of non-rural respondents; 72.3% of rural respondents). Knowing that these lines of communication are open and being used by the public can be a useful tool in disseminating information.

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The community actions section was where we saw the most difference between rural and non-rural respondents. Rural participants highlighted efforts to reduce water usage, particularly in agricultural and landscape scenarios, whereas non-rural participants focused on reducing electricity consumption during peak hours. For rural communities, these actions reflect the reality that water is an already dwindling resource, yet a vital part of their livelihoods. As snow cover and groundwater supplies decrease, rural communities have no choice but to learn to adapt to these ever-changing conditions through reducing their water usage.<sup>11</sup>

### Reasons for Inaction

Respondents identified that a lack of knowledge and resources were key barriers to taking action on climate-related issues, as well as having other concerns that may divert their attention. Reasons for inaction such as lack of knowledge, resources, and time were particularly prominent for respondents in the 18-24 age group. Though certain large-scale climate adaptations do require significant knowledge and resources upfront, there are many smaller actions that participants could take and still impart a difference. For example, participants struggled to identify protective actions that are free or low-cost, such as drinking more water, wearing sunscreen or protective clothing, and adjusting outdoor activities based on extreme heat or poor air quality. This gap in knowledge may stem from limited public outreach, scientific communication barriers, or a perceived disconnect between personal actions and climate impacts. There is an opportunity here to create more accessible information on adaptation strategies, especially targeting those in the 18-24 age range.

### Survey Limitations

Since the TABS survey is administered every 3-4 years, it is possible that participants have changed residence since their initial participation. While the survey specifically asked about the Colorado region, responses may have been biased if participants moved to another state or another portion of Colorado with variation in climate.

Additionally, a limited number of participants provided feedback on specific survey items which inherently influenced the way they could respond. As one participant mentioned, “You’ve apparently already decided that ‘climate change’ will be detrimental to human health. This is evident by the fact [that] you didn’t ask if we thought climate change was going to affect our health. Instead, you gave us a list of ailments to choose from and did not give ‘NONE’ as one of the choices.” Another participant commented that by having the Qualtrics platform required participants to fully identify five vulnerable populations, that they were unable to convey that they only considered one of the listed populations to be truly at risk

### Response Bias

As demonstrated by chi-squared tests, our results may be influenced by response bias. We observed a statistically significant difference in distribution of age groups, race and ethnicity, income, education, and geographic location when we compared Climate Health Survey respondents with non-respondents. While recruitment of the original TABS cohort intentionally oversamples marginalized populations, and our follow-up recruitment attempted to promote responses from rural areas – the generalizability of this data may still be limited due to elevated responses from participants who are older, are white, hold higher levels of education, have greater household income, and have non-rural resident status.

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### Conclusion and Key Takeaways

The results of the Climate Health Survey have indicated that Colorado residents have a high level of awareness for general climate indicators and local impacts due to climate change. Rural and non-rural participants differed in their perception of average temperature ( $p < .01$ ), wildfires ( $p < .001$ ) and days of poor air quality ( $p < .001$ ), with a higher percentage of non-rural participants expressing that these climate indicators had worsened in the last five years.

Respondents generally agreed that climate stressors would impact their health, with stratifications across age groups showing differing levels of concern for specific adverse health outcomes. Older adults expressed more concern for chronic outcomes such as cardiovascular disease and respiratory illnesses, as well as infectious diseases spread by humans. Younger adults rated higher concerns as mental health illness and reproductive outcomes. An interesting result of the survey was lack of concern for kidney disease, as this is a possible health outcome from extreme heat.

Participants were optimistic on their ability to take protective action against climate stressors, with 7 out of 10 respondents indicating they felt they could take action to protect themselves and their families against climate stressors relating to health. Respondents are already engaging in many protective actions. However, they may be overlooking some of the simplest behavioral changes that can protect against extreme heat and poor air quality, namely drinking more water, wearing sunscreen or protective clothing, and reducing outdoor activity. Respondents indicated a high-level of use of early warning monitor systems and finding ways to educate themselves on climate stressors and health impacts, another hopeful sign that Coloradans are open to engage with climate and health information. Main reasons that participants indicated for not taking action to protect themselves from climate stressors included not knowing what to do and not having the resources to act. A high percentage of participants also felt they had other concerns which may divert their attention from climate or health impacts.

Overall, these findings highlight both strengths and gaps in climate health preparedness. Coloradans recognize key climate stressors and their health impacts and are eager to take action but often lack the necessary information or resources. This presents an opportunity for capacity building, particularly through tailored educational materials that address demographic-specific risks and actions. In climate communications, this tactic is known as audience segmentation — the process of dividing a larger population into homogenous subgroups to convey more relevant and actionable messaging<sup>12</sup>. For example, messaging for outdoor workers in rural areas might focus on heat-related illness prevention, while urban youth may respond better to content on air quality and mental health impacts. Additionally, emphasizing quick, free, or low-cost adaptive measures could help bridge the gap between awareness and action.



