

**Feminism, Gendering Nature, and Environmental Concern:
New Insights from Colorado Residents**

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Abstract

Climate change and patriarchy pose mounting threats to human wellbeing and the health of our planet, and these factors continue to call into question society's relationship with the environment. Within a historically imperialist, patriarchal, and hypermasculine society, how do human tendencies to view nature as feminine impact levels of environmental concern? I collected original survey data from Colorado residents using a non-probability sampling (n=233) which investigated the association among environmental concern and the tendencies to gender nature or have hypermasculine or feminist ideologies. Through bivariate and multivariate analysis, I found that gendering nature as feminine has a positive association with high environmental concern. I found feminism to be the single strongest predictor of environmental concern—meaning that the more feminist one is, the more likely they are to have high environmental concern with strong statistical evidence. The social implications of this data are significant and suggest generational and ideological divides in environmental attitudes and behavior. These findings suggest an amplified need for feminist perspectives in climate literacy programs, environmental policy, and the climate activist movement moving forward. There is a continued need for women's liberation from the global patriarchal consciousness, as well as a dramatic shift in human behaviors to curb the lethal consequences of climate change.

Keywords: feminism, ecofeminism, environmental concern, climate change, patriarchy, hypermasculinity

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I. Introduction

Climate change poses a mounting threat to human wellbeing and the health of our planet, and scientists warn of the dire consequences of inaction (IPCC, 2022). Humanity's reaction (and lack of action) to the onset of climate change has put a spotlight on human populations' ongoing dialectic with "Mother Earth". Now more than ever, it is important to understand how the construction of human-nature interactions are bred within the context of human-human interactions, subject to the same unequal practices and institutions (Veak, 1999). Colonialist, patriarchal, and neoliberal logics embedded in Western society motivate the wide-spread commodification of nature and push the imperative for constant economic growth, which is an inherently unsustainable model that is out of step with our natural planetary boundaries. How does our society treat the feminized "Mother Earth"? Investigating the environmental crisis without acknowledging the dominant role of patriarchy in society will lead to solutions that are incomplete, as social structures maintain patriarchy and threaten the biosphere (Kennedy & Dzialo, 2015).

Patriarchy has its roots in gender injustice. In environmental sociology, gender has mainly been considered in lieu of other socio-demographic interests, however gender injustice in climate change merits specific attention and research (Kennedy & Dzialo, 2015). The secondary status of women in society is a pan-cultural fact, despite variations of the power and position of women across different cultures (Ortner, 1974; Chhabra & Bhanu, 2022). Globally, women continue to be disproportionately represented in leadership positions and face distinct obstacles through phenomena like the glass-ceiling, second-shift, wage gap, and targeted violence and discrimination which tend to link class inequality with gender inequality (Mandel & Rotman, 2022; George, Milli, & Tripp, 2022; Gharehgozli & Atal, 2020). The twin domination of men

over women and humans over the environment, studied by ecofeminists, is a lesser explored area in academia (Federici, 2022). The basis of examining this type of social change begins with understanding the solidarity between categorical inequalities (e.g., gender, race, class) and institutions (e.g., policy or education). Understanding this parallel domination can accelerate the deeper understanding of the roots of systemic injustices that disproportionately burden the groups who feel climate consequence first and worst and allow for the co-creation of equitable solutions looking into the future (Díaz et al., 2019). This research seeks to theoretically apply ecofeminist principles to the analysis of contemporary environmental attitudes and behaviors in Colorado, a study that has not been conducted before.

Since the earth has historically been feminized in different cultures and religions (e.g., “Mother Earth”, “Mother Nature”), how does this impact levels of environmental concern in Colorado? How does the presence of patriarchal and sexist ideologies across American culture manifest through individual levels of environmental concern? As countries face catastrophic destruction and conflict exacerbated by climate change, there is a renewed need for the investigation of how environmental concern is associated with gendering the environment. This research investigates whether there is a relationship between viewing nature as feminine (“Mother Nature”, “protect our mother”, etc.) and tolerating environmental exploitation. More specifically, the primary research question I ask is: “Is feminization of the environment associated with environmental concern?” Furthermore, this research also considers how different identities and characteristics, such as feminism and hypermasculinity, might impact people’s beliefs and behaviors related to the environment through addressing individual’s perceptions of power, power-sharing, and activism.

