The Connection between Mental Health and Climate Change in Maryland's Youth Population

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Introduction and Background

Climate change and mental health are two relevant topics in modern society. Climate change affects a variety of constituents both physically and mentally. The correlation between climate change and mental health, specifically for young people, must be examined more closely.

There is currently minimal research to establish whether climate change impacts youth mental health in Maryland. What has been established is that climate change is anxiety-inducing. It can cause people to worry about the future and engender feelings of hopelessness. To expand, "People who are experiencing anxiety about climate change (or eco-anxiety) will feel genuine distress that can limit their daily activities and lead to serious depressive and anxious symptoms" (Léger-Goodes, et al. 2022).

The Maryland Department of Natural Resources (DNR) would like to better understand this correlation, and understand connections between young people, climate change, and mental health in Maryland.

This capstone project aims to design surveys that apply extensive research about survey methodology and survey question design. This project also offers implementation recommendations if DNR chooses to pursue these surveys.

To provide more context, this paper and the surveys focus specifically on the Baltimore area, which experiences natural disaster flooding at much higher rates compared to other locations in Maryland. There are different types of stress-causing natural disasters; this report looks at flooding because it's common in Maryland areas that border a body of water. Many of our student peers have experienced increased levels of flooding in their towns. Increased flooding levels can cause stress for youth and create long-lasting trauma in their lives. Further, by 2045 Baltimore is projected to face more than a 10-fold increase in the number of tidal floods each year, because of sea level rise alone (Union of Concerned Scientists, 2016).

This paper aims to identify the most effective methods to study the correlation and effect of climate change on young people's mental health in Maryland. It is essential to understand if areas in Maryland with more concentrated effects of climate change, most specifically flooding, affect youth's perception of the climate crisis and increase their eco-anxiety

Research Question and Proposal

We studied the effects of climate change on young people's mental health within Maryland alongside Maryland's Department of Natural Resources. For project purposes, we defined young people as ages 11 to 24. We focused on different regions within the state that are affected by climate change. This topic lacks the amount of data and research needed to fully understand young people's eco-anxiety regarding their communities and the climate crisis. We focused on several objectives:

- How do young people with different demographics (race, socio-economic status, political affiliation, etc.) process climate change?
- How does eco-anxiety affect the mental health of young people?
- Are there different ways that young people talk about climate change?
- How do young people communicate their feelings about climate change?
- Are there resources for young people who have been affected by climate change?

We aimed our research to identify young people's perception of climate change, eco-anxiety, and their mental health, and to establish any correlations between them. While we plan to gather research from more areas in Maryland, this project focuses on Baltimore. Baltimore has affected by an increased level of flooding in recent years. Our objective was to better understand how this increase can also increase the eco-anxiety and general mental health of young people. We aimed to identify the correlation between youth mental health and climate change.

Literature Review

Previous research identifies a correlation between the impacts of climate change and people's physical health. When people's health declines physically, it ultimately takes a toll on them mentally. Our literature review further identified a rise in both climate change impacts and mental health issues, specifically among youth. However, while there is an established connection between people, mental health, and climate change, little information exists about children and, even more specifically, in Maryland.

Natural disasters that result from climate change can harm communities and individuals. Destruction of communities and homes impose extreme levels of stress on families, can be confusing for children, and can create a sense of instability.

Our literature review establishes that climate change imposes many negative mental health effects on individuals. Whether a particular event or the larger concept of climate change, some people are deeply affected by feelings of loss, helplessness, and frustration. They feel unable to make a difference in stopping climate change (Chukwuorji, Ifeagwazi).

Among Maryland residents, 31percent said people in the United States are "very vulnerable" to the health effects of climate change, more vulnerable than themselves (11 percent) or those in their households (13 percent) (Akerlof, 2015). In Maryland, flooding is common near bodies of water. In Baltimore, flooding has been a consistent issue and is predicted to increase over the next decade as a direct effect of climate change.

