Climate Change Communication: An Analysis of Fear Appeals

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Abstract

A fear appeal is a communicatory technique that is ubiquitous in the mass media; it is almost impossible to research climate change without encountering at least one fear focused narrative of the future. Some literature suggests that fear appeals are an effective way to promote individual action, but there is also research that demonstrates why fear appeals are a counterproductive way to encourage individual action. This study examines the way in which individuals interpret fear appeals through a qualitative analysis of 13 semi-structured interviews that were conducted with young adults living in the United States. The results of this study illustrate that almost all young adults have encountered some form of fear appeals in the media. However, this exposure to fear appeals rarely alters their individual action. In fact, when looking at individual action taken to combat climate change, there is little variance among young adults.

Keywords: fear appeal, climate change, global warming, climate change communication

Introduction

Climate change is a significant and immediate threat that is impacting individuals, companies, and governments all over the world. The adverse effects of climate change are largely due to an increase in harmful human behaviors, such as, greenhouse gas emissions, deforestation, urban expansion, and natural resource extraction. These negative human behaviors are leading to rapid changes in the atmosphere, ocean, and biosphere (IPCC 2021). Each of the last four decades has been successively warmer than any decade that preceded it since the 1850s. Global surface temperature in the 21st century were 0.99 degrees Celsius higher than 1850-1909. Likewise, the global surface temperature was 1.09 degrees Celsius higher in 2011-2020 than 1850-1900 (IPCC 2021)." With the growing threat of climate change, there is an increased need to communicate climate science in a way that is memorable, effective, and inspiring for individual consumers. It is important to understand the multitude of communicatory approaches that can be used to stimulate public engagement because this will help inform the design and execution of future climate change communication. Climate change can be communicated in several ways; however, my research will focus on a technique known as fear appeals.

Fear appeals are a common default messaging technique used in climate change communication; this is because the idea of climate change is inherently scary (Skurka et al. 2018). Climate change is a global disaster that could result in increased floods, fires, severe storms, and species extinctions (IPCC 2021). As a result, it is hard to paint a futuristic climate change narrative without the use of fear appeals. This communication technique could lead to adaptive behaviors that attempt to limit the threat of climate change or it could lead to an increase in climate change skepticism. My research aims to explore the climate change messages

that millennials are being exposed to, the toll that these messages have on their emotions, and whether these types of emotions inspire individual action.

Throughout my research, I analyzed an individual's interpretation of fear appeal by conducting semi-structured interviews that explored climate change related media, emotions, and behavioral actions. My data is a qualitative assessment of an individual's experiences as they relate to climate change communication. Within this paper, I will discuss the history of climate change communication, define fear appeal, and analyze previous studies that have tested the effectiveness of fear appeals within climate change communication. Additionally, I will provide an overview of theories that demonstrate the strengths and weaknesses of fear appeals as they appear in the climate change context.

Climate Change Communication

Climate change communication is a relatively new area of interest for researchers, "analysis of climate change communication and its impact on the general public have been proliferating in communication and related discipline journals since the late 1990s" (Nerlich et al. 2009). Some of the first articles about climate change risk perception and climate change communication came in the 1990s with a look at ozone depletion and skin cancer, the purpose of these studies was to examine the public's understanding and perception of climate change related risks (Chadwick 2017). Since then, much of the research on climate change communication has shifted to examine the factors that affect public understanding of climate change, media coverage, framing methods, the effects of the media, and climate change risk perception (Chadwick 2017). Research on climate change communication has shifted to focus on a wide variety of topics to develop a communication technique that is effective for the largest number of individuals. However, this type of research is limited, as it largely takes place in developed

countries, such as, the United Kingdom, Untied States, Australia, and Canada, with little research being done in developing nations (Chadwick 2017). People with varying religions, political affiliations, backgrounds, levels of education, and wealth distributions might have differing opinions on climate change, thus leaving a lot of unknowns for climate change communicators (Ettinger et al. 2021).

Research has shown that climate change communication in the United States reaches a large audience, the Yale Program on Climate Change Communication surveyed over 25,00 United States citizens in the spring of 2020 to better understand the level of climate change concern throughout the United States. This survey found that 61% of adults believe that climate change will harm people living in the United States, 43% believe that climate change will harm them personally, and 71% believe that climate change will harm future generations (Marlon et al. 2020). Climate change is highly threatening, it is ongoing and developing, it is uncertain, and it is globally shared which can lead to an increased emotional response (Clayton 2020).

