

# Bridging Mental Health and Climate Resilience: Policy Insights and Recommendations for Washington D.C.

Aiden Yuan<sup>1\*</sup>, Jayson Toweh<sup>2</sup>

<sup>1</sup>McLean, VA, USA

<sup>2</sup>Doerr School of Sustainability, Stanford University, Palo Alto, CA, USA

Email: \*aidenmyuan@gmail.com

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## Abstract

**Introduction:** This case study examines how related policies, like the National Suicide Hotline Act of 2018 and the Climate Ready DC initiative, can respond to the exacerbation of mental health issues caused by climate change in the District of Columbia and immediate areas. Global warming significantly impacts mental health. Rising heats fuel the worsening of mental health. Many young individuals feel negative emotions like helplessness associated with climate change's progression, leading to newer conditions like climate anxiety. With D.C.'s high climate awareness, these circumstances present optimal testing grounds for possible policy solutions to address and learn more about these struggles. **Methodology:** Methods utilized were sifting through academic journals using Google Scholar and other websites, focusing on using key search terms relating to the two issues, and ultimately building a case study around Washington D.C.'s mental health and climate policies. **Results:** Analyzing the National Suicide Lifeline and Climate Ready DC, we found that climate anxiety and increased heat waves were unaddressed areas in the policies. Tying these findings into recommendations to the Climate Ready DC plan—an initiative for the District of Columbia to prepare for the effects of climate change—we propose that they increase the number of call operators for the National Lifeline during heatwaves, as well as create a new specialized section of the Lifeline for climate anxiety. **Conclusion:** Overall, the prominent issues of climate change and mental health and their combined effects, like climate anxiety, remain lightly researched without future implications. More research must address these rising issues adequately and provide necessary solutions.

## Keywords

Climate Change, Mental Health, Climate Anxiety, Climate Policy, Mental

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Health Policy, Crisis Hotline, Washington D.C.

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## 1. Introduction

Climate change, the long-term shift in Earth's climate patterns, remains a pressing issue that manifests its adverse consequences in many shapes and forms, one of which affects mental health. The increase in global temperatures and extreme weather events affects daily sentiments. Whether that's experiencing increased aggression or traumatic climate-induced natural disasters, climate change undoubtedly takes a negative toll on the human psyche (Novotney, 2023). This toll has given rise to newer mental health conditions like climate anxiety, especially prevalent in young people (Schmidt, 2023). These upcoming effects call for creative policy solutions, tackling both mental health issues and climate change. Therefore, the District of Columbia serves as an ideal area to first test and implement policy changes, given its relatively small size and high visibility as the Capital of the United States.

Mental health concerns psychological, emotional, and social wellness (World Health Organization, 2022b). However, mental health-related conditions arise intricately with prolonged and intense heat exposure. Heat waves and high temperatures hold a wide range of negative side effects, including the stressing of anxious and depressive moods (Cianconi et al., 2020). The increased anxious and depressive moods pose a risk to current circumstances and the vitality of future generations. If these conditions are continuously inflated, comprehensive risks will follow. For example, the health impacts of heat waves are more serious, with higher temperatures at night and human attempts to lower body temperature while asleep. The body faces more strain as the heart pumps harder to maintain a body temperature close to homeostasis (EPA, 2024a). Furthermore, climate scientists found a correlation between experiencing extreme weather events and earlier deaths, usually by a heart attack, stroke, or respiratory failure (Borenstein, 2024a). Other impacts include a heightened risk of depression and its effects like suicide and hopelessness. Furthermore, impacts will raise persisting anxious conditions and introduce new ones. Underneath the exterior of mental climate effects, newer conditions like climate anxiety will further influence mental health. These impacts apply to everyone, further advocating for cohesive responses in targeting these issues.

Addressing this large-scale issue lies in policies, the main roots of national change. Policies or other initiatives dictate how actions are carried out within a specific area, providing opportunities to target certain struggles and ensure positive effects. Additionally, creating policies that target multiple problems at once will hopefully aid these worsening issues efficiently. This idea, while not necessarily new, has faith and is actively in practice, being identified as synergy solutions and co-benefits within the UN and the climate policy sphere, respectively (UNDESA & UNFCCC, 2023; Mayrhofer & Gupta, 2016). Tackling multiple problems simultaneously ensures

constant progress, which is especially critical when targeting long-term issues like climate change. An example of this concept is the Inflation Reduction Act (IRA) of 2022. The IRA aims to expand the economy while reducing greenhouse gas emissions (Levinson et al., 2024). It raises taxes on larger businesses, supports decreased drug prescription prices within Medicare, invests in clean energy, and has more intended widespread benefits (Smith, 2022). While mostly effective, some recent analyses have predicted that additional efforts are required to achieve former President Biden's hopes of reducing greenhouse gasses in the US by over 50% by 2030 (Jordan et al., 2023). However, the act has been effective, signifying improvement in American climate policy.