## The Attitudes and Behaviors Surveys (TABS) on Health

### For More Information

For additional information about the Mountain West Climate-Health Engagement Hub and the National Institutes of Health's Alliance for Community Engagement in Climate and Health Program, please see the following:

<https://www.mw-climatehealth.com/>

<https://www.nih.gov/climateandhealth>



## References

## Appendix A: Tables

**Table 1: Distribution of Demographic Characteristics**

	Total		Wave 1		Wave 2	
	Frequency	%	Frequency	% of Total <sup>^</sup>	Frequency	% of Total <sup>^</sup>
<u>Age Group</u>						
18-24	18	2%	16	2%	2	<1%
25-29	50	5%	49	5%	1	1%
30-44	303	31%	274	28%	26	27%
45-54	140	14%	121	13%	17	18%
55-64	176	18%	150	15%	23	24%
65+	292	30%	262	27%	27	28%
<u>Race/Ethnicity</u>						
American Indian/Alaska Native	1	<1%	1	<1%	0	0%
Asian/Asian American/Pacific Islander	22	2%	20	2%	2	<1%
Black/African American	14	1%	13	1%	0	0%
Hispanic (predominantly English speaking)	61	6%	53	5%	7	1%
Hispanic (predominantly Spanish speaking)	19	2%	18	2%	1	<1%
White	843	86%	748	77%	86	9%
Other	19	2%	19	2%	0	0%
<u>Sex</u>						
Female	574	59%	520	54%	49	5%
Male	405	41%	352	36%	47	5%
<u>LGBTQ+ Status</u>						
Cisgender, heterosexual	895	92%	793	83%	91	9%

### The Attitudes and Behaviors Surveys (TABS) on Health

LGBT	75	8%	70	7%	5	1%
<u>Geographic Location</u>						
Rural	252	26%	186	19%	64	7%
Non-Rural	727	74%	71	32%	3	71%
<u>Length of Colorado Residence</u>						
0-3 years	64	7%	53	6%	10	1%
More than 3 years	894	93%	799	84%	85	9%
<u>Level of Education</u>						
0-8 years	2	<1%	2	<1%	0	0%
9-11 years	4	<1%	3	<1%	1	<1%
GED	16	2%	14	1%	2	<1%
12 <sup>th</sup> grade	2	<1%	1	<1%	1	<1%
High school graduate	54	6%	47	5%	6	1%
Post high school	20	2%	15	2%	5	1%
Some college	198	20%	174	18%	22	2%
College graduate	358	37%	327	34%	29	3%
MA/PhD or higher	325	33%	289	30%	30	3%
<u>Income</u>						
\$7,500	10	1%	8	1%	2	<1%
\$12,500	10	1%	9	1%	1	<1%
\$17,500	13	1%	11	1%	2	<1%
\$22,500	26	3%	22	2%	4	<1%
\$30,000	72	8%	65	7%	7	1%
\$42,500	87	9%	75	8%	11	1%
\$62,500	180	19%	163	17%	15	2%
\$87,500	133	14%	114	12%	17	2%
\$125,000	215	23%	198	21%	17	2%
\$175,000	88	9%	82	9%	6	1%
\$200,000	117	12%	101	11%	11	1%

^Represents the % of each variable level per recruitment wave compared to the total sample

## The Attitudes and Behaviors Surveys (TABS) on Health

## The Attitudes and Behaviors Surveys (TABS) on Health

**Table 2: Differences in perceived climate related changes by geographic location**

Compared to five years ago, how have the following things changed?

	Non-Rural				Rural			
	Increase	Same	Decline	Unsure	Increase	Same	Decline	Unsure
Annual Precipitation	13.4%	27.3%	45.8%	13.5%	9.5%	32.8%	42.2%	15.4%
**Average Temperature	81.5%	14.1%	1.0%	3.4%	70.9%	20.3%	0.4%	8.4%
Water Resources	2.2%	37.5%	45.7%	14.6%	4.6%	42.0%	44.7%	8.6%
Mosquitoes	25.4%	43.0%	14.8%	16.8%	33.9%	43.9%	8.7%	13.5%
*Ticks	13.9%	27.8%	3.8%	54.4%	17.9%	37.3%	4.2%	40.6%
Drought	60.2%	8.2%	19.7%	11.9%	53.2%	7.8%	26.4%	12.6%
Heat Waves	81.1%	0.8%	13.8%	4.4%	72.4%	2.5%	17.6%	7.5%
***Wildfires	81.8%	3.1%	13.0%	2.1%	65.9%	5.1%	21.2%	7.9%
***Days of Poor Air Quality	81.8%	1.6%	10.2%	6.4%	61.7%	3.9%	24.1%	10.2%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

The Attitudes and Behaviors Surveys (TABS) on Health

**Table 3a: Concern over neighborhood stressor by geographic location (Non-Rural)**

Thinking about your own neighborhood, how concerned are you about the following stressors?

	Completely Unconcerned	Moderately Unconcerned	Slightly Unconcerned	Neutral	Slightly Concerned	Moderately Concerned	Completely Concerned
***Air quality (Wildfires)	1.3%	4.2%	3.3%	8.8%	26.3%	34.4%	21.6%
***Air quality (Motor transportation)	3.9%	6.4%	6.4%	16.9%	26.2%	25.3%	14.9%
*Air quality (Dust/particulate)	3.5%	5.5%	6.0%	22.9%	25.8%	21.8%	14.5%
Annual precipitation	1.7%	3.1%	3.4%	12.5%	25.9%	28.5%	24.9%
*Average temperature	1.7%	3.3%	2.2%	11.0%	21.2%	29.4%	31.3%
Drought	1.1%	2.8%	2.1%	9.8%	23.5%	31.5%	29.1%
Heat waves	1.9%	2.5%	2.8%	8.3%	21.8%	28.3%	34.4%
Insect presence (mosquitoes)	3.0%	5.5%	8.5%	27.6%	25.7%	21.5%	8.1%
Insect presence (ticks)	6.7%	6.7%	8.5%	37.5%	17.7%	16.1%	6.8%
Water Quality (bacteria/virus)	8.0%	6.1%	8.0%	17.5%	19.8%	20.0%	20.6%
Water Quality (chemical-based contaminants)	6.6%	4.5%	6.5%	13.3%	21.9%	21.0%	26.1%
Wildfires	2.1%	2.9%	2.7%	4.0%	18.3%	26.1%	43.8%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

The Attitudes and Behaviors Surveys (TABS) on Health

**Table 3b: Concern over neighborhood stressor by geographic location (Rural)**

Thinking about your own neighborhood, how concerned are you about the following stressors?