The future, with regards to climate change, can feel like a distant, remote, or impossible narrative. The risks associated with climate change pose a vast threat for humanity; however, for many people these threats are too distant and impossible to imagine (O'Neill and Nicholson-Cole 2009). Effective pathways of climate change communication can come with several challenges, especially in the age of mass media. Individuals are constantly being exposed to media via the internet, the television, newspapers, magazines, social media sites, or popular streaming platforms (Newman et al. 2021). Because of the influx of mass media, people might become desensitized to the climate change visualizations that they encounter on a regular basis (O'Neill and Nicholson-Cole 2009).

Defining Fear Appeal

People searching for "climate change" online routinely encounter fear appeals. A fear appeal is a "persuasive communication attempt designed to arouse fear to promote precautionary motivation and self-protective action (Ruiter et al. 2001)". For years, fear appeals have been used in the public sector to discourage certain negative behaviors. A classic example of fear appeals can be seen in anti-smoking advertisements. These advertisements often portray a person with breathing issues, cancer, or black tar-filled lungs. This powerful imagery is designed to scare people away from cigarettes and other tabaco uses. This same type of fear inducing communication is apparent throughout climate change media. The headlines that are associated with climate change often include strong language, such as, catastrophe, disaster, devastation, and doom. The imagery surrounding climate change communication is often a scary narrative that portrays the most devastating climate change scenarios. Streaming platforms, like Netflix, Hulu, Amazon Prime, and HBO Max showcase documentaries that reveal fires, floods, mass extinctions, and extreme weather events. A prime example of fear appeals can be seen in Al Gore's documentary, *An Inconvenient Truth,* the documentary portrays devastating natural disasters that are happening around the world. Throughout my research I will aim to gain a broader understanding of the ways in which young adults process and interpret climate change fear appeals.

Fear Appeal in Theory

Climate change for many individuals feels like a distant problem; "macro-environmental issues such as climate change are "wicked issues" defined as virtually intractable matters characterized by uncertainty over consequences, diverse and multiple engaged interests, conflicting knowledge claims, and high stakes (O'Neill and Nicholson-Cole 2009)." It is hard for climate change communicators to connect with individuals on a personal level because climate

change can feel like a distant issue; research has revealed that individuals have difficulty looking 15 to 20 years into the future (Tonn et al. 2006). Fear appeals might effectively resonate with an individual, however, research has shown that people "exhibit unrealistic optimism in their ability to avoid climate risks compared to others…individuals generally consider climate change "less serious" and "less dangerous" to themselves than to other people (O'Neill and Nicholson-Cole 2009)." In addition, climate change communication proves difficult, when compared to other public health risks, because it is hard to directly link extreme weather events to climate change (O'Neill and Nicholson-Cole 2009). This makes it increasingly difficult for people to feel personally threatened by climate change which could explain why fear appeals are often overlooked by individuals. Research has also shown that fear appeals are not likely to have a long-lasting effect on individuals. One study surveyed individuals before and after watching *The Day After Tomorrow,* and they found that directly after the film 67% of respondents believed that "everybody has to do something" to stop climate change. However, this sense of urgency was gone by the time the focus groups took place (Lowe et al. 2006).

There are several studies that suggest climate change fear appeals are not an effective communication technique for many different reasons. For example, one study compared fear and hope appeals by showing their respondents a hopeful climate change narrative, a narrative of doom and gloom, or a control video. This study found that there was no significant difference among the respondent's risk perception, intended behavior changes, or intended climate change activism, indicating that fear appeals may not be an effective communication method when trying to promote individual action (Ettinger et al. 2021). This study explains that people are likely to respond differently to emotional appeals based on their political affiliation or individual experiences. Other research has uncovered that fear-based climate messaging can cause

individuals to feel powerless in the face of climate change, thus causing them to distance themselves from this type of distressing information (O'Neill and Nicholson-Cole 2009). Additionally, studies have found that fearful climate change messaging can cause psychological dissonance which can lead individuals to deny the reality of climate change (Feinberg and Willer 2010).

However, several studies have been conducted that exhibit a link between climate change fear appeals and an individual's environmental activism, political engagement, and behavioral and attitude changes. The success of fear appeals can be explained using Witte's extended parallel processing model which explains that fear appeals operate by "activating danger control responses, in which a message recipient takes action to respond to a looming threat (Witte 1992)". One study examined the effectiveness of fear and humor appeals by showing their audience particular videos that would convey those intended emotional responses. They found that fear and humor appeals are both successful when trying to promote individual intentions to partake in environmental activism (Skurka et al. 2018).