II. Background

Environmental sociology and its related field of environmental justice offer frameworks of understanding aspects of environmental concern. However, literature that examines climate change and the intersection of gender and environment is still relatively rare and has not been designated as a core discipline in the field of sociology. A somewhat overlooked gender-relevant pedagogy, ecofeminism, can be used as a heuristic to poignantly address urgent ecological issues and women's issues in tandem. Locating gender in environmental concern has been attempted, however determining the precise drivers underlying gender gaps in pro-environmental behavior and the larger environmental movement itself remains relatively untheorized (Kennedy & Dzialo, 2015).

Ecofeminism

Ecofeminism was born out of the peace movements across the United States in the late 1970s and reveals how the cultural interchange of women and nature can be viewed as the source of their universal subordination (Phillips & Rumens, 2017). While ecofeminism can be used as an umbrella term for different political perspectives, ecofeminism is widely understood as an academic and activist movement centered around the notion that hegemonic systems of power lead to the simultaneous domination of men over women and of people over the environment (Federici, 2022; Phillips & Rumens, 2017). Ecofeminism highlights the ways in which both nature and women are unequally treated across the world in different global perspectives and offers a framework for the safeguarding of all life and living beings, which includes our dependence on the natural world. My research supports the contemporary development of a decolonized ecofeminist paradigm that can be used to better address the larger social, political, and historical context of humanity and nature. This contemporary version of ecofeminism can

support a more inclusive approach as society works rapidly to meet environmental and social justice challenges associated with climate change and global warming.

Ecofeminism, part of the larger feminist and political ecology movement, critiques the nature of dominant and hierarchical societies. Feminism is important to incorporate into this research because, like feminist political ecology, it is still relevant to draw attention to gendered knowledge, the disparity of resource access and control, and the linkages between local struggles and global problems (Leach, 2007). There is an increasing body of research surrounding the systemic discrimination against women, low numbers of women in leadership positions, heightened numbers of gendered violence including harassment, assaults, and murders of women often accompanied by loud silence, and increasing maternal mortality rates (Caroline Criado-Perez, 2020; Oakley, 2000; Berry & Gross, 2020; Tanne, 2022). This systemic landscape creates the circumstances for the largest repercussions to land on women who hold identities of Black, minoritized, under-resourced, and/or are of low socio-economic status (Coen-Sanchez et al., 2022; George, Milli, & Tripp, 2022). However, recent studies have found that higher female political representation improved institutional quality through reducing corruption and was associated with fewer deaths during the COVID-19 crisis (Hessami & da Fonesca, 2020; Sergent & Stajkovic, 2020). The authors cited increased empathy and confidence in women's briefings, as well as issuing earlier stay at home orders, as reason for the lower COVID-19 death counts under female leadership compared to men's (Sergent & Stajkovic, 2020). While literature is beginning to reveal insights on the impacts of female leadership on the COVID-19 crisis, the relationship between feminism and environmental policies, behavior, and perceptions remains less researched and ever-important.

The analysis of this research is supported through the lens of human ecology, where the human activities and the related chain of effects are analyzed on both ecological and social systems (Marten, 2008). As ecofeminism seeks to address the parallel domination and exploitation of women and nature, this research operates with the understanding that special considerations must be established for the unique subjugation of People of Color, children, the LGBTQI+ community, and economically underserved populations. For humans to address the domination and exploitation of women, humans must first address their dominant, exploitative, and coercive relationship with the environment.

Gendered Perceptions of Nature and Dominance

Stern, Dietz, and Kalof (1993) offered a foundational model to observe gender differences in environmental perceptions, based on concern for self-interest, other human beings, and nonhuman species of the biosphere, otherwise known as the following value categories: egoistic, social-altruistic, and biospheric orientation. Researchers like Gifford & Sussman (2012) have since elaborated on this theory to defend the notion that pro-environmental attitudes fluctuate according to current events and vary with different identity measures such as age, gender, socioeconomic status, urban-rural residence, politics, values, and education.

Gender Differences in Environmental Concern

Previous research reveals that pro-environmental behavior differs among groups based on certain exposures, such as gender identity (Vicente-Molina et al., 2018). Over the past few decades, researchers have consistently found that men report weaker pro-environmental values, beliefs, and attitudes compared to women (Xiao & McCright, 2015; Zelezny et al., 2000). Women have been found to participate in more pro-environmental activities than men, with this difference most pronounced in private, household activities (Vicente-Molina et al., 2018). From

a sociologist's perspective, human concern for the environment is driven out of cultural and social-structural factors of society and not a biological characteristic of people. However, research into the drivers and consequences of this gender gap remains less explored.