	Completely Unconcerned	Moderately Unconcerned	Slightly Unconcerned	Neutral	Slightly Concerned	Moderately Concerned	Completely Concerned
***Air quality (Wildfires)	6.2%	9.6%	6.9%	9.9%	29.8%	21.0%	16.6%
***Air quality (Motor transportation)	19.1%	13.9%	11.3%	14.2%	17.4%	15.7%	8.4%
*Air quality (Dust/particulate)	9.7%	9.6%	7.1%	16.1%	24.6%	21.8%	11.0%
Annual precipitation	3.6%	4.3%	2.9%	14.2%	17.0%	28.2%	29.8%
*Average temperature	6.6%	2.5%	1.9%	13.5%	21.3%	29.6%	24.6%
Drought	2.8%	4.5%	1.3%	8.6%	19.0%	26.9%	36.9%
Heat waves	5.3%	4.0%	1.4%	12.3%	19.9%	28.0%	29.0%
Insect presence (mosquitoes)	3.7%	7.3%	4.9%	22.3%	25.7%	23.2%	12.9%
Insect presence (ticks)	10.1%	4.3%	8.3%	33.8%	16.0%	16.0%	11.5%
Water Quality (bacteria/virus)	12.2%	4.1%	9.6%	15.7%	17.6%	19.1%	21.7%
Water Quality (chemical-based contaminants)	8.3%	4.7%	7.1%	13.0%	21.7%	20.9%	26.5%
Wildfires	4.3%	3.5%	3.4%	7.9%	15.3%	25.5%	40.0%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001



The Attitudes and Behaviors Surveys (TABS) on Health

**Table 4: In terms of your own health, which risk are you most concerned about?**

In terms of your own health, which risks are you most concerned about?

	Non-Rural		Rural	
	Unconcerned	Concerned	Unconcerned	Concerned
Allergies	53.0%	47.0%	51.7%	48.3%
Asthma	82.5%	17.5%	80.0%	20.0%
Cancer	40.5%	59.5%	39.2%	60.8%
Cardiovascular Disease	54.6%	45.4%	56.0%	44.0%
Infectious Disease (Animals)	94.8%	5.2%	95.7%	4.3%
Infectious Disease (Mosquitoes)	67.7%	32.3%	69.3%	30.7%
*Infectious Disease (Ticks)	84.8%	15.2%	77.8%	22.2%
Infectious Disease (People)	54.4%	45.6%	56.6%	43.4%
Infectious Disease (Water)	75.6%	24.4%	78.9%	21.1%
Hunger/Malnutrition	94.3%	5.7%	92.4%	7.6%
Kidney Disease	91.9%	8.1%	89.1%	10.9%
Mental Health	51.1%	48.9%	55.6%	44.4%
Physical Injury/Harm	74.2%	25.8%	76.4%	23.6%
Respiratory Condition	65.6%	34.4%	65.7%	34.3%
Reproductive Outcomes	91.8%	8.2%	94.6%	5.4%
Other	95.2%	4.8%	94.8%	5.2%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

## The Attitudes and Behaviors Surveys (TABS) on Health

**Table 5: Perceived vulnerable groups**

From your perspective, which groups of people are at the greatest risk for negative health outcomes?

	Non-Rural		Rural	
	Not Vulnerable	Vulnerable	Not Vulnerable	Vulnerable
Older Adults (65 and older)	10.5%	89.9%	8.4%	91.6%
Children (Younger than 5)	39.2%	60.8%	42.3%	57.7%
Outdoor Workers	40.5%	59.5%	40.0%	60.0%
People who are Pregnant	71.7%	28.2%	77.1%	22.9%
People with Chronic Physical Health Conditions	25.3%	74.7%	24.6%	75.4%
People with Mental Health Conditions	75.5%	24.5%	72.4%	27.6%
People with Cognitive Disabilities	89.4%	10.6%	87.1%	12.9%
People with Physical Disabilities	21.5%	78.5%	15.8%	84.2%
People with Limited Resources	34.8%	65.2%	38.5%	61.5%
*Residents of Rural Communities	92.7%	7.3%	87.1%	12.9%
Residents of Urban Communities	90.9%	9.1%	88.1%	11.9%
*Unhoused Population	55.9%	44.1%	65.9%	34.1%
Other	96.7%	3.3%	97.1%	2.9%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

## The Attitudes and Behaviors Surveys (TABS) on Health

**Table 6: Personal protective actions**

What actions have you taken over the past year to reduce the impact of climate stressors on your personal health?

	Non-Rural		Rural	
	Action Identified	Unsure	Action Identified	Unsure
Drinking more water	20.9%	79.1%	19.6%	80.4%
Installing cooling systems	82.2%	17.8%	75.4%	24.6%
Installing energy efficient windows	87.6%	12.4%	85.3%	14.7%
Monitoring early warning systems	69.5%	30.5%	75.3%	24.7%
Reducing outdoor activity (peak heat hours)	38.1%	61.9%	40.7%	59.3%
Reducing outdoor activity (poor AQ days)	38.2%	61.8%	46.8%	53.2%
Staying informed on climate stressors and health impacts	69.7%	30.3%	72.3%	27.7%
Using drinking water filters	54.7%	45.3%	62.6%	37.4%
Using in-home air purifiers	70.6%	29.4%	76.9%	23.1%
*Using indoor recreation spaces	82.9%	17.1%	91.4%	8.6%
Wearing face masks during AQ alert days	91.9%	8.1%	90.8%	9.2%
Wearing sunscreen or protective clothing	30.4%	69.6%	33.5%	66.5%
Other	3.1%	96.9%	1.6%	98.4%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

## The Attitudes and Behaviors Surveys (TABS) on Health

### Table 7: Community actions

What actions do people in your community currently take to reduce contributions to climate stressors?