This research analyzes similarities and differences between two policies—one mental health policy and one climate policy—wishing to provide insightful feedback on bridging them. Through the adept drawing of comparisons, similarities, and gaps of analyzed policies, this research hopes to provide insight into possible solutions to sub-issues related to mental health, climate change, and other matters. All of this thinking collectively raises the question: how can the implementation of specialized policies mitigate the aggravation of mental health issues in young adults and adolescents due to climate change within Washington, D.C.?

## 2. Methodology

We structured our research methodology around four steps—key terms, search, filter, and selection. In this paper, we examined how the bridging of specialized policies regarding the climate crisis and mental health can positively impact those at risk under specific circumstances, as well as everyone else in D.C. Therefore, generally collected data may not be directly tied to D.C., but a broader generalization, providing less specific yet more nationally accurate data. Furthermore, this research assumes that regions with high climate awareness, such as Washington D.C., are likely to exhibit a presence of climate anxiety. Research suggests that adept awareness of the climate crisis can evoke emotional responses, aligning with climate anxiety, further justifying the selection of Washington D.C. as a case study (Crandon et al., 2024). Research-wise, we used broad points for key terms depending on the intended result. Keywords included “mental health,” “public policy,” “adolescents,” and “climate change,” all attached with even more specific words to ensure precise selection of pre-existing data. This selection helped us leverage pre-established knowledge in this paper and how to apply it to the unique scope of D.C. Key terms were fluid and changing, relying upon the aforementioned four-step approach depending on a need for specific statistics or studies. For instance, while gathering information on climate anxiety in youth, we built the term “climate change anxiety in youth mental health,” ensuring relevant outcomes. After creating a general guideline for creating key terms, it was utilized to find papers on the search engine, Google Scholar. Through a filtration system on the website, we only used papers published after 2018, and if they contained time-sensitive

information. The use of recent papers ensured relatively relevant and up-to-date data. We analyzed the pre-COVID-19 period to understand the full scenario and implications related and unrelated to the effects of the pandemic. The location of a study was not considered unless the paper was relative to the District of Columbia in a niche manner. Finally, we analyzed reports with relevant abstracts and results to develop the findings of this paper.

### 3. Literature Review

#### 3.1. Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other aspects of the Earth's climate system. It is primarily driven by human activities, such as burning fossil fuels, deforestation, and industrial processes. These actions increase greenhouse gas concentrations in the atmosphere, consequently raising surface temperatures (NASA, 2024). The issue with rising temperatures lies in its cascading effects. For example, as polar ice caps melt, sea levels rise. Rising sea levels threaten communities located at lower altitudes, such as the Maldives. This directly displaces individuals and would likely cause widespread negative mental health effects in that community. The current state of climate change remains alarming, worsening at devastating rates and possibly crossing thresholds of no environmental return.

Recently, hurricanes Helene and Milton, categories 4 and 5, respectively, ravaged the gulf and more southern states along the East Coast, with Florida and North Carolina being heavily affected. Both made landfall within around two weeks of each other, from late September to mid-October (Borenstein, 2024b; Rafferty, 2024). Furthermore, the two hurricanes are likely candidates to join other storms with \$50 billion worth of costs. More than 95% of Helene's damages were uninsured, placing all those affected in a terrible financial and emotional position (Borenstein, 2024c). Both treacherous hurricanes are attributed to climate change as one instance of intensified extreme weather events that will continue to occur without immediate action.

Heatwaves have increased in frequency, duration, intensity, and season duration within the United States. The EPA defines heatwaves "as a period of two or more consecutive days when the daily minimum apparent temperature (the actual temperature adjusted for humidity) in a particular city exceeds the 85th percentile of historical July and August temperatures (1981-2010) for that city," (EPA, 2024a). With this definition, the average number of heatwaves per year has boosted across major cities, from around two per year in the 1960s to six per year in the 2010s and 2020s. Furthermore, the heatwave season has increased by almost 50 more days compared to the 1960s. Undoubtedly, heat waves have been another significant area of effect, posing dangerous mental and physical threats (EPA, 2024a).

Sea levels are also rising. About a third of the contributors to rising sea levels are due to ocean warming. As greenhouse gases increase due to burning fossil fuels, the

temperature increases, with the ocean absorbing the heat and increasing in volume due to the chemical properties of liquids. The second correspondent, contributing about two-thirds of the issue, comes from melting polar icecaps and glaciers, adding to the ocean's volume ([US Sea Level Change, 2024](#)). Ocean levels have increased from around eight to nine inches since the 1880s ([Lindsey, 2023](#)).

These rising sea levels are currently endangering Venice and the Maldives from being engulfed by the ocean. Venice, a city vulnerable to floods, could be completely submerged as early as 2100 ([Phelan, 2022](#)). The Maldives, an archipelago of 1196 islands, is also in imminent danger. Its islands lay, on average, at around 3.5 feet above sea level. However, the difference between 1.5 degrees and 2 degrees Celsius was described as a "death sentence" for the community ([McConnell, 2022](#)). The small nation hopes to quickly create manmade, elevated islands to house more than 555,000 Maldivian citizens in response to this imminent issue. Beyond the Maldives, around 30% of American citizens and eight of the ten largest global cities are near coasts ([Lindsey, 2023](#)). Additionally, high sea levels mean the enhanced progression of intense tropical storms and hurricanes. Overall, rising sea levels are a dangerous threat posed by climate change.