Community demographics and income also influence whether families and individuals can recover from a natural disaster. Communities with less access to resources are more likely to experience long-lasting effects from natural disasters. This can cause extreme mental stress and provide children with a sense of instability.

From this research, we suggest that climate change influences mental health. Awareness of the climate crisis is associated with emotional distress. Since children's brains are still developing, the climate crisis can affect them more seriously, especially those who already experience mental health issues.

Young people with pre-existing mental illnesses may be at elevated risk for climate change-related mental health effects. Climate activism is associated with positive development but may also be a source of increased stress (Nieuwenhuizen, Hudson, Chen, Hwong, 2021). Climate change can instill fear in children, which ultimately leads them to worry about their futures. This fear can have lasting effects on their mental health and can increase overall anxiety levels. We found that youth are very much affected by natural disasters experienced in their developmental years.

While there isn't abundant research on the effect of climate change on youth mental health, it has been implied in research surrounding this field. Therefore, this project aims to better understand the correlation through surveys that can obtain first-hand data capturing how young people in climate-affected areas such as Baltimore perceive climate change, and how their mental health is affected.

Best Practices: Methodology and Question Design

Our research included looking at different types of surveys, question methodologies, and survey design. Through this research, we've compiled a list of best practices.

General Best Practices
- Write questions that are concise and easy to follow.
- Keep the survey anonymous to establish trust between the respondent and the questioner.
- Avoid asking questions with multiple topics or answers.
- Use scaled responses, e.g., strong support/support/oppose/strongly oppose.
- Avoid limiting questions and limiting scales, e.g., yes/no.
- Avoid using the word "agree" or variations of that word.
- Avoid leading or open-ended questions to avoid pressuring respondents to answer a certain way.
- Keep the survey short to avoid fatigue.
- Adjust the survey to meet the target audience.

Middle School Student Best Practices
- Context is important (middle-school-aged children are more developed but not yet adults).
- Provide children with the needed time and space to take the survey.
- Phrase questions that are simple and easy to understand.

- Avoid negativity.

- Assure them that answers are private and confidential.

- Be honest and transparent about the survey's purpose.

High School Student Best Practices

- Keep the survey short, about 10 minutes.

- Ask for gender pronoun preferences.

- Ease students into the topic, don't begin with sensitive topics.

- Use mutually exclusive answer options.

College Student Best Practices

- Keep wording consistent throughout the survey and use familiar words.

- Ask demographic questions after the survey.

18-24-Year-Old Non-Student Best Practices

- Use a multi-pronged approach to find respondents, e.g., varied social media outlets, posting at local places such as gyms, grocery stores, etc.
- Use data from previous household surveys, e.g., statistics from previous surveys that will answer the question.
- Cold call households.
- Offer financial incentives, e.g., cash, coupons, or gift cards or other items such as pens, notebooks, cups.

Data and Approach

When composing a survey there's no need "to reinvent the wheel." There are many existing surveys on similar topics and so we sampled questions from the United Kingdom Data Service, the Pew Research Center, and Sage Research Methods. We established four survey groups to maximize the results and the number of people reached: middle school students, high school students, college students, and college-aged individuals who aren't in college.

Each survey is designed to record the same general information, but their language or wording is modified to adjust for age and education level. Also, some questions were removed or added to surveys to reflect the life experience of each target demographic.

The surveys are in six sections: Knowledge, Experience (with climate change), Change, Feelings, Conversations (about climate change), and Demographics. These six sections give a balance of important information without the surveys being too long.

As an example, the high school student survey and explanations for why we chose the questions we chose are borrowed from the UK data service in a survey of individual feelings about global environmental issues. We used these questions to gather a sense of where our respondents stand regarding knowledge of climate change and their general feelings toward it.

Survey Structure

Each survey begins by thanking participants and describing the survey parameters. We begin the survey with this introduction to ensure that survey takers are aware of the survey's purpose and their role in taking it.