	Non-Rural		Rural	
	Not Currently	Currently	Not Currently	Currently
Building codes promoting cooling technology	83.0%	17.0%	79.6%	20.4%
*Education campaigns on climate stressors	75.6%	24.4%	83.4%	16.6%
Individual/community composting	76.8%	23.2%	74.1%	25.9%
Installing green or cooling roofs	85.2%	14.8%	90.1%	9.9%
**Landscaping to increase public green spaces	67.5%	32.5%	79.9%	20.1%
*Landscaping with drought-resistant vegetation or xeriscape	48.4%	51.6%	59.4%	40.6%
Planting trees to increase canopy and shade	60.5%	39.5%	65.0%	35.0%
***Reduced electricity consumption during peak-use times	59.6%	40.4%	76.5%	23.5%
Reducing water usage (agriculture/landscaping)	60.5%	39.5%	63.5%	36.5%
Reducing water usage (household)	59.2%	40.8%	66.7%	33.3%
Retrofitting homes	95.7%	4.3%	92.8%	7.2%
**Carpool/carshare	80.9%	19.1%	89.8%	10.2%
***Electric/hybrid vehicles	38.8%	62.0%	62.2%	37.8%
***Public transit systems	52.4%	47.6%	68.1%	31.9%
Walking, biking, or other motor transit alternatives	60.9%	39.1%	59.8%	40.2%
Other	96.4%	3.6%	97.3%	2.7%

Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

## The Attitudes and Behaviors Surveys (TABS) on Health

**Table 8: Reasons for inaction**

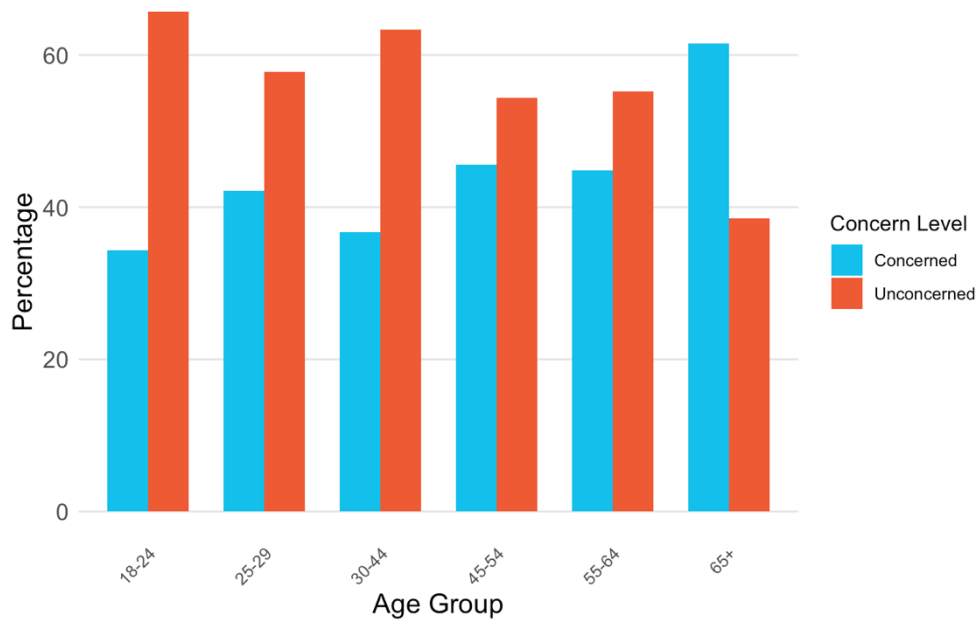
Which of the following are reasons why you may not take specific actions to reduce your health risks from climate stressors?

	Non-Rural		Rural	
	Not identified	Identified	Not identified	Identified
I don't know what to do	64.6%	35.4%	68.2%	31.8%
I don't have the resources	64.6%	35.4%	56.2%	43.8%
I have other concerns	70.6%	29.4%	69.8%	30.2%
I don't have the time	86.3%	13.7%	86.1%	13.9%
I don't own a car	98.6%	1.4%	96.4%	3.6%
**I don't own a home	87.4%	12.6%	95.0%	5.0%
I don't believe it will make a difference	78.1%	21.9%	82.6%	17.4%
Other	60.1%	39.9%	62.4%	37.6%

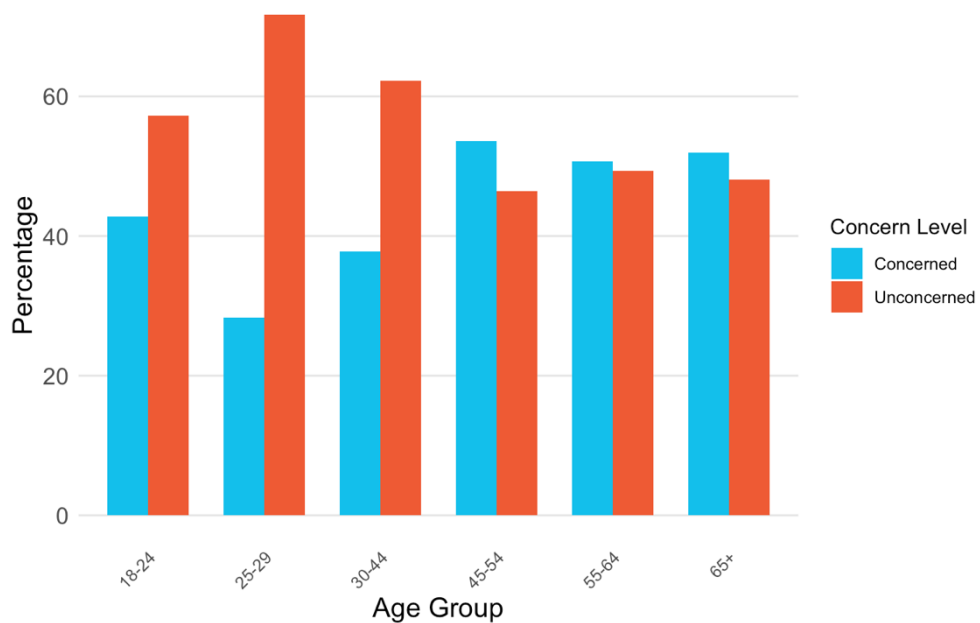
Notes: \*p < .05; \*\*p < .01; \*\*\* p < .001