These are among the countless effects of climate change, putting cultures, cities, and millions of individuals in danger. While public concern and action have increased, centuries of environmentally detrimental buildup require immediate action to combat this global calamity.

### 3.2. Mental Health

Mental health embodies psychological, emotional, and social well-being. It affects how people think, feel, and act and influences how they handle stress and overall decision-making ([World Health Organization, 2022b](#)). In recent years, factors such as social media, COVID-19, and election outcomes have affected the stability of mental health in young people. For example, social media usage among the youth has risen, becoming increasingly connected to mental health depending on how adolescents engage with this double-edged sword ([Weigle & Shafi, 2023](#)). Likewise, during the pandemic, young individuals across the globe experienced increased anxiety, depression, and mental distress compared to previous years ([Kauhanen et al., 2022](#)). Furthermore, companionship is critical in developing social skills, which was a significantly affected factor by the pandemic ([Liu et al., 2020b](#)). During this time in the US, high rates of loneliness in young adults were reported, further contributing to mental health illnesses ([Liu et al., 2020a](#)).

Additionally, with America's politically polarized position, Donald Trump's 2016 electoral victory heightened 54.6 million more days of poor mental health in adults during December—the month after the election—compared to October 2016 before the election ([Yan et al., 2020](#)). These statistics may be paralleled or even heightened with the outcome of the 2024 election, as political polarization continues to plague the United States ([Schoenmueller et al., 2022](#)).

Internationally, nearly one billion individuals live with mental health conditions.

However, in low-income countries, three out of four do not have access to necessary services (World Health Organization, 2022a). With these countless factors coming into play, generally, suicide rates have reached an all-time high since at least 1941. While demographics of adolescents and young adults have decreased in suicide rates, worsening mental health continues to increase among the same demographics (McPhillips, 2023). Finally, upcoming generations combat increased rates of mental distress and issues stemming from shrouds of uncertainty and questions for the future (The Lancet, 2022). Overall, these numerous factors hold the status quo of mental health in a concerning light, as climate change will continue to add to the alarm.

### 3.3. Climate Change's Effect on Mental Health

Climate change's presence in the mental health world heavily affects millions. The phenomenon contributes to increases in extreme weather events like tropical storms and heat waves. Through this, climate change has been linked to various mental health issues, including heightened anxiety, depression, post-traumatic stress disorder (PTSD), increased aggression, and even accelerated mortality.

For instance, during the 2018 Camp Fire, survivors had PTSD levels on par with war veterans due to the immense emotional trauma endured. Also, the economic impacts of droughts lead to a heightened chance of suicide among farmers struggling to make enough money. A predicted 40,000 additional lives will have been claimed by 2050 in the United States and Mexico due to these circumstances (Novotney, 2023). Additionally, adolescents exposed to more than 45 days of climate-related disasters reported higher levels of mental distress, including sleep problems, sadness, and hopelessness (Auchincloss et al., 2024). The uncertainty and fear driven by these disasters, combined with the physical side effects of being deprived of essential requirements for healthy bodily living, have sincere negative mental health effects. Furthermore, individuals who lost loved ones and belongings in the destructive hurricanes Helene and Milton would obviously face mental distress. These factors bring discontent into hundreds of thousands of lives, fueling these mentally unsound effects.

Higher temperatures have been generally associated with increased aggression, violence, and prevalence of mental health issues. Across two million randomly selected Americans across a decade of collection, warmer temperatures, rain, and tropical storms—predicted to increase in rate drastically with climate change—were linked to worsened mental health (Obrovich et al., 2018). Hotter weather was also associated with greater presentations to emergency departments for suicidal ideation or behavior (Dey et al., 2024). On a more personal level, a general human experience is feeling more agitated during times of heat, like the first few minutes when entering a car parked in the sun for too long. Ultimately, D.C.'s high visibility, small size, and climate awareness make it an ideal area to test the effectiveness of policy solutions. As listed above, the climate crisis utilizes hundreds of unique ways to harm the health of millions, notably asserting its presence as an unavoidable issue.

### 3.4. Climate Anxiety

Climate anxiety is “distress about climate change and its impacts on the landscape and human existence” (Leiserowitz & Lowe, 2023). It can manifest through intrusive feelings of distress about the future of humanity, especially what world people are leaving for future generations (Leiserowitz & Lowe, 2023). With the ever-looming presence of climate change and the powerless effect that constantly retains attention, mental health has new subsections specifically relating to recent and future climate patterns. Google searches relating to climate and eco-anxiety increased by 4590% from 2018 to 2023 (Moench, 2023). Phenomena like climate anxiety and eco-anxiety leave a helpless and uncertain feeling concerning the future, posing a challenge to current and future mental health, deserving clinical recognition (Clayton, 2020).