This evidence has been predominantly supported by the gender socialization theory that argues that girls and boys acquire different values and are held to different social expectations imposed by the dominant culture in society (Strapko et al., 2016). For example, boys are taught to be competitive, independent, and unemotional, whereas girls are typically taught to be caring, collaborative, and empathetic. According to this theory, the early socialization of children lays a foundation of gender-based disparities regarding environmental concern, mediated by scientific and environmental knowledge and basic value orientations (Xiao & McCright, 2015; Vicente-Molina et al., 2018). However, Strapko (2018) exposes the limitations of assuming that characteristics such as competitiveness and being caring are exclusive gender domains, for these characteristics and gender identities exist on a continuum. For this reason, it may be more accurate to directly examine value orientations on levels of environmental concern among a variety of gender representations, which I have attempted in this study through providing expanded, gender-inclusive options in my survey to better represent the spectrum of gender identities and expressions that exist.

In extant work, the strongest predictor of environmental concern in both men and women is political preference—the more Republican or conservative an individual is, the less likely they will express concern for the environment, regardless of gender (Strapko et al., 2016). Strapko et al. (2016) also found that the ethic of care value orientation had a positive relationship with environmental concern for both men and women, suggesting that the effect of this value orientation may be gender neutral. On the other hand, religiosity has been found to not mediate

the effect of gender on environmental concern, which is why religion has been omitted from my study (Xiao & McCright, 2012). However, this omission carries consequences, especially in terms of the depth of the nature-human relationship that exists in certain religions and cultures, particularly indigenous ones.

Metaphorical Gender of Nature

From a non-indigenous, Western perspective, the symbolism of a feminine name for an object can be extended broadly to the way society has feminized the environment using words like “Mother Nature”. The phrase “Mother Nature” or “Mother Earth” represents a metaphor for the linkage between the feminine gender and the nurturance and protection that is provided by the natural world. A study by Waytz et al. (2010) explored how those who humanize nature are more likely to treat nature with similar applications of respect and human social norms. However, if the social norms are to view femininity as “second status” in society, this conditioning could lead to an increased tendency to tolerate the degradation of the environment. This idea lays modern groundwork for how humans come to (dis)respect or hold concern for the earth. While the anthropomorphizing of nature is not universal, it is unclear how prevalent this tendency is in the United States. Since the process of anthropomorphizing nature can carry behavioral implications, research is needed on how perceptions of a gendered environment influence individual environmentally degrading behaviors, thoughts, and attitudes.

Hypermasculinity

Rooted in American culture, hypermasculinity justifies superiority of men over women, and manly emotions, such as destruction and anger, over “inferior” and feminine emotions such as care and nurturance (Mosher & Tomkins, 1988). Hypermasculinity has been associated with ideologies of dominance and aggression over women, which elevates hypermasculinity as a key

indicator of environmentally degrading behavior through an ecofeminist lens. Research by Aggestam and True (2020) investigated the intersection of international feminist theory (IFT) and foreign policy analysis (FPA), which builds off literature stating that men and women leaders in politics perform in gendered ways. These authors posit that wielding gender identities in these positions has consequences, for example hypermasculine performances in the past have produced outcomes such as strong-arm tactics and displays of hard power.

An example of when hypermasculinity saturated policy decisions is when former President Donald Trump implemented a foreign policy strategy through inflated masculine rhetoric and the idea of a stronger, tougher, more dominant United States to counter reports that the United States had become too “feminine and soft” (Rice, 2017). Since displays of gender are influencing American foreign policy, research is needed to see how the gendered perceptions of nature may be impacting environmental policy and contemporary American views of nature. The root of this research question is the basic association between hypermasculine dispositions and environmental attitudes, thoughts, and behaviors.

Trends for environmental degradation point towards gender socialization theory, showing clear gender differences in pro-environmental values among men and women (Xiao & McCright, 2015; Zelezny et al., 2000; Vicente-Molina et al., 2018). Both the women’s movement and ecofeminism are fueled by the basic desire for equality for women and improvement of women’s condition in the social, economic, and political structure— a way to validate women as autonomous human beings. Incorporating feminist perspective into understanding environmental concern is important to further understanding and addressing the root causes of the current dominance, competition, and exploitation over the environment which is consistent with hypermasculine tendencies.