Data and Methods

Sample

This study draws on 13 semi-structured interviews that were drawn from a convenience sample composed of Camp Watitoh counselors and Indiana University students. This sample was composed of 9 females and 4 males. All the respondents were young adults with varying birth years ranging from 1996 to 2002, with the average age of the population falling at 21 years of age. The average participant in the sample leaned left with 9 individuals identifying as "liberal", 3 individuals identifying as "moderate", and 1 individual identifying as "conservative". Eleven different states were represented within this sample (Virginia, Utah, Alabama, Colorado,

Georgia, Kansas, Indiana, Illinois, Michigan, Maryland, and California). Additionally, all the participants within the sample had completed at least one full semester of college. Each interview lasted between 12 and 17 minutes with the average interview time being roughly 14 minutes. All the interviews were conducted in person. The interviews were recorded on Voice Memo and later processed by Otter.ai, an automated transcribing software. Once the interviews were transcribed, they were thematically coded based on the emotions, media, and individual actions that the respondents described.

Data Collection

The semi-structured interview is composed of six core questions which aim to explore the emotions associated with climate change, the media and imagery surrounding climate change, and the way that individuals respond to climate change. The first question asks for the respondent's definition of climate change to establish their overall knowledge and understanding of the subject. The next question aims to uncover the emotions that the individual feels when they think about climate change; this is an open-ended question which allows the respondent to talk about any relevant emotion that they may feel. The middle half of the interview focuses on the specific media, imagery, or social media posts that the respondent most directly links to climate change. The purpose of this question is to identify the types of media that young adults are being exposed to, and it is a way to identify the types of media that people are most likely to remember.

In the middle of the interview, the respondents are asked to watch a two minute, fourteen second short film on YouTube that portrays a very fear inducing climate change narrative. The video is full of strong imagery, there are clips of forest fires, melting ice caps, deforestation, war, and billowing smokestacks. The music throughout the short film is very urgent, scary, and

unsettling. The soundbites throughout the film come from some very powerful speeches; one sound bite came from Greta Thunberg and another one of them came from Alexandria Ocasio-Cortez. The purpose of this film was to see how the respondents would react to the fear appeals that were apparent throughout the film. The objective was to see what parts of the film stood out to the respondent, the types of emotions that the film induced, and if they had ever seen a short film like this in the media.

The final part of the interview aims to uncover any changes that the respondent has made in their life as a direct response to climate change. This question is worded in a way that encourages the respondent to list all changes that they have implemented in their life. I followed this question by asking the respondent to explain the event that pushed them to make these sustainable life changes, I asked this question to uncover the memorable events that can push an individual to act. At the end of the interview, I asked the respondent some demographic questions related to their age, their hometown, their political affiliation, and their level of education.

Results

Climate change definition

The first question in the interview prompted the respondents to give their own definition of climate change, this was to gauge the individual's overall understanding of the subject. Each of the individual definitions was compared to a definition of climate change given by NASA which reads:

> climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional, and global climates. Changes observed in Earth's climate since the early 20th century are primarily driven by human

activities, particularly fossil fuel burning, which increases heat-trapping

greenhouse gas levels in Earth's atmosphere, raising Earth's average surface

temperature (NASA 2020).

When compared to this definition, all the respondents were able to give a rough definition of

climate change which indicated that they had at least a basic understanding of the subject.

ID2 explained, "climate change is the planet's natural global warming that has been

accelerated by human behavior and human consumerism. Humans are acting as a catalyst to the

Earth's natural global warming." Similarly, ID10 said, "climate change is the way in which the

earth's climate is progressing because of unnatural factors caused by human behaviors". ID6

explained, "climate change is when the world slowly changes due to weather. When I think

about climate change, I think about the world heating up, ice caps melting, the overuse of

harmful gases and chemicals that are released into the atmosphere." The other 10 respondents

gave similar definitions when they were asked to define climate change, respondents often

mentioned "harmful human behaviors", "greenhouse gases", and "changing weather patterns".