Additionally, research suggests that areas with higher climate awareness may experience a greater prevalence of climate anxiety (Clayton, 2020). This connection stems from increased exposure to information about climate risks, which can heighten feelings of helplessness and distress. For instance, individuals in regions with proactive climate policies or advocacy often develop a deeper understanding of the climate crisis, potentially amplifying emotional responses like eco-anxiety. This study operates under the assumption that heightened awareness of climate issues correlates with increased levels of climate anxiety, particularly among younger populations who feel a pressing urgency for action.

The youth are significantly more affected by climate-related anxiety. In a survey of 10,000 children internationally, 75% viewed and braced for a frightening future, and 83% agreed that humans have failed to protect the Earth’s climate. On top of these statistics, many surveyors evaluated governmental responses negatively, which were associated with feelings of disloyalty and betrayal. This perceived governmental failure creates distrust among children and the government, increasing climate despair and internalizing feelings of powerlessness (Hickman et al., 2021). Additionally, in another global survey of 10,000 participants aged 16 to 25, 60% were surveyed as very worried regarding the climate, and almost half experienced the effects of the corresponding anxiety daily. Since youth must live with the climate crisis longer than their parents, “they feel grief in the face of what they’re losing” (Schmidt, 2023). In 2019, solely in March, around 1.6 million youth advocates protested across 125 countries, demanding action. Advocacy demonstrates a strong enough concern over an issue worth protesting, with youth advocates making bold statements to higher officials to take adequate action. Certainly, this courage depicts some form of anxiety from the uncertainty of climate change’s possibly permanent effects in the future.

Additionally, youth-led climate strikes and federal lawsuits within the United States have also occurred (Wu et al., 2020). Youth-led groups lead lawsuits against their state governments in Oregon, Montana, Maine, and Florida in 2015, 2020, and 2024, respectively (Hanson, 2024; Johnson, 2024; Payne, 2024; Whittle, 2024). All these lawsuits target how the permission of projects related to carbon emissions

is unconstitutional and how they endanger the youth's and future generations' environmental safety. An excellent example of a youth advocate leader afflicted by climate anxiety is Greta Thunberg. She led school-related climate strikes, spoke to European parliaments, attended the Conference of the Parties (COP) conferences, and was the youngest recipient of Time Person of the Year (Kraemer, 2024).

Being in a crucial state of psychological development while exposed to constant reminders of climate-related stressors increases youth awareness and proneness to developing eco-anxiety and depression; however, little research has been done to measure the magnitude or severity of eco-anxiety overall, marking itself as a crucial uncharted area of examination (Wu et al., 2020).

### 3.5. Mental Health Policy

Generally, mental health policy is a set list of goals or initiatives written by the government concerning the improvement of the mental health condition of the country. Whether the document includes goals or is a physical law, it contains the necessary steps to attain that desired goal. Some general objectives likely include mental illness prevention, treatment, accessible rehabilitation, and anything contributing to improving abilities to psychologically and socially function. Often, more developed countries have detailed national mental health policies, and in others, there are extensive mental health resources or plans of action without a literal document of goals (Saxena & Sharan, 2008). However, in the case of global warming, this entails aiding all climate-caused mental health issues, contributing to the betterment of the national mental well-being. Internationally, a 2021 survey found that out of 95 participating countries, only nine have included mental health support in national health and climate plans, marking this issue as primarily unaddressed (World Health Organization, 2022a). Given the current status of vulnerability of mental health and the environment, it is crucial that upcoming mental health policies consider climate change as well.

Some examples of mental health policies in the United States are the Mental Health Parity and Addiction Equity Act (MHPAEA) and the Affordable Care Act (ACA). MHPAEA requires health insurers and group health plans to provide coverage for mental health and substance use disorder services that is comparable to coverage for medical and surgical services and to prohibit the recommendation of less favorable action, ensuring that individuals have access to the mental health care they need (Centers for Medicare & Medicaid Services, 2023). The ACA, also known as Obamacare, expanded upon MHPAEA and sought to widen affordable healthcare eligibility, ultimately bettering Medicare and Medicaid (Gaffney & McCormick, 2017). This paper will dive into the National Suicide Hotline Improvement Act (NSHIA) of 2018 and the National Suicide Hotline Designation Act (NSHDA) of 2020, two mental health policies that created the 988 Suicide and Crisis Lifeline. We will compare, bridge, and recommend alterations to the final product of these two policies with a climate policy, keeping synergized solutions in mind.