## Appendix B: Figures

**Figure 1a: Individual Health Concern by Age Group – Cardiovascular Disease**

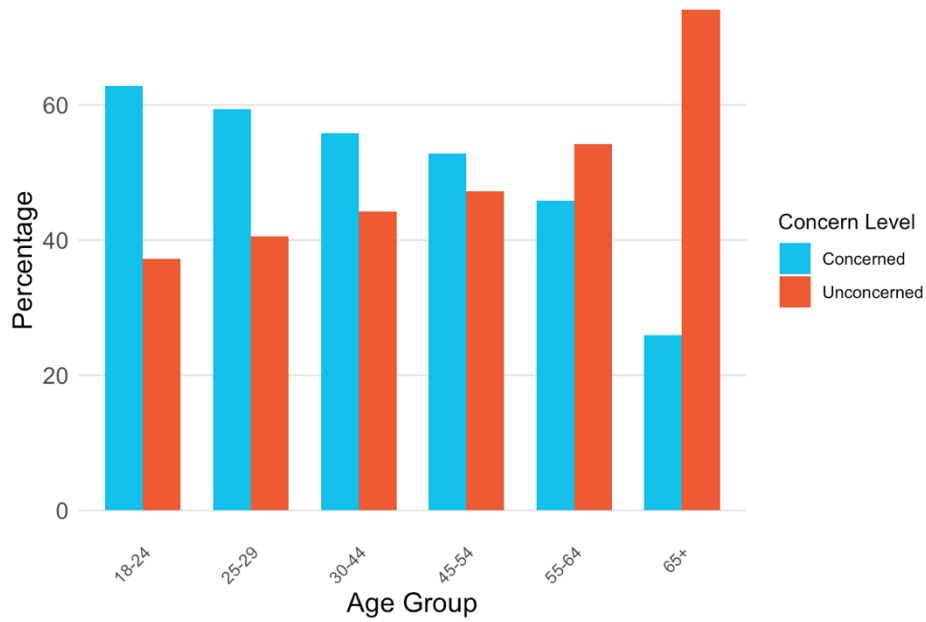


**Figure 1b: Individual Health Concern by Age Group – Infectious Diseases from Humans**

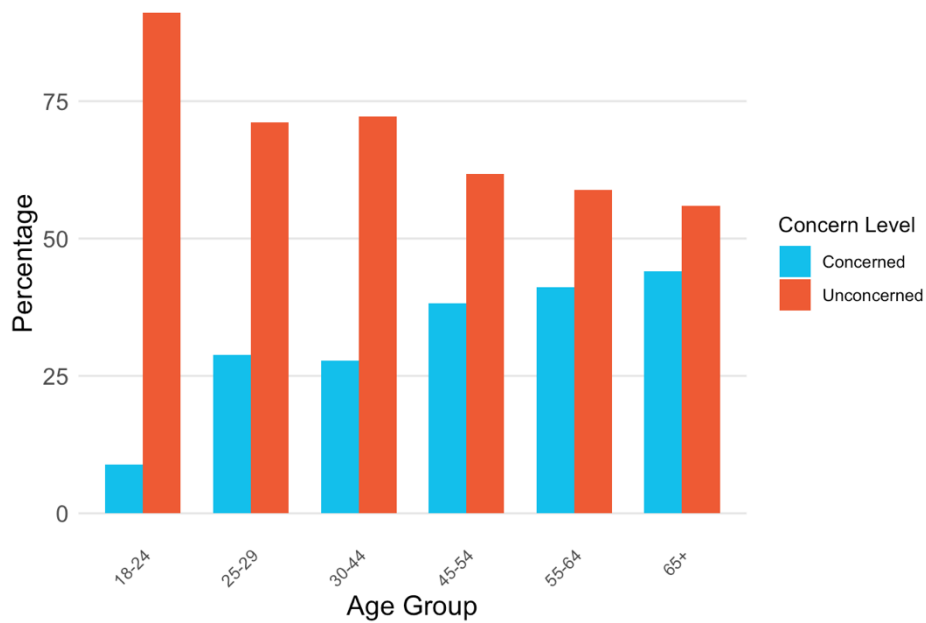


## The Attitudes and Behaviors Surveys (TABS) on Health

**Figure 1c: Individual Health Concern by Age Group – Mental Health Condition**

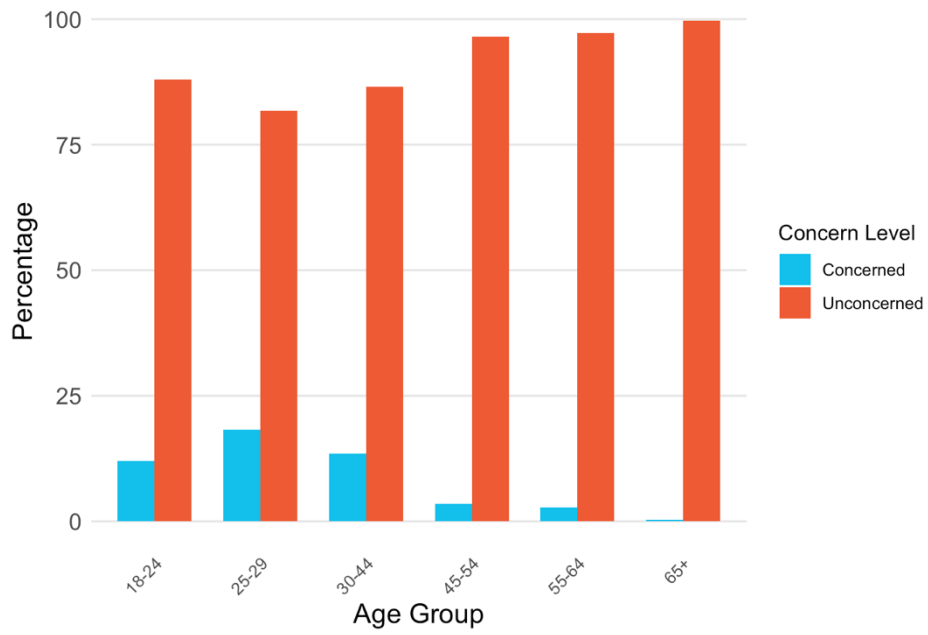


**Figure 1d: Individual Health Concern by Age Group – Respiratory Condition**



## The Attitudes and Behaviors Surveys (TABS) on Health

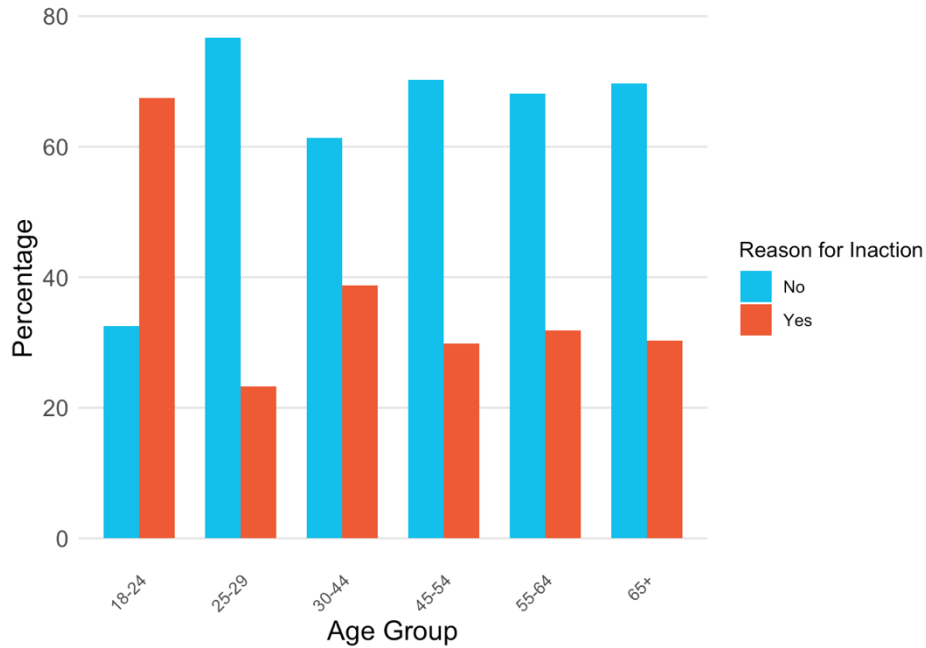
### Figure 1e: Individual Health Concern by Age Group – Reproductive Outcome