> "Thank you for participating in this Department of Natural Resources Survey! All information collected from this survey is confidential and anonymous. Your participation in this survey is voluntary. You may elect to stop your participation at any time. The information collected from your answers will be used for research purposes by the people at the Maryland Department of Natural Resources. Please complete the following survey at your own pace and to the best of your abilities. All answers should be reflective of your personal views and beliefs."

The actual surveys are included in this report's Appendix:

Appendix A. Middle School Survey

Appendix B. High School Survey

Appendix C. College Student Survey

Appendix D. College-Aged but Not in College

After gaining a better understanding an individual's knowledge about climate change, the Experience section seeks to explain the answers given in the Knowledge section. Since flooding is the most common adverse climate event experienced in Maryland, these questions ask if people have been personally affected by flooding.

The Change section focuses on how people view current policies, educational coverage, and their ability to affect climate change. This section's questions about classes are removed from the survey for individuals not attending college as not relevant.

The Feelings section begins to collect data on respondents' mental health and how climate change impacts it. The Conversations section is intended to measure climate change presence in their lives and for their peers; is it on their mind. We also asked if young people are committed to addressing the effects of climate change. This question was adjusted in each survey for the appropriate age range and was removed from the middle school survey.

Survey Design

Survey design is an intentional practice. Throughout the semester, the survey questions were rewritten to design questions that would be most effective in achieving the desired results. While we began by pulling questions from other surveys, as we did more research, we discovered surveys that matched our topic and best practices. Along with designing the questions, we also gave attention to designing the answer choices to best match the questions.

Survey Feedback

Middle School Survey: Feedback from the trial use of the middle school survey was positive. Three Baltimore middle schoolers tested the survey and filled out a feedback form to find any faults in the survey. We learned it is easy to follow and the questions are easy to understand. It was less relatable for these students, perhaps because they may not have been exposed to climate change. The rest of the feedback was positive and helped us move forward.

High School Survey: Feedback from this survey was also generally positive. Five Baltimore County high-school students tested the survey—three boys and two girls—two sophomores, one junior, and two seniors. All the students found the survey easy to follow and understand. However, they found the question about general sadness and hopelessness not entirely relevant to the remainder of the survey. This was interesting because we discussed whether this question should be in the survey. We keep it in because we want to be sure that the confounding variable of general mental health (not associated with climate change) was considered.

College Survey: Feedback from this survey was generally positive. Five students tested the survey, and we received a range of comments. Four scored the survey as a 5 (scale of 1-5, 5 being the highest) for being easy to follow. Three students also scored a 5 for relatability. When asked if the survey was appropriate for their age group and if the ideal answer choices were provided, they also scored it at 4 or 5. Finally, when asked how the survey could be improved, there were no suggestions.

College-Aged but not in College: The survey again received positive feedback. The five individuals who took the survey found it was easy to follow, had a good survey experience, found it age-appropriate, and the language easy to understand. However, they also commented that the survey didn't ask thoughtful questions and wasn't relatable. Based on the feedback it was clear that some had extensive knowledge of climate change, but others didn't. We hope that if the survey is sent to an audience with experience of climate change they'll feel more connected to the survey. The main goal of the trial survey was to get feedback on the survey structure so it's not surprising these individuals felt disconnected. The last piece of feedback worth noting is that some testers thought the questions weren't specific enough. Our goal was to create a broad survey that doesn't get into details, but we encourage users to adapt the survey to best fit their information goals.

Implementation Plans

Another aspect of this project was researching how DNR can implement the surveys among the demographic communities identified in this study. We've developed the following implementation and incentivization recommendation plans for each group.