### 3.6. Climate Policy

The ideology of climate policy surrounds the process of central governments making decisions in hopes of contributing to the alleviation of global warming and its effects (Rafferty & Selin, 2023). Generally, the US has been headstrong in reducing greenhouse gas emissions, especially during the Biden-Harris administration. The former president stated in 2021 that the US aims to reach 50% - 52% emissions mitigation compared to 2005 levels by 2035. Furthermore, 32 states and Washington D.C. have publicly declared plans concerning climate action (University of Michigan Center for Sustainable Systems, 2023). Climate policies mitigate the negative effects of global warming, including ones on mental health. However, as previously mentioned, countless climate initiatives remain at risk due to Donald Trump's stance on global warming, with his administration taking more than 150 steps to reduce the nation's climate action (Cheung, 2020). Additionally, an estimated 23% of Congress falls into a dismissive and disbelieving climate change category, likely engaging and supporting any anti-climate legislation or actions. However, this staggering statistic disproportionately represents the constituency, as only 11% of American citizens do not believe in global warming (Yale Sustainability, 2024). Federal climate policies and initiatives are at extreme risk under the current administration, with Donald Trump's unreliable position on climate change and a disproportionate representation in Congress.

Some national examples of climate policy include the Inflation Reduction Act (IRA) of 2022 and the National Environmental Policy Act (NEPA). The IRA embodies nearly \$400 billion of federal provisions for transitioning to clean energy, providing tax credits to converters, and extending subsidies for the ACA (Smith, 2022). NEPA requires federal agencies to assess the environmental effects of their proposed actions and consider alternatives to minimize ecological harm (EPA, 2013). On a more subnational level, Washington D.C. includes projects like the Climate Commitment Act of 2022 and the Climate Ready DC Plan. The Climate Commitment Act of 2022 codifies D.C.'s interim climate targets. It also establishes an interagency task force to develop frameworks to achieve carbon neutrality by 2045 (Council of the District of Columbia, 2022). The Climate Ready DC plan focuses on adapting to the impacts of climate change, such as extreme heat, heavy rains, and rising sea levels. It includes strategies to prepare people, homes, communities, businesses, and infrastructure for these changes (District Department of Energy and Environment, 2016). This paper will show strength in connecting the Climate Ready DC initiative with the 988 Suicide and Crisis Lifeline.

## 4. Case Study: Washington D.C.

### 4.1. Climate Change in Washington D.C.

The District of Columbia and surrounding areas (Northern Virginia and Maryland) host a socioeconomically and demographically diverse population, offering unique perspectives on climate change and its impacts (Census Reporter, 2023). As the political capital of the United States, D.C. plays a central role in shaping climate-

related policies, but its progress is at risk due to recent political developments, such as Donald Trump's withdrawal from the Paris Agreement and the prioritization of fossil fuel industries. These actions undermine global climate goals, such as limiting the global temperature increase to 1.5°C above pre-industrial levels, and threaten international cooperation on the climate crisis (UNFCCC, 2020; Dickie, 2024; Dewan & Nilsen, 2024).

Like many regions worldwide, D.C. is experiencing tangible effects of climate change. Rising sea levels have impacted landmarks like the Tidal Basin, where 150 cherry blossom trees were removed due to flooding (Fenston, 2024). Heatwaves in the summer of 2024 brought a record 22 days of temperatures above 90°F, and winters are becoming shorter and warmer, with declining snowfall despite occasional severe storms (Livingston, 2024; Livingston & Samenow, 2022). These changes not only affect the environment but also the daily lives of residents, highlighting the urgency of addressing the climate crisis.

#### 4.2. Climate Awareness and Anxiety in Washington D.C.

To reiterate, this case study assumes that regions with high climate awareness, such as Washington D.C., are highly likely to exhibit some presence of climate anxiety—an assumption in line with other existing research (Clayton, 2020; Crandon et al., 2024). This assumption informs the choice of Washington D.C. as an area of focus, given its proactive climate advocacy, diverse population, and significant role in national policymaking.

Climate awareness has always been present in D.C., with its first major protest, the Forward on Climate Rally, in 2013 (Morgenstein, 2013). Additionally, other protests, such as those by Climate Defiance and Declare Emergency during late spring of 2023, underscore a heightened awareness and advocacy within the region (Peterson, 2023). These acts of advocacy clearly demonstrate a level of concern through D.C. community engagement.

This awareness, however, has recently found itself in a new light, especially regarding demographics of lower education levels. Those with the highest education levels were more likely to be connected to nature and recognize the necessary actions in human habits to mitigate the impacts. Individuals with the least education believed that technological advancements and discoveries could lead to solutions for climate change. However, that same demographic prioritized local climate action over global, providing valuable information as the least educated were traditionally excluded from climate-infrastructure-related discussions. This demonstrates a universal awareness and concern among all socioeconomic communities within the District of Columbia (Richardson et al., 2020).

Signs of concern also appear prominently among the youth of the District of Columbia. For example, protests organized by youth climate advocates during the White House Correspondents Dinner in 2023 attempted to pressure President Biden into meeting his promised climate goals (Curtis, 2023). Inspired by Greta Thunberg, thousands of adolescents skipped school to march near Capitol Hill

around the UN Youth Climate Summit on September 21st (Sengupta, 2019). Youth-friendly climate groups like the Sunrise Movement also embody youth-led groups in the Capitol (Sunrise DC, 2024). These youth-based initiatives point towards a sincere and passionate concern over climate change, indicating great awareness of the global crisis.