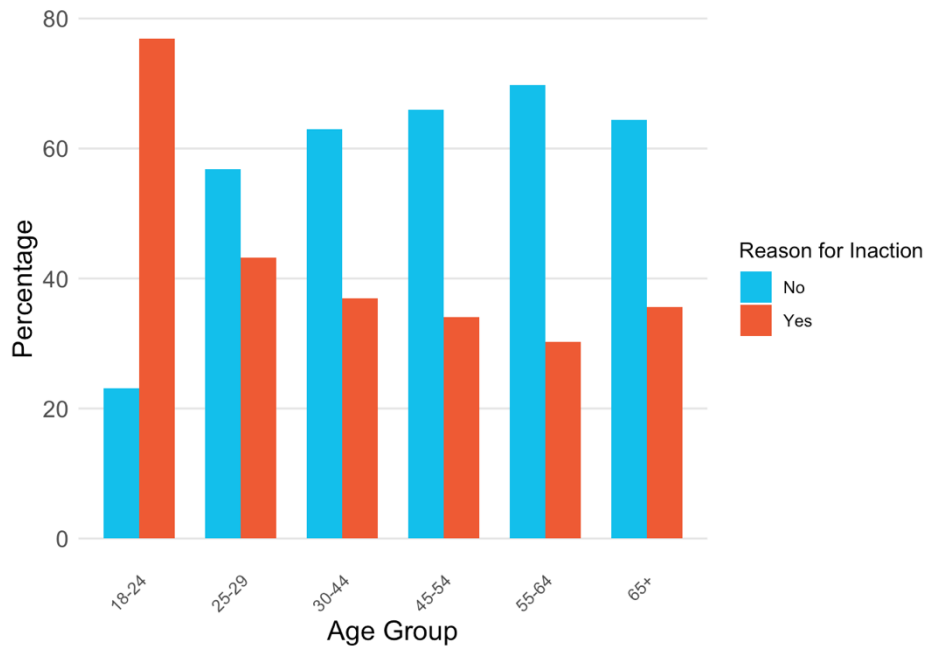


## The Attitudes and Behaviors Surveys (TABS) on Health

**Figure 2a: Reason for Inaction by Age Group - “I don’t know what to do”**

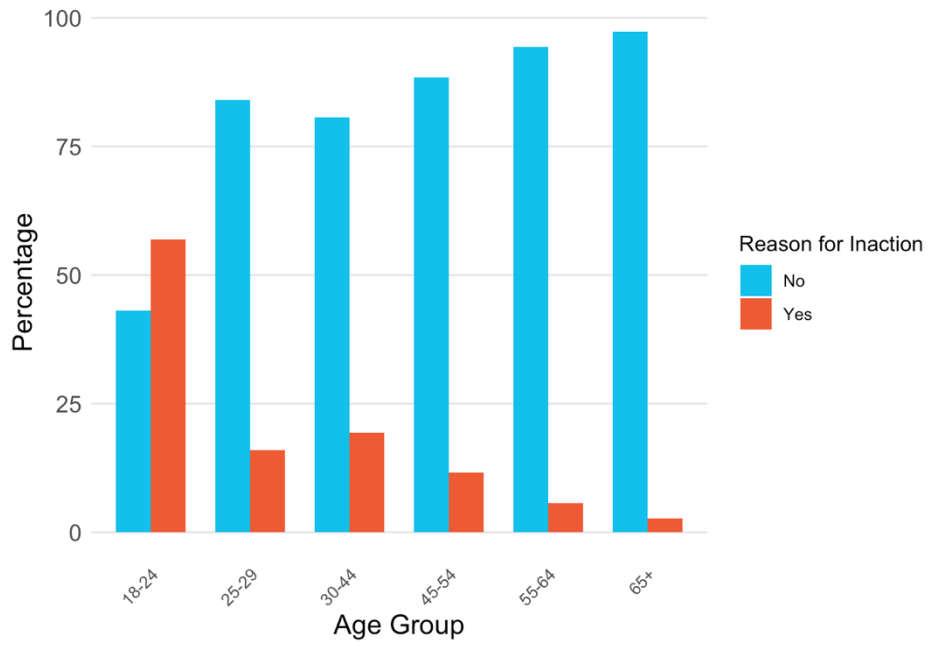


**Figure 2b: Reason for Inaction by Age Group - “I don’t have the resources”**



## The Attitudes and Behaviors Surveys (TABS) on Health

**Figure 2c: Reason for Inaction by Age Group - “I don’t have time”**



## The Attitudes and Behaviors Surveys (TABS) on Health

### Appendix C: Climate Health Survey

#### Objectives

Complete a population-based survey in the state of Colorado exploring perspectives on climate stressors and the associated climate health outcomes.

#### Research Questions

1. Do Colorado residents recognize the occurrence of climate stressors?
2. Do Colorado residents connect the occurrence of climate stressors with health outcomes?
3. Do Colorado residents recognize that certain populations are at higher risk for health impacts due to climate stressors and extreme weather events?
4. Do Colorado residents know adaptation strategies for climate stressors and extreme weather events?
5. How concerned are Colorado residents with climate stressors?
6. For all the above, are there differences in perceptions based on demographics (sex, age, ethnicity, education), social determinants of health (neighborhood, working status), geography (rural vs urban), and current health status (mental and physical health)?

---

#### Screening for Recruitment

TABS (James) (n=1000 statewide)

- Length of CO residence (> 4 years) and previously provided email

CO Prescribed Burn Project (Dickinson) (n=1500 statewide)

Denver Housing Authority (Dickinson) (n=?? Denver metro area)

SLV Drought Study (James) (~650 people)

- Previously provided email and 'active'

---

#### Greetings!

*We are asking Colorado residents about their experiences with different environmental and climate-related factors, including air quality, water quality, drought, heat, insects, and wildfires. In these questions, we will refer to these factors as “climate stressors.” Information gathered in this survey will be used to inform the work of the Mountain West Climate-Health Engagement Hub. The objectives of the MW Hub are to:*

- *Understand how communities are experiencing climate stressors*
- *Identify priorities, opportunities, and assets to advance climate justice*
- *Build capacity for innovative and effective research and action*

*This survey should take approximately 10-15 minutes to complete. Participation is completely voluntary, and you may stop your participation at any time. The survey is completely anonymous. Data will only be presented in aggregate form (percentages and proportions). With completion of the survey, participants will be provided a \$10 gift card.*