Affect, Emotion, and Climate Change

When prompted to think of climate change, affect and emotion (the feelings that people experience) remain among the top predictors for their risk perceptions of climate change, mitigation and adaptation behavior, policy agreeability, and technology acceptance (Brosch, 2021). Additional research has found that support for climate policies can be predicted by an individual's level of "worry" as the single strongest predictor for climate and energy policies (Smith & Leiserowitz, 2014; Wang, Leviston, Hurlstone, Lawrence, & Walker, 2018). The association between feminizing the environment and tolerating environmental degradation may be, in part, determined by an individual's emotional affect. For this reason, my methodological approach included the self-reporting of experiences of worry and anxiety when thinking about the climate future of the earth.

Sociology interprets emotions as a part of larger scales of political, historical, and cultural contexts, processes which are fundamentally influenced by power structures (Haltinner, Ladino, & Sarathchandra, 2021). Since the political atmosphere notoriously reinforces social inequities, mitigating climate change and progressing women's rights and access in society requires disruptive ingenuity (policies that displace current narratives and transform institutions), especially if done in an equitable way. Therefore, emotions and affect are relevant predictors behind the degree to which someone feels inclined to change their behavior toward pro-environmental actions.

III. Current Aims

Research Questions

My primary research question is: “Is feminization of the environment associated with environmental concern?” My secondary research question is: “Are feminist ideologies or hypermasculine traits associated with concern for the environment?”

Hypothesis

I hypothesize, first, a positive association between respondents’ perceptions of nature being inherently feminine and respondents’ tolerance for environmental degradation (low concern for the environment). Secondly, I hypothesize there to be a positive association between those who self-identify as feminist and have *high* concern for the environment. Finally, I hypothesize a positive association between those with hypermasculine attitudes and *low* concern for the environment.

H0 = there is no association between variables

H1 = there is an association between gendering nature as feminine and low environmental concern

H2 = there is an association between feminism and high environmental concern

H3 = there is an association between hypermasculinity and low environmental concern

IV. Analytic Approach

The primary aim of this research paper was to test the association between feminization of the environment (i.e., using gendered terms to describe the environment [e.g., “Mother Earth”]) and level of environmental concern among Colorado residents. Further, I was interested in how socio-demographic indicators, such as gender, age, and education levels, as well as

certain dispositions for either feminist or hypermasculine qualities, reveal additional insights regarding my research questions.

Data & Measures

I used non-probability sampling techniques of convenience and snowball sampling to gather as much data as possible during the limited amount of time allotted to data collection. Specifically, I gathered data from populations with which I had previous access through social media networks, classmates, professors, club-mates, as well as people I encountered while conducting this study in Colorado, such as cafe workers or library-desk attendees. I asked these people to pass along my survey within their networks which added to the snowball effect. I recruited participants for a period of five weeks. See Appendix A for the survey guide and Appendix B for the recruitment flyers. No coercion or compensation was involved in the recruitment process.

I collected data through a survey which predominantly utilized Likert-scale based questions (see Appendix A for the complete, IRB-approved survey guide). The survey was created and distributed on Qualtrics, consisted of 28 total questions, and was designed to take an average of 3-6 minutes to complete. The intention behind designing a survey that could be finished quickly was to maximize the amount of fully completed survey responses I received from different populations across Colorado. I used the Likert-scale based on its efficiency for measuring the overall sentiment of a particular topic, which was an effective way to collect qualitative data in a way that is easily understandable and consistent for participants (Taherdoost, 2019). Since environmental concern exists on a continuum, I used the 6-scale Likert to increase validity, and I removed the neutral option to avoid satisficing (Edwards & Smith, 2002; Krosnick

et al., 2002). I used additional measures to reduce bias and preserve authenticity, such as question order randomization.

Participant Information

Before participating in the survey, all participants signed a comprehensive informed consent form. All participants were 18 years of age or above and current residents of Colorado. I received a total of 289 responses to my survey. During the data cleaning process, I retained only the cases that didn't have missing values on outcome variables, resulting in a final analytic sample size of $n = 233$. All survey data was completely anonymous with no identifiable data collected from participants. See Table 1 for the descriptive statistics of the total case count represented in this study.