### 4.3. Climate Ready DC

Considering the previously stated climate effects, the District of Columbia has a comprehensive plan to adapt to climate impacts. Some main ideas include increasing green spaces, improving eco-friendly stormwater infrastructure, updating building codes, and promoting energy and solar programs, all guided by climate experts and scientists. Extremely urbanized neighborhoods with minimal greenery are at higher risk during times of high temperatures. Expanding those green initiatives within urban heat islands—densely urban areas that retain heat—can help minimize the impact of intensive heat on residents (EPA, 2024b). Additionally, Urban heat islands exacerbate heatwaves, increasing temperature by a possible 5.7 degrees Celsius and doubling in frequency (Zhang & Ayyub, 2020). Updating building codes can increase buildings' weather and temperature resilience, and promoting clean energy structures can help stray away from dependence on fossil fuels (Department of Energy and Environment of the District of Columbia, 2016). More recommendations around green infrastructure include engaging local communities and incentivizing private properties to support (Vogel, 2019). However, most frequent recommendations revolved around increasing greenery and mitigating the negative effects of heat islands.

More specifically, an example of these plans outlines alleviating citizens of Brentwood, Washington D.C., from dangerous urban-related climate effects like urban heat islands and interior flooding (Syazsa, 2023). Especially considering increases in violence and aggression with rising heat, this part of the initiative provides a path to help residents within heat islands. As long as the projects try to reduce the effects of climate change, mental distress should decrease accordingly. While it is valuable to note that Climate Ready DC does not specifically mention action targeting mental health, the initiative provides crucial efforts in combatting climate change and its effects.

### 4.4. The 988 Suicide and Crisis Lifeline

The 988 Suicide and Crisis Lifeline's implementation stemmed from testing the effectiveness of the 1-800-237-TALK National Suicide Prevention Lifeline, ultimately being created through the National Suicide Hotline Improvement Act (NSHIA) of 2018 and the National Suicide Hotline Designation Act (NSHDA) of 2020 (Telford, 2019; Baker & Sorensen, 2024). After dialing the number, there is a greeting message with options to access specific services pertaining to certain demographics. Callers are redirected to a local or national 988 Lifeline network crisis center (Davis, 2024). Specialized services include demographics such as American

Indian and Alaskan Natives, the LGBTQIA+ community, Spanish speakers, the elderly, deaf individuals, and more. Local operators mostly address calls coming from within the region. After its first two years of implementation, the lifeline amassed over 10 million interactions and saw a 45% increase in calls, solidifying its necessity and effectiveness (Davis, 2024). The 988 Suicide and Crisis Lifeline serves as a critical resource for American citizens and as a vital outlet for those facing mental struggles.

Mayor Muriel Bowser of Washington D.C. and the Department of Behavioral Health announced D.C.'s participation with the 988 Suicide and Crisis Lifeline (Office of the Mayor of Washington DC, 2022). The Kaiser Family Foundation conducted independent polls and research on the lifesaving policy, giving valuable insights into statistics, specifically within the District of Columbia. In the past two years of launching, call volumes have increased by 75%, with an 85% in-district answer rate (Saunders, 2024). The increase in call volume presents the hopeful and beneficial presence of the Lifeline's since its introduction in D.C. However, in 2022, there was a 91% in-district answer rate compared to more recent times, possibly demonstrating a new unequal balance between callers and call operators since the spread of Lifeline's publicity (Saunders, 2024). Ultimately, the 988 Lifeline has proven effective in serving the citizens of the District of Columbia, with only a few aspects to focus on for growth.

## 5. Findings and Analysis

Understanding the connections between these two issues and coordinating policies is crucial to improving both fields. With the adverse effects of climate change on mental health, we call for the connection of policies to ensure the availability of mental health resources regarding climate change, as well as bridges to call to action in small communal ways.

### 5.1. Policy Gaps in Addressing Climate Anxiety and Heat Waves

The 988 National Suicide and Crisis Lifeline and the Climate Ready DC initiative, while extremely beneficial, still have their own smaller gaps. Addressing these seemingly smaller gaps between both policies may seem pointless. However, solutions to their weaknesses complement each other extremely well, putting synergy solutions into practice and strengthening both policies as a whole.

Regarding the 988 Lifeline, there are two main gaps. First, niche specialists remain critically important when considering the mental health of individuals facing struggles as an individual under a specific demographic. The Lifeline provides important outlets for relevant demographics, accommodating a wide range of needs. However, supplying adequate care for all requires consistent and rigorous change and specificities depending on external situations. These scenarios could include geographical, personal, or any other factor influencing enough people. Second, long-term temperature changes will exacerbate negative emotions and pre-existing mental health conditions like anxiety and depression. With a predicted

additional 283 to 1660 suicide cases annually, the correlation between climate change and suicide is clear, hopefully indicating the necessity behind increasing accessibility to mental health resources overall (Belova et al., 2022). Additionally, a 2018 nationwide county-based study found that for every increase in average monthly temperature by one degree Celsius, the US experiences a 0.7% increase in suicide rates (Burke et al., 2018). Since increased temperatures cause heightened suicide rates, it is logical that the lifeline would see an influx of calls during times of extreme heat. Given this visible relationship between the suicide rates and increases in temperature, on top of an already significant call amount, overseers of the 988 Lifeline should be prepared to act on this extreme likelihood, which will affect their call volume.