*If you have any questions specific to the survey, please email [add email]. This survey has been approved by the Colorado Multiple Institution Review Board under protocol #05-0785. Questions*

## The Attitudes and Behaviors Surveys (TABS) on Health

regarding your rights and entitlements as a participant can be directed to the IRB at [COMIRB@cudenver.edu](mailto:COMIRB@cudenver.edu) or 303-724-1055.

### **Section 1: Occurrence of Climate Stressors and Extreme Weather Events**

For the following questions about climate stressors, please think about the area where you live most of the time.

1. **Compared to five years ago, do you feel that the overall AIR QUALITY has...**  
*Improved      Stayed the same      Declined      I'm not sure*
2. **Compared to five years ago, do you feel that the ANNUAL PRECIPITATION (rain/snow fall) has...**  
*Increased      Stayed the same      Decreased      I'm not sure*
3. **Compared to five years ago, do you feel that the AVERAGE TEMPERATURE has...**  
*Increased      Stayed the same      Decreased      I'm not sure*
4. **Compared to five years ago, do you feel that the amount of available WATER RESOURCES has...**  
*Increased      Stayed the same      Decreased      I'm not sure*
5. **Compared to five years ago, do you feel that the presence of MOSQUITOES has...**  
*Increased      Stayed the same      Decreased      I'm not sure*
6. **Compared to five years ago, do you feel that the presence of TICKS has...**  
*Increased      Stayed the same      Decreased      I'm not sure*
7. **Compared to five years ago, do you feel that DROUGHT occurs...**  
*More often      The same      Less often      I'm not sure*
8. **Compared to five years ago, do you feel that HEAT WAVES occur...**  
*More often      The same      Less often      I'm not sure*
9. **Compared to five years ago, do you feel that WILDFIRES occur...**  
*More often      The same      Less often      I'm not sure*
10. **Thinking about your own neighborhood, how concerned are you with the following stressors?**
  - a. Air quality (due to wildfires)
  - b. Air quality (due to motor transportation)
  - c. Air quality (due to dust/particulate matter)
  - d. Air quality (other) \_\_\_\_\_
  - e. Annual precipitation
  - f. Average temperature
  - g. Drought
  - h. Heat waves/Temperature
  - i. Insect presence (mosquitoes/ticks)
  - j. Water quality (bacteria/viruses)
  - k. Water quality (chemical-based contaminants)
  - l. Water quality (other) \_\_\_\_\_
  - m. Wildfires