Middle and High School Implementation Plan

To implement this survey in schools, the first step is to obtain DNR's survey approval to proceed. Then the University and the schools must work with the Institutional Review Board (IRB) to ensure survey respondents' privacy. For Baltimore City Public Schools specifically, following IRB guidance and working with an IRB manager will ensure the survey meets requirements for public schools. Further, the survey distributors must justify how the survey is consistent with "Baltimore City Schools' Blueprint for Success," which lays out how Baltimore public schools aspires to educate its students.

Incentivizing both faculty and students to administer and take the survey is a crucial component of the implementation plan. Therefore, the DNR must construct methods to motivate the constituents to take the survey. The incentivization plan described below assumes a marketing budget.

Administration: Because the survey is about students' feelings around climate change and eco-anxiety, DNR should offer data and findings to the schools' principals and teachers.

Teachers: We recommend targeting only middle and high school science classes at all levels (college prep/honors/and AP and 9th/10th/11th/12th grade) to fit the survey into the curriculum and generate a full range of results from all grade levels. DNR should partner with the [Maryland Association of Science Teachers](), particularly to the Baltimore County representative—Tom Michocki, who Baltimore County (at [easterntechscience@gmail.com]()). If the survey is successful, DNR can reach out to other Maryland regions.

Teachers could be incentivized by an offer of the data and findings and allowing them to add questions to the survey. DNR might also offer teachers $2.00 worth of school supplies for each survey that they distribute and then collect. If they distribute and return 100 surveys, they would receive $200.

College Student Implementation Plan

The feedback plan for college students consisted of asking peers and UMD students to take the survey. We had five students take the survey. We sought students of different majors and backgrounds who are also involved in different extracurriculars. Students with different climate change experiences generated a well-rounded demographic.

Findings show that different teams on different campuses who can offer monetary incentives will encourage student participation. Teams could recruit at busy locations such as libraries, academic halls, residence halls, and dining halls. Incentives might include one-dollar payment, a gift card or entry into a a prize draw to win a bigger prize such as a higher value gift card. To get well-rounded responses, we suggest going to different college campuses in Baltimore—UMD, UMBC, Loyola, Towson, Morgan State, etc.

Students could also be recruited by peers via social media, the survey could be available online via a QR code, campus clubs and organizations could also encourage students to take the survey.

College Aged but not in College Implementation Plan

This cohort of young adults is more difficult to reach because there isn't a central location as for college, high, and middle school students. They could be recruited via advertisements and financial incentives, including outlets such as Craigslist or community Facebook groups or other local message board systems targeted at this specific demographic. It should reach out to "survey 18-24-year-olds from Baltimore who did not attend college, who will receive $20 for completing the survey." Potential candidates could respond by phone number or email.

This approach may require a phone screening to ensure the person meets the demographic criteria. Specifying the targeted demographic will narrow respondents to people who are eligible. Post ads in the newspaper, train stations, bus stops, or online and follow the same screening procedure after responses are received. DNR could also recruit by contacting places at job locations where you don't need a college education.

Appendix

Appendix A. Middle School Survey

Knowledge:

1. Have you heard of climate change?

    a. Yes

    b. No

    c. I don't know

2. How important is the issue of climate change to you personally?

    a. Very important

    b. Quite important

    c. Not very important

    d. Not at all important

Experience with Climate Change:

3. In the last five years have you been impacted by any form of flood damage including to your family's home, property, school, street, or vehicle?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

4. Have you noticed flooding impact other people or places (such as in their family's home, property, or vehicle)?

    a.   Yes

    b.   No

Feelings:

5. In the past year, how often have you felt general sadness or hopelessness?

    a.   Often

    b.   Sometimes

      c.   Rarely

      d.   Never

6. In the past year, have you felt sadness or hopelessness when you think about climate change?

      a.   Often

      b.   Sometimes

      c.   Rarely

      d.   Never

7. Do you think that climate change might harm you at some point in your life?

      a.   Yes

      b.   No

      c.   I do not know

8. How does hearing about climate change make you feel? (Select all that apply)

      a.   Hopeful

      b.   Sad

      c.   Excited

      d.   Indifferent

      e.   Scared or anxious

      f.   Other:

9. How often do you worry that climate change will affect your future?

      a.   Often

      b.   Sometimes

      c.   Rarely

      d.   Never

Conversations About Climate Change:

10. Does your class curriculum include information about climate change?

a. A lot

b. Somewhat

c. A little

d. None

11. Do you ever talk about climate change with your classmates?

a. Often

b. Sometimes

c. Rarely

d. Never

12. Do you think your classmates have similar thoughts as you do about climate change?

a. Yes

b. No

c. I do not know

13. Are you interested in learning more about climate change?

a. Yes

b. No

c. Not sure

Demographics:

14. What is your gender identity?

a. Male

b. Female

c. Non-binary

d. Other

e. Choose not to answer

15. What grade are you in?

a. 6th grade

b. 7th grade

c. 8th grade

d. Other

16. Which of the following best describes your racial or ethnic background? (Choose all that apply)

     a.   American Indian or Alaska Native

     b.   Asian

     c.   Black or African American

     d.   Hispanic or Latino

     e.   Native Hawaiian or Pacific Islander

     f.   White

     g.   Other

     h.   Choose to not answer

If you're looking to get more involved, visit Maryland.gov for volunteer opportunities in your county.

Appendix B. High School Survey

Knowledge:

1. Have you heard of climate change?

      a.   Yes

      b.   No

      c.   I don't know

2. How important is the issue of climate change to you personally?

      a.   Very important

      b.   Somewhat important

      c.   Not very important

      d.   Not at all important

Experience with Climate Change:

3. In the last 5 years, have you experienced any form of flood damage to your family's home, property, school, street or vehicle?

      a.   Often

      b.   Sometimes

      c.   Rarely

      d.   Never

4. Have you seen flooding impact other people or places (such as in their family's home, property, school, street, or vehicle)?

      a.   Yes

      b.   No

Change:

5. Do you think there should be more or fewer policies that attempt to address climate change?

      a. More

      b. Fewer

      c. The same

6. Does your class curriculum include information about climate change?

     a.   A lot

     b.   Somewhat

     c.   A little

     d.   None

7. Do you want your class curriculum to include conversations about climate change?

     a.   Very much so

     b.   Somewhat

     c.   A little

     d.   None

8. Have you ever taken, or do you regularly take, any actions to reduce the effects of climate change?

     a.   Often

     b.   Sometimes

     c.   Rarely

     d.   Never

9. Do you think that you can personally reduce the effects of climate change?

     a.   Very much so

     b.   Somewhat

     c.   A little

     d.   Not at all

Feelings:

10. In the past year, how often have you felt general sadness or hopelessness?

     a.   Often

     b.   Sometimes

     c.   Rarely

     d.   Never

11. In the past year, have you felt sadness or hopelessness when you thought about climate change?

     a.   Often

     b.   Sometimes

     c.   Rarely

d.   Never

12. Do you think that climate change might harm you at some point in your life?

    a.   To a Great Extent

    b.   Somewhat

    c.   Very Little

    d.   Not at All

13. How does hearing about climate change make you feel? (Select all that apply)

    a.   Hopeful

    b.   Happy

    c.   Sad

    d.   Indifferent

    e.   Scared or Anxious

14. Do you worry that climate change will affect your future? (Pew Research Center)

    a.   Often

    b.   Somewhat

    c.   Rarely

    d.   Never

Conversations about Climate Change:

15. Do you talk to your peers/classmates about climate change?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

16. Do your peers and classmates express anxiety about climate change?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

17. Are you involved in any classes, clubs, or groups that try to take action to prevent or reduce climate change?

a. Yes

b. No

Demographics:

18. What is your gender identity? (multiple choice)

    a. Male

    b. Female

    c. Non-Binary

    d. Other

19. What grade are you in?

    a. Freshman

    b. Sophomore

    c. Junior

    d. Senior

20. Which of the following best describes your racial or ethnic background? (Choose all that apply)

    a. American Indian or Alaska Native

    b. Asian

    c. Black or African American

    d. Hispanic or Latino

    e. Native Hawaiian or Pacific Islander

    f. White

    g. Other

21. In general, would you describe your political views as very conservative, conservative, moderate, liberal, or very liberal? (Pew Research Center)

    a. Very conservative

    b. Conservative

    c. Moderate

    d. Liberal

    e. Very liberal

    f. Don't know

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Appendix C. College Survey

Knowledge:

1. Have you heard of climate change?

      a.   Yes

      b.   No

      c.   I'm not sure

2. How important is the issue of climate change to you personally?

      a.   Very important

      b.   Quite important

      c.   Not very important

      d.   Not at all important

Experience:

3. Do you believe that climate change should be taken more seriously?

      a.   Yes

      b.   No

      c.   I don't know

4. In the past five years, have you ever experienced any form of flood damage in or near your college (residence halls or academic buildings)?

      a.   Often

      b.   Sometimes

      c.   Rarely

      d.   Never

5. Have you seen flooding impact other people or places (other student's residence halls or other academic buildings on campus)?

      a.   Yes

      b.   No

      c.   I'm not sure

Change:

1. When thinking about policies you've heard about that attempt to address climate change, do you think there should be more or fewer policies like them?

    a.   More

    b.   Fewer

    c.   The same

2. Does your college curriculum include information about climate change?

    a.   A lot

    b.   Somewhat

    c.   A little

    d.   Not at all

3. Do you want your class curriculum to include conversations about climate change?

    a.   Very much so

    b.   Somewhat

    c.   A little

    d.   No

4. Have you ever taken, or do you regularly take, any action to reduce the effects of climate change?

    a.   Yes

    b.   No

    c.   I don't know

5. Do you believe that you can personally reduce the effects of climate change?

    a.   Very much so

    b.   Somewhat

    c.   A little

    d.   Not at all

Feelings:

6. In the past year, how often have you felt general sadness or hopelessness?

    a.   Always

    b.   Sometimes

    c.   Rarely

  d. Never

7. Do you think that climate change might harm you at some point in your life?

  a. To a Great Extent

  b. Somewhat

  c. Very Little

  d. Not at All

8. In the past year, have you felt sadness or hopelessness about when you thought about climate change?

  a. Always

  b. Sometimes

  c. Rarely

  d. Never

9. How does hearing about climate change make you feel? (Select all that apply)

  a. Hopeful

  b. Angry

  c. Sad

  d. Indifferent

  e. Scared or Anxious

10. Do you worry that climate change will affect your future?

  a. Very Much

  b. Somewhat

  c. A little

  d. Not at all

11. Does your university provides support for people who are affected by flooding and other climate-related disasters?

  a. Yes

  b. No

  c. I don't know=

Conversation:

12. Do you talk to your peers and classmates about climate change at your college?

  a. Often

b. Sometimes

c. Rarely

d. Never

13. Do your peers and classmates express anxiety about climate change?

      a. Often

      b. Sometimes

      c. Rarely

      d. Never

14. Are you involved in any classes, clubs, or groups that try to take action to prevent or reduce climate change?

      a. Yes

      b. No

Demographic Information:

1. What is your gender identity? (multiple choice)

      a. Male

      b. Female

      c. Non-Binary

      d. Other

2. How old are you?

      a. Freshman

      b. Sophomore

      c. Junior

      d. Senior

      3. Which of the following best describes your racial or ethnic background? (Choose all that apply)

      a. American Indian or Alaska Native

      b. Asian

      c. Black or African American

      d. Hispanic or Latino

      e. Native Hawaiian or Pacific Islander

f.   White

4.   In general, would you describe your political views as very conservative, conservative, moderate, liberal, or very liberal?

a.   Very conservative

b.   Conservative

c.   Moderate

d.   Liberal

e.   Very liberal

f.   Don't know

If you're looking to get more involved, visit Maryland.gov for volunteer opportunities in your county.