While Climate Ready DC calls for protecting the District of Columbia against the upcoming effects of climate change, it does not specifically mention action concerning mental health. The lack of mentioning this extremely crucial effect of climate change is a significant gap in this initiative. However, given the tied nature between mental health and climate change, mitigating effects from heat islands also benefit mental well-being by targeting extreme heat. Only focusing on secondary effects may not be completely reliable. Therefore, the Climate Ready DC initiative would greatly benefit from at least some action within their plan to directly prepare the District of Columbia for the worst effects of climate change.

With the rise of climate anxiety as well, it only further outlines the potential connection between the Lifeline and those mentally affected by climate change, providing relief. The Lifeline's effectiveness and weaknesses, combined with the gaps and ideas of Climate Ready DC, could help fill major holes in both policies.

## **5.2. Key Insights on Climate Awareness and Anxiety in Washington D.C.**

A key insight into climate awareness overall has been relatively understudied. Therefore, finding reliable empirical data, especially regarding D.C. youth, is extremely difficult. We tried to accommodate this lacking area of study by combining known data about climate anxiety with general climate awareness, which is extremely prominent in D.C. Therefore, our recommendations surrounding climate anxiety ride on the sensible assumption that in areas of clear climate awareness and worry, would also be individuals affected by climate anxiety. This assumption is backed up by other research, disclosing that education and awareness of the current environmental scenario lead to higher rates of concern and climate anxiety (Clayton, 2020; Crandon et al., 2024).

From countless protests, youth-led initiatives, and the fact that young people are generally concerned and anxious about climate change, youth anxiety in D.C. is essentially guaranteed. These youth-led actions of climate advocacy leverage the power of being based around the Washington Metropolitan area, the Nation's Capital, to advocate for and strive for positive change. Ultimately, this overall concern demonstrated by Washington D.C. helped drive these policy recommendations, especially considering the relatively unexplored nature of climate anxiety.

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## 6. Policy Recommendations

### 6.1. Increasing the Number of Call Operators During Heat Waves

With the increase in heatwave length and frequency and its role in worsening already bad mental health trends, psychological well-being must be carefully regarded during times of immense heat. Therefore, our first recommendation is that the Climate Ready DC (or other subnational plans adapting to the effects of climate change) also embody these patterns in tendencies and mental health by enforcing greater employment on the 988 Lifeline during extreme heat. Increasing the number of operators on duty during extreme heat waves aligns perfectly with Climate Ready DC. The whole premise of the initiative is to ensure that the District of Columbia prepares itself for the incoming effects of climate change.

Whether someone picks up on the other end of the line or not could be the difference between a sustained life or a death, especially with possibly exacerbated depressive episodes and anxiousness in hotter temperatures. While countless operating centers are always active around the nation, operators receiving calls from a specific region may leverage their previous experiences with calls from similar communities that may better understand a caller's situation, like the reasoning behind specialized services. Any form of understanding is stronger than none, even with understanding a factor as seemingly irrelevant as geographical location. This base-level understanding could play a significant role in the caller's mental outcome, as well as the critical usage of empathy or sympathy to aid the mental distress of an individual (Davis, 2023). Increasing the number of personnel during heatwaves ensures no one is stranded without a caller, continuing to provide for those in mental need.

Furthermore, D.C. experienced exacerbated heat waves, as discussed above. Combining this key factor with its high visibility and small size, critical information could be drawn about scaling and expanding the size of this possible success. Therefore, applying these conceptions to Climate Ready DC and the 988 Suicide and Crisis Lifeline would serve as a valuable starting point for possible success, effectiveness, and scale of this insight.

### 6.2. Creating a Specialized Service within the National Suicide and Crisis Lifeline for Climate Anxiety

Through the joint effects of climate anxiety on adolescent mental health and usage of the 988 Lifeline, our second recommendation is to create another specialized service of the Lifeline. Starting in D.C., with climate-educated mental health professionals as operators, this new subsection could pertain to the imminent presence of climate anxiety. This recommendation heavily aligns with the Climate Ready DC initiative by adapting to the worsening effects of climate change, which will likely scale feelings associated with climate anxiety as well.

The NSHIA and NSHDA's products provide an outlet for American citizens during times of mental crisis. Additionally, there are no official means of relief to discuss climate anxiety with educated professionals. This may lead to feelings of

unimportance despite serious anxious habits and concerns. Opening a new specialized service within the Lifeline, specifically for climate anxiety concerns, permits individuals to confide in more knowledgeable mental health professionals educated in this niche, helping to deal with a different kind of emergency. Allowing for this unique space prevents the internalization of negative emotions and benefits the mental health of afflicted people.