Table 1*Descriptive Statistics (n=233)*

	Age	Frequency	Percent
	Young (<35 years old)	202	86.7
	Midlife (35-64 years old)	23	9.87
	Older adults (65+)	8	3.43
	Total	233	100
	Race/Ethnicity		
	Non-Hispanic White	194	83.26
	Latino	13	5.58
	Non-Hispanic Other	26	11.16
	Total	233	100
	Gender		
	Female	153	65.67
	Male	51	21.89
	Nonbinary/Other	29	12.45
	Total	233	100
	Household Education Level		
	High school diploma or less	24	10.3
	Some college	17	7.3
	Bachelor's degree or more	192	82.4
	Total	233	100
	Household Income Level		
	Less than 75k	80	34.33
	75k-125k	37	15.88
	More than 125k	89	38.2
	Don't Know/Refuse to Answer	27	11.59
	Total	233	100
	Political Leaning		
	Conservative	71	30.47
	Liberal	162	69.53
	Total	233	100

Note. There were not enough responses in each original category for demographic variables originally identified by the author to conduct reliable statistical analysis. Therefore, the demographic categories have been collapsed into the bins displayed in Table 1 for analytical purposes. See the codebook in Appendix C for the original demographic sections and Appendix F for the do-file pathway of collapsing the variables.

Methods

I collected data in two main categories: outcome (dependent) variables and covariate (predictor and independent) measures. These measures are explained below.

Outcome Variable Measures

Outcome variables represent the dependent variable, which function to measure the central focus of this research study: environmental concern. The outcome variables in my study were specifically the emotions, behaviors, and attitudes related to environmental concern.

I chose six outcome variables to represent environmental concern, each variable measured on a Likert-scale of ranging from “strongly disagree” to “strongly agree.” Overall, respondents were scored as either having “high” or “low” concern depending on the frequency a respondent would indicate high or low environmental concern out of the six opportunities. That is, “high concern” represents a cumulative count of the number of times a respondent is in the “high” category. “Low concern” represents a cumulative count of the number of times a respondent is in the “low” category. Table 2 below shows the survey prompts I used to measure the emotions, behaviors, and thoughts related to environmental degradation and level of concern for the environment. All the outcome variables were measured with Likert-scale responses.

Table 2
Outcome Variable Measures

Variable	Category	Survey Question
Outcome 1	Environmental Behavior	(RC) I support companies in outsourcing jobs to areas with less environmental regulation.
Outcome 2	Environmental Behavior	I avoid buying certain products for environmental reasons.
Outcome 3	Environmental Emotion	I have cried and/or have worried excessively about animal species going extinct.
Outcome 4	Environmental Emotion	I experience anxiety when I think about the climate future of our planet.
Outcome 5	Environmental Thought	(RC) Consequences of climate change are overestimated.
Outcome 6	Environmental Thought	Climate change is primarily caused by human activity.

Note. In the table above, (RC) stands for “reverse coded”.

Covariate Measures

Covariate measures represent both the independent variable and other variables that I considered during my analysis in addition to my variable of interest. The covariate variables in this study were feminizing the environment, feminist and hypermasculine tendencies, time spent in nature as a child, political ideology, and demographics. I used demographic questions of educational attainment and income levels both on the individual and parental level as an indicator for socio-economic status. For details of the demographic questions, see the survey guide in Appendix A.

I chose two predictor variables and included eight covariates in my analysis for identity and ideological perspectives. Table 3 below shows the survey prompts I used to measure the predictor and covariate measures. Like with the outcome variables, respondents were scored in “high” or “low” categories of gendering nature (predictor variables) based on the frequency of

their responses. Covariates 1-6 represent questions used to measure the “high” and “low” categories of feminist disposition, hypermasculine disposition, and time spent in nature. Additionally, respondents were labeled as conservative leaning if they responded to Covariate 7 with “a smaller government” and Covariate 8 with “somewhat bad for society” or less. Likewise, respondents were labeled as liberal leaning if they responded to Covariate 7 with “a bigger government” and Covariate 8 with “somewhat good for society” or more. All the outcome variables were measured with Likert-scale responses unless otherwise stated.

Table 3*Covariate Variable Measures*

Variable	Category	Survey Question
Predictor 1	Gendering Nature	I use gendered nicknames to describe the environment (i.e., “Mother Earth”, “Mother Nature”, “protect our mother”)
Predictor 2	Gendering Nature	Nature is inherently feminine.
Covariate 1	Feminism	Which of these terms best describes you? (Strongly feminist, feminist, somewhat feminist, somewhat not feminist, not feminist, anti-feminist)
Covariate 2	Feminism	(RC) Feminism in the United States is “outdated”.
Covariate 3	Hypermasculinity	I view femininity as weaker than masculinity.
Covariate 4	Hypermasculinity	Physical strength is an important part of manhood.
Covariate 5	Hypermasculinity	A sensitive man is a weak man.
Covariate 6	Time Spent in Nature	I had many meaningful experiences in nature as a child.
Covariate 7	Political Leaning	If you had to choose, would you rather have... (A smaller government providing fewer services; a bigger government providing more services)
Covariate 8	Political Leaning	Do you think greater social acceptance of people who are transgender is...(Very good for society; somewhat good; somewhat bad; very bad for society)

Note. In the table above, (RC) stands for “reverse coded”.