Appendix D. College Aged but not in College

Knowledge:

1. Have you heard of climate change? (UK Data Service)

      a.   Yes

      b.   No

      c.   I don't know

2. How important is the issue of climate change to you personally? (UK Data Service)

      a.   Very important

      b.   Quite important

      c.   Not very important

      d.   Not at all important

Experience with Climate Change:

3. In the last 5 years have you been impacted by any form of flood damage including to your home, property, school, street, or vehicle? (UK Data Service)

      a.   Often

      b.   Sometimes

      c.   Rarely

      d.   Never

4. Have you noticed flooding impact other people or places (such as in their family's home, property, or vehicle)?

      a.   Yes

      b.   No

Change:

5. When thinking about policies you've heard about that attempt to address climate change, do you think there should be more or fewer policies like them?

      a.   More

      b.   Fewer

      c.   The same

6. Have you ever taken, or do you regularly take, any actions to reduce the effects of climate change? (UK Data Service)

    a.   Yes

    b.   No

    c.   I don'tt know

7. Do you believe that you can personally reduce the effects of climate change?

    a.   Yes

    b.   No

    c.   I don't know

Feelings:

8. In the past year, how often have you felt general sadness or hopelessness? (Pew Research Center)

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

9. In the past year, have you felt sadness or hopelessness when you thought about climate change?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

10. Do you think that climate change might harm you at some point in your life (Pew Research Center)?

    a.   Yes

    b.   No

    c.   I don't know

11. How does hearing about climate change make you feel? (Select all that apply)

    a.   Hopeful

    b.   Happy

    c.   Sad

    d.   Indifferent

    e.   Scared or Anxious

12. Do you worry that climate change will affect your future? (Pew Research Center)

    a.   Very Much

    b.   Somewhat

    c.   Not too much

    d.   Not at all

Conversations about Climate Change:

13. Do you talk to your colleagues about climate change?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

14. Do your colleagues express anxiety about climate change?

    a.   Often

    b.   Sometimes

    c.   Rarely

    d.   Never

Demographic Information:

15. What is your gender identity? (multiple choice)

    a.   Male

    b.   Female

    c.   Non-Binary

    d.   Other

16. How old are you? (Sage Pub)

    a.   18 or younger

    b.   19

    c.   20

    d.   21

    e.   22

    f.   23

    g.   24 or older

17. Which of the following best describes your racial or ethnic background? (Choose all that apply) (Sage Pub)

      a.   American Indian or Alaska Native

      b.   Asian

      c.   Black or African American

      d.   Hispanic or Latino

      e.   Native Hawaiian or Pacific Islander

      f.   White

18. In general, would you describe your political views as very conservative, conservative, moderate, liberal, or very liberal? (Pew Research Center)

      a.   Very conservative

      b.   Conservative

      c.   Moderate

      d.   Liberal

      e.   Very liberal

      f.   Don't know

      g.   Refuse to answer

Appendix E- Feedback Form

Answer these questions using the 1-5 scale, 1 being strongly disagree and 5 being strongly agree.

please answer all questions

Questions to ask on the form:

- This survey was easy to follow
  - 1,2,3,4,5
- Rate your overall survey experience
  - 1,2,3,4,5
- This survey asked thoughtful questions

- ○ 1,2,3,4,5
- ● This survey was relatable
- ○ 1,2,3,4,5
- ● This survey was appropriate for my age group
- ○ 1,2,3,4,5
- ● The language was easy to understand
- ○ 1,2,3,4,5
- ● The ideal answer choices were provided in this survey
- ○ 1,2,3,4,5
- ● How could we make this survey better?
- ○ Open response
- ● What do you like least/most about our survey questions?
- ○ Open Response

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