Completely unconcerned    Unconcerned    Neutral    Concerned    Very concerned

## The Attitudes and Behaviors Surveys (TABS) on Health

### Section 2: Health Risks

Now we will ask for your perceptions on health risks related to these climate stressors. Remember, for this survey we're defining climate stressors as air quality, water quality, drought, heat, and wildfires.

**11. Listed below are potential health risks related to climate stressors. In terms of your own health, which five risks are you most concerned about?** [select five]

- Allergies/allergic symptoms
- Asthma
- Cancer (e.g. skin cancer)
- Cardiovascular disease (e.g. heart attack, high blood pressure, stroke)
- Diabetes
- Infectious diseases from animals (e.g. rabies)
- Infectious diseases from mosquitoes (e.g. West Nile Virus)
- Infectious diseases from ticks (e.g. Lyme Disease)
- Infectious diseases from people (e.g. COVID-19, influenza)
- Infectious diseases from water contamination (e.g. E. Coli)
- Heat-related illness (e.g. heat strain/exhaustion/stroke, dehydration)
- Hunger/malnutrition
- Kidney disease (e.g. chronic kidney disease)
- Mental health (e.g. emotional distress, stress, depression, anxiety, eco-anxiety)
- Physical harm/injury
- Respiratory conditions (e.g. bronchitis, COPD, pneumonia)
- Reproductive outcomes (e.g. infertility, miscarriage, per-term birth, low birth weight)
- Other, specify \_\_\_\_\_
- I'm not sure

**12. Listed below are groups of people at higher risk for health impacts due to climate stressors. From your perspective, which 5 groups of people are at greatest risk for negative health outcomes due to climate stressors?**

- Aging populations (65 years old or older)
- Children < 5 years
- Outdoor workers (e.g. farmers, miners, construction workers, oil and gas workers)
- People who are pregnant
  
- People with chronic physical health conditions (e.g. asthma, diabetes)
- People with mental health conditions (e.g. anxiety, depression)
- People with cognitive disabilities
- People with physical disabilities
- People with limited resources (e.g. income, housing, transportation, health care)
- Residents of rural communities
- Residents of urban communities
- Other, specify \_\_\_\_\_

**13. Please tell us how much you agree or disagree with the statement "Climate stressors will affect my health over the next 5 years".**

Strongly\_\_ Disagree Somewhat\_\_ Neither/nor Somewhat\_\_ Agree Strongly\_\_

## The Attitudes and Behaviors Surveys (TABS) on Health

Now we will ask for your perceptions of how these climate stressors impact your community. Remember, for this survey we're defining climate stressors as issues related to air quality, water quality, drought, heat, and wildfires.

**Please tell us how much you agree or disagree with the following statement. "I can take actions now to protect my family and community from the effects of a changing climate."**

Strongly\_\_ Disagree Somewhat\_\_ Neither/nor Somewhat\_\_ Agree Strongly\_\_

### 14. What actions do people in your community currently take to reduce your contribution to climate stressors?

- a. Building codes promoting new cooling technology
- b. Education campaigns on climate stressors
- c. Individual/community composting
- d. Installing "green" or cooling roofs
- e. Landscaping to increase public green spaces (e.g. parks, gardens)
- f. Landscaping with drought-resistant vegetation or xeriscape
- g. Planting trees to increase canopy and shade
- h. Reduced electricity consumption during "peak-use" times
- i. Reduced water usage (agriculture/landscaping)
- j. Reduced water usage (household)
- k. Retrofitting homes \_\_\_\_\_
- l. Using carpool/carshare
- m. Using public transit systems
- n. Walking, biking, or other alternatives to motor transportation
- o. I'm don't know
- p. Other, specify \_\_\_\_\_

### 15. What actions have you taken over the past year to reduce the impact of climate stressors on your personal health?

- Drinking more water
- Installing cooling systems (e.g. air conditioning, swamp coolers)
- Installing energy efficient windows
- Monitoring early warning systems for local heat and air quality
- Reducing outdoor activity during peak heat hours
- Reducing outdoor activity during air quality alert days
- Staying informed about climate stressors and impact on health
- Using drinking water filters
- Using in-home air purifiers
- Using indoor recreation spaces
- Wearing face masks during air quality alert days
- Wearing sun-protective clothing or sunscreen
- Other, specify \_\_\_\_\_
- None

## The Attitudes and Behaviors Surveys (TABS) on Health

## The Attitudes and Behaviors Surveys (TABS) on Health

**16. Which of the following are reasons why you may not take specific actions to reduce your health risks from climate stressors? Check all that apply.**

- I don't know what to do.
- I don't have the resources
- I have other important concerns to prioritize
- I don't have the time
- I don't own a car
- I don't own my home
- I do not feel it will make a difference
- Other \_\_\_\_\_

**17. Is there anything else you'd like to share about your experiences or concerns related to climate stressors and health?**