Emotional Response to Climate Change

When the respondents were asked how they feel when they think about climate change,

they consistently responded with strong, often negative emotions. The most common first

emotion that people mentioned was that they feel scared when they think about climate change

accounting for 4 total responses. ID13, a 21-year-old female from California, explained:

> I am really scared, sad, and devastated. There was a period of time where I
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> tweaked out about climate change, I really started freaking out. I started to
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> wonder if I even wanted to bring children into this world because I don't know if
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> the world is going to exist in the way that we know it. It has completely changed

> my perspective on life. I don't know how long we are going to live either, so that's really scary.

A slightly different response to this question was that the respondents reported feeling sad, upset, or hopeless when they think about climate change, each of these groups was made up of 2 individuals. ID4 explained, "seeing climate change makes me very upset. Back home [in Colorado], things have been bad with forest fires and flooding. I hate to see the areas around us being so affected by the horrible disasters that are happening. I wish that people would do more because what's happening is not okay and it makes me extremely sad." There was 1 individual from each of the following categories that described feeling stressed, worried, or emotionless when they think about climate change. ID6 said, "I don't have any emotions towards climate change. It is an issue, but it is more of a problem for future generations. As an African American male, I have bigger issue to think about." ID2 explained, "I feel very stressed and anxious because we haven't made many steps towards a solution. It's our future, it's my future, it's our generation's future that is going to be greatly affected. It makes me very sad as well. I think that it is one of the biggest tragedies because it is so preventable." Of the 13 participants, there were 3 individuals that described feeling 1 emotion when they thought about climate change, and there were 10 respondents that described feeling more than one emotion when they thought about climate change with the average number of emotions per participant being 3. However, there was 1 individual that described feeling 7 different emotions. The exhaustive list of emotional responses are as follows: sad, angry, stressed, anxious, upset, emotionless, scared, confused, unconfident, guilty, worried, devastated, hopeful, and hopeless.

Climate Change Related Media

When participants were prompted to describe the images, social media posts, clips, movies, or documentaries that they most closely associated with climate change they often recalled unpleasant or scary media. Of the respondents, 3 individuals said that they think about the classic image of penguins and polar bears that are stranded and starving on melting ice caps in the middle of the Arctic. ID1, said "I think about those little penguins and polar bears that are trapped." There were 3 more individuals that described images of natural disasters when they think about climate change. They described images of fires, floods, oil spills, and extreme weather patterns. ID3, explained "I always think about fires. The Australian fires and the Oregon fires. It's really scary because it feels so out of my control." Likewise, ID7 said, "I think about pictures of big oil spills, wildfires, and plastic in the ocean." There were 5 respondents who mentioned that they picture documentaries when they think about climate change-related media. Participants mentioned *Seaspiracy, Our Planet,* and *An Inconvenient Truth.* ID9, a 21-year-old female, explained that she visualizes a futuristic movie that portrays an uninhabitable Earth where everyone must live indoors. Lastly, ID6 explained that he doesn't picture anything when he thinks about climate change because it is not something that he frequently thinks about or seeks to learn about.

Individual Actions

There was little variation among the actions that individuals reported taking as a direct response to climate change. More than 2/3 of participants, or 9 individuals, reported that recycling is the most common individual action that they engage in as a direct response to climate change. Reusing materials was the second most common action that people recall taking in response to climate change, 5 respondents explained that they use reusable bags, water bottles, or clothes. Of the 13 individuals, 3 people mentioned that they try to use less water to combat

climate change. There were 2 individuals from each of the following categories that recalled their support for more sustainable companies, their production of less food waste, or their intentional dietary changes as a direct repose to climate change. Additionally, there was 1 person from each of the following categories that explained that they don't litter, they drive less, educate themselves, sign petitions, attend protests, or do nothing as a direct response to climate change. There was one outlier within the population who mentioned seven different actions that she often takes to combat climate change; these individual actions include, reuse of everyday materials, a decrease in plastic consumption, increased support for sustainable companies, being a full-time vegetarian, educating herself on climate change related issues, attending protests, and signing environmental-related petitions. There were 12 respondents who described taking at least one action as a direct response to climate change. When recalling the individual actions that she has taken as a direct response to climate change, ID8 said,

> I don't think I've made any large changes in my life as a response to climate change. I do the most basic thing that a person can do, I recycle. I don't know if recycling is effective, but I hope it makes an impact. Hopefully when I have a higher income, I will support brands that care about the environment.

Likewise, ID11 said, "I don't really do much besides basic recycling. I guess I try to wear a lot of used clothes because I've heard that fast fashion is harmful for the environment."