Data Analysis

I exported the survey data directly from Qualtrics as a .csv file and imported it into Stata (Basic Edition Version 17.0), where I performed all the statistical analyses. I began to organize my dataset by renaming and labeling the variables into useful codes, as well as assigning value labels. I created high and low categories for the outcome variable measures to represent participants' level of concern held for the environment. Respondents who responded with either "strongly agree" or "agree" comprised the 'high concern' group, whereas respondents who selected "strongly disagree" or "disagree" represented the 'low concern' group. The final outcome variables were measured as counts (0, 1, ..., 6) of the frequencies that respondents fell in the 'high concern' group and frequencies that respondents fell in the 'low concern' group. I repeated this process to create high and low categories for feminist dispositions, hypermasculine dispositions, time spent in nature, as well as creating groups to represent conservative vs liberal qualities.

During analysis, I combined some socio-demographic control categories of race, gender, age, household education, and household income levels so that each variable had only three or four response categories due to low response rates for some categories and the homogeneity of my sample. Additionally, I also combined the degree of feminism into three categories to represent self-identified adherence to feminist positions. It was through this process that I discovered only 9 respondents out of 233 scored 'high' for hypermasculine ideologies, which is too small a number to conduct statistical analyses, which is why this category has been omitted from the rest of the data analysis. The low case count for hypermasculine ideologies could be due to the sampling methods reaching non-representative communities of the population, the wording of my survey questions, or for other reasons not specified.

By tabulating each variable, I was able to assess general descriptive statistics such as the frequency of responses, which is shown in the codebook in Appendix C. I conducted bivariate analysis of the predictor and outcome variables to test how individual variables interact with each other. Further, I conducted multivariate analysis by using Poisson distributions to create my final six models. The sequencing of my models followed logical order going from simplest (Model 1) to most complicated (Model 6). In Model 1, I controlled for race, gender, age, household education levels, household income, and political leaning. Model 2 examines the impact of a feminist ideology on environmental concern. Model 3 and Model 4 then display the two predictor variables (using gendered nicknames to describe nature, like ‘Mother Earth’, and viewing nature as inherently feminine) and their independent associations with environmental concern. In Model 5, I include these two predictor variables simultaneously. Finally, in Model 6, I investigate the interactions between degrees of feminism and the predictor variables, as well as the two-way effects between predictor variables and any degree of feminism. Interactions estimate how the association between feminism and predictor variables depend on another variable. Model 6 allows for the investigation of whether there is an effect of the predictors on environmental concern across different feminist groups.

V. Results

Bivariate Analysis

Among respondents that strongly believe that nature is feminine, 62.7% reported avoiding buying certain products for environmental reasons, compared to only 52.3% compared to those who do not believe nature is feminine, with no statistical significance (.1648). Among respondents that strongly believe that nature is feminine, 89.8% experienced anxiety when

thinking about the climate future of our planet and 88.1% did not think the consequences of climate change are overestimated. In contrast, among those who do not strongly believe nature is feminine, 62.1% experienced this anxiety, with statistical significance (.0001*), and 77.6% did not think the consequences of climate change are overestimated. In summary, those who view nature as feminine were roughly 10% more likely to avoid buying products for environmental reasons and experience anxiety when thinking about the climate future of the planet, without significance. Respondents who view nature as feminine were 27.8% more likely to experience anxiety when thinking about the climate future of the planet than those who do not view nature as feminine, with high statistical significance at the .01 alpha level.

Additionally, among respondents that strongly believe that nature is feminine, 88.1% believe the consequences of climate change are not overestimated and 6.8% bought products regardless of environmental impacts. In contrast, among those who do not strongly believe nature is feminine, 77.6% think the consequences of climate change are not overestimated and 12.1% bought products regardless of environmental impacts. This means that respondents who view nature as feminine were about 10% more likely on average to disagree that climate change consequences are overestimated. Also, those who view nature as feminine were almost twice as likely to consider the environmental impacts of products they are buying, without statistical significance.