Starting this initiative in the District of Columbia allows for necessary measurements of climate anxiety and provides beneficial resources to advocates and concerned individuals within the heart of national politics and advocacy. Furthermore, given that climate anxiety is a relatively uncharted area of research, expanding services to this newer demographic could both treat distress and gauge necessary information about this condition. Especially considering D.C.'s high visibility, a more comprehensive look at the magnitude of climate anxiety in a specific region could help better a more general understanding of the condition as a whole. The previously observed youthful and anxious climate advocates in Washington D.C. could also serve as strong first steps towards identifying how to optimally treat climate anxiety in its very prominent demographic.

Additionally, the idea of having climate-educated mental health professionals is nothing new. Recently, many therapists have shared their lack of knowledge about climate change, unable to address those issues when brought up with clients fully. A couple of therapists experienced a sense of being "ill-equipped to support clients in the climate crisis" (Silva & Coburn, 2022). Additionally, in a study in Germany, while different than the United States, 50% of the surveyed psychotherapists showed concern over their lack of information to address this issue during a session. The lack of educated professionals to address this rising issue as a concern only further underscores the need for a climate-specific space for anxious individuals. One way to standardize this is by allocating funds towards sending operators to relatively quick online collegiate courses, like the Yale School of Public Health's Climate Change and Mental Health course, lasting three 90-minute sessions (Yale School of Public Health, 2024). By approving certain courses and allowing this learning opportunity, operators will have at least a baseline understanding of this topic. However, further standards of knowledge must be established for better application by lifeline operators. Other recommendations made to combat these patterns have been made by the American Psychological Association (APA); psychologists would engage with broader climate-related initiatives and general education to support the ability to tackle similar issues (APA Task Force on Climate Change, 2022).

Ultimately, having a place to consult and speak freely about concerns brings immense mental relief to individuals, especially considering that there is yet to be a stable area for discussing the topic. Therefore, we fully believe that our suggestion of opening a new specialized service of the 988 Suicide and Crisis Lifeline for climate anxiety would greatly provide necessary support to struggling individuals.

### 6.3. Opportunities for Integrating Mental Health and Climate Initiatives

The climate concern of those in the District of Columbia helped drive these recommendations. The policy suggestions attempt to alleviate some climate-related mental stressors and potentially garner critical data surrounding climate anxiety. Regarding these prominent issues, delving into comparisons between these two pre-existing policies helps create practical yet multifaceted solutions that target their weaknesses.

The entire idea behind bridging policies has recently been acknowledged and is in use. The UN currently creates “synergy solutions” by having multiple Sustainable Development Goals in mind when addressing their surplus of issues (UNDESA & UNFCCC, 2023). The UN’s application of synergy solutions further demonstrates its valuableness and potential in addressing larger global issues. Additionally, co-benefits in public policy—addressing multiple goals with a single policy—have risen in usage, especially within policy regarding sustainability or climate change (Mayrhofer & Gupta, 2016). While targeted and specific solutions can provide comprehensive outcomes, larger issues like mental health, eco-anxiety, and climate change are heavily influenced by each other and more global issues as well. Policymakers and future changemakers must acknowledge the interconnectedness of many global issues to ensure overall improvement and progress.

More specifically, concerning our recommendations, there are countless ways to further the message behind these initiatives through community involvement. Given a clear stance of concern in at least some level of climate change awareness regardless of education level, it points towards opportunities to engage local communities (Richardson et al., 2020). Events could include raising awareness around climate anxiety, debunking myths about climate change, or accepting volunteers willing to be trained as operators of our proposed subsection for the 988 Lifeline.

Hopefully, these recommendations can serve as models for future policy building and expansion as well, especially with the current need for robust and versatile policy solutions. Our recommendations demonstrate an example of how to bridge policy solutions and could possibly serve as an example that furthers the scale of potential mental and climate fixes beyond Washington, D.C.

## 7. Conclusion

Previous research has shown that suicidal ideation, tendencies, and harm are all exacerbated by the effects of extreme heat on the mind. With an imminent future facing surpluses of extreme heat days, especially in the densely populated and urbanized areas of D.C., action is necessary to protect the general well-being of citizens—especially those feeling immense guilt and concern about the entirety of the climate crisis. Not only will climate anxiety become more prominent and recognized, and predicted climate patterns will take their place, but those negative emotions could easily be further aggravated under similar circumstances to suicide. Considering all the effects above, our recommendations for policy solutions are

only a couple of examples. Basic policy barriers apply, such as requiring adequate public approval for momentum and gaining necessary funding. However, these possible discouragements should not stop the creation of dynamic policy solutions to complex problems. Climate change is a global issue, requiring the effort and resilience of all to make great change, especially systemically, which links back to policies. To achieve meaningful progress, larger institutions must confront the realities of climate change and collaborate effectively. By developing and implementing sustainable policies, we can mitigate the worst effects of this manmade crisis, safeguard humanity, and ensure the vitality of future generations. Through innovation and resilience, we can prioritize a healthier, more balanced future for the planet.

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### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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