Additional Findings

Additionally, these interviews revealed that 5 individuals feel personally responsible for solving climate change. ID2 expressed, "every single person has to do their part to stop climate change." Whereas 6 individuals believe that corporations and big governments are responsible for solving climate change. ID3 explained, "what I do as an individual won't make a difference

in the big picture. Governments and corporation have to step in to make the change." Another finding was that 6 people within the sample have been personally affected by climate change. For example, ID9 mentioned that she has experienced the rising sea levels in Florida, ID13 explained that she has been exposed to unhealthy air quality in California, and ID6 explained that he has experienced increased heat waves in Kansas. Additionally, ID6 expressed the belief that "the Earth is just running a natural course; humans are just speeding up the process."

Discussion

All the young adults that were interviewed had a basic understanding of climate change and the majority of them, 92%, had a strong emotional response to the subject. This indicates that individuals care about the impacts of climate change, but alone these emotions won't drive individual action. Additionally, individuals were likely to recall prominent fear appeals that they had previously seen in the media. This shows that fear appeals are an effective way to grab an individual's attention, but, alone, they are not an effective way to inspire individual action.

Respondents often noted fear appeals that are psychologically distant and thus unlikely to motivate actions. Research suggests that if people knew how to be more sustainable then they would be more willing to make the change, but the media rarely focuses on the solutions to climate change, instead they focus of the tragedies that could happen if humans don't do something about the problem. If people were given more clear and direct advice, then they would be more willing to act (Gardner and Stern 2008). The media that people most closely associate with climate change could ultimately dictate individual action. Three respondents out of the population explained that when they think about climate change, they picture starving polar bears and penguins that are stranded on melting ice. Most people have never been to the Arctic which can make the issue feel unrealistic and distant. The individuals that described this type of climate

change media, explained that recycling was the only action they've taken to mitigate the effects of climate change. There were three respondents who explained that when they think about climate change, they visualize natural disasters. The imagery associated with natural disasters can feel very distant or impossible for an individual, especially if they have not personally been affected by this type of disaster.

The type of media explained above regarding polar bears, penguins, melting ice, fires, and severe weather events are all examples of distance framing. These events have never personally affected the individuals that mentioned them, yet they are unforgettable. If people associate climate change with a high level of uncertainty, then individuals are likely to ignore the problem. If the future seems uncertain, then people are likely to participate in their own self-interest, thus not transitioning to more sustainable choices (Morton 2011).

There were several respondents who expressed extreme negative emotions regarding climate change but chose not to take increased individual actions. People do not consistently participate in individual climate change related actions; for example, one person may be great at recycling, but emit large amounts of carbon dioxide during their daily commute. These types of individuals might be concerned about climate change, but several external factors influence individual behavior, such as, status, comfort, effort, and behavioral opportunities (Morton 2011). Research suggests that there are several internal, external, and structural factors which can influence a person's willingness to participate in green behavior. "Research suggests that while a majority of people might endorse pro-environmental beliefs, very few would be willing to forego price, convenience, and ease in favor of a product's greenness." However, some people are willing to spend more money on a product, simply because it is labeled "green" or "sustainable". People do

this because they want to look favorable to society, not because they are necessarily pro-environment (Sachdeva and Jordan 2015).

Limitations and Direction for Future Research

For this research, data collection was limited to a two-month window, which limited the number of participants. Additionally, it was challenging to find young adults that were willing to complete an interview. Because of the low number of respondents, the sample is not generalizable to a larger population. However, the data that was collected is still very valuable, as future researchers will want to use these findings to inform a larger N survey. Social desirability bias and interviewer effect is another limitation that exists in this study. Because the interviewer is in the room, the interviews cannot be completely anonymous. This could lead the respondents to answer the questions in a way that they feel is most socially acceptable which could impact the data. The semi-structured interview format led to valuable information because I was able to understand the respondent's emotions, personal experiences, and individual actions. I was also able to understand why the respondents made certain decisions which is valuable insight when studying a complex topic like climate change communication.

Conclusion

This study explored the emotions surrounding climate change, the types of climate change-related media that individuals recall, and the actions that individuals have taken as a direct response to climate change. Overall, this study found that fear appeals are an effective way to drive an emotional response within an individual; however, they are not an effective way to inspire individual actions. Effective climate change messaging needs to include more than just fear based appeals. First, people need to understand the most effective individual actions that they can take to mitigate the effects of climate change. Additionally, people need to feel like

what they're doing will make an impact on the big picture. Effective climate change

communication techniques need to include more than just doom and disaster.

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