Finally, among respondents that strongly believe that nature is feminine, only 1.7% did not experience anxiety when thinking about the climate future of our planet. In contrast, among those who do not strongly believe nature is feminine, 9.8% did not experience this anxiety, with statistical significance (.0447*). This means that respondents who view nature as feminine experienced significantly more anxiety when thinking of the climate future of the planet, 5.8

times more frequently, compared to those who do not gender nature as feminine, at the .05 alpha level.

In my study, about 80% of nonbinary/other respondents and 82% of females carry a feminist or strongly feminist identity, compared to only about 47% of males. Over 50% of people identifying as male identified as not feminist, whereas only 18% of females and 21% of non-binary/other folks identified as not feminist. An emerging pattern in this data is that female and non-binary respondents self-identify as feminists in similar ways, whereas the pattern is the opposite in males.

When looking at a cross-tabulation of the predictor variables and degree of self-proclaimed feminism in Table 4, we see that people were far more likely to use gendered nicknames than to view nature as inherently feminine. However, there were no significant differences among the different levels of feminism for those who use gendered nicknames.

Table 4

Probability (PR) Tests Displaying How Predictor Variables of Using Gendered Nicknames and Viewing Nature as Feminine Vary Across Levels of Feminism.

	Use Gendered Nicknames for Nature (%)	View Nature as Inherently Feminine (%) * ** †
Not Feminist	36.0	13.1
Feminist	36.6	25.7
Strongly Feminist	42.3	35.2

Note. † $p < .1$ * $p < .05$ ** $p < .01$ *** $p < .001$. The likelihood of believing nature is feminine is significantly different across the three levels of feminism. Use of gendered nicknames does not differ across these groups. Results from individual proportion tests are found in Appendix D.

Table 4 also shows significant difference between the likelihood of viewing nature as inherently feminine across the three levels of feminism. Specifically, those who are not feminist and view nature as feminine (13.1%) and those who are feminist and view nature as feminine (25.7%) are significantly different at the $p < .05$. Additionally, those who are not feminist and view nature as feminine (13.1%) and those who are strongly feminist that view nature as feminine (35.2%) are different at the $p < .01$ significance level.

Multivariate Analysis

Predictors of High Environmental Concern

Six Poisson models predicting counts of *high environmental concern* are found in Table 5. Model 1 includes all control variables to establish baseline associations between high environmental concern and socio-demographic factors. There are no significant age differences in the frequency in which respondents indicate high environmental concern. Of notable interest is the large predictive power of liberal versus conservative. Specifically, liberals are estimated to have a 27% higher frequency of indicating high environmental concern.

Table 5***High Environmental Concern***

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Controls						
<i>Age (Ref <35)</i>						
35-64	0.834	0.875	0.91	0.904	0.927	0.870
65+	1.217	1.105	1.143	1.164	1.182	1.184
<i>Race (Ref Non-Hispanic White)</i>						
Hispanic / Latino	0.819	0.741†	0.758	0.758	0.767	0.79
Non Hispanic Other	0.869	0.954	0.953	0.96	0.958	0.962
<i>Gender (Ref Women)</i>						
Men	0.856	1.03	1.067	1.046	1.073	1.058
Nonbinary / Other	1.089	1.039	1.061	1.081	1.089	1.062
<i>Household Education (Ref high school diploma or less)</i>						
Some college	0.778	0.715†	0.707†	0.713†	0.707†	0.758
Bachelor's degree or more	1.018	0.867	0.881	0.883	0.891	0.917
<i>Annual Household Income (Ref less than \$75k)</i>						
\$75k-125k	0.974	0.883	0.884	0.897	0.895	0.918
\$125k +	0.966	0.931	0.931	0.931	0.932	0.045
Didn't answer	0.873	0.866	0.873	0.882	0.884	0.866
<i>Political Leaning (Ref Conservative)</i>						
Liberal	1.262**	1.175*	1.186*	1.181*	1.189*	1.156†
<i>Degree of Feminism (Ref Somewhat Feminist or Less)</i>						
Feminist		1.633***	1.647***	1.613***	1.629***	2.014***
Strongly Feminist		1.844***	1.849***	1.796***	1.812***	2.263***
<i>Gendering Nature</i>						
Using gendered words to describe nature (i.e. "Mother Earth") (Ref=no)			1.132†		1.106	1.658**
Viewing nature as inherently feminine (Ref=no)				1.131	1.097	1.147
<i>Two-way Effect</i>						
Any Feminist * Gendered Words						0.605**
Any Feminist * Viewing nature as inherently feminine						0.959

Note. † $p < .1$ * $p < .05$ ** $p < .01$ *** $p < .001$. See Appendix E for statistical significance of Model 6.

As shown in Table 5, Model 1 displays the non-significant associations among all control variables and the incidences of high environmental concern. Relative to white respondents, Latino and non-Hispanic others both have about 20% lower odds of having high environmental concern, but these are not significant differences. Systematically, those with high income tend to

exhibit higher environmental concern, but results are not significant. Those with liberal leanings have about 26% higher incidences of high environmental concern compared to those with conservative leaning, with strong significance across all models. However, the significance drops significantly when the model accounts for feminism, going from 26.2% down to 17.5%, which is a 33% reduction. Thus, 1/3 of liberal's higher environmental concern is due to liberals being more likely than conservatives to be feminist.

Model 2 tests my second hypothesis of whether a feminist disposition is associated with higher frequencies of high environmental concern. Model 2 introduces the variable of degree of feminism self-described by respondents during the survey, and this category was broken down into "somewhat feminist or less", "feminist", and "strongly feminist" categories. With high significance, those identifying as feminist are consistently 63% more frequent on average to have high environmental concern, and those identifying as strongly feminist are about 85% more frequent to exhibit high environmental concern. While both political leaning and degree of feminism prove to be significantly important predictors of environmental concern, it is evident that the degree of feminism is more potent than political learning for predicting environmental concern. As evidenced in the change of the covariate association between liberal across Model 2 and Model 3, a large proportion of the effect for liberalism is explained by feminism's association with environmental concern ($(17.5-26.2)/26.2=-0.332$ or a 33% reduction). Another way to say this, is that a greater proportion of liberals are feminist, therefore once we account for that compositional difference, the difference between liberals and conservatives in terms of their environmental concern is strongly reduced.

Models 3 and 4 test my first hypothesis of whether gendering nature as feminine is negatively associated with high environmental concern. Specifically, Model 3 tests whether

using gendered nicknames to describe nature, such as “Mother Earth” is significantly associated with lower frequency of environmental concern. Model 4 introduces the predictor variable of viewing nature as inherently feminine and tests this variable against levels of environmental concern. Both predictor variables have positive associations of about 13% higher frequency of having higher environmental concern, which directly contradicts my initial hypothesis that gendering the environment would be associated with lower environmental concern. However, these differences are not significant. Instead, identifying as feminist or strongly feminist remains a stronger predictor for the frequency of high environmental concern.

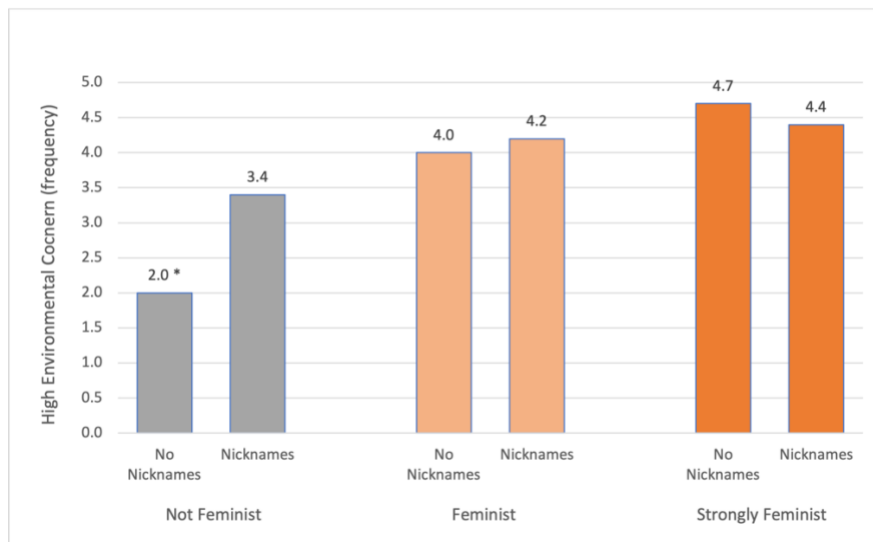
In Model 5, the strength of predicting high environmental concern of both predictor variables, gendering nature through nicknames and viewing nature as feminine, decreases by about 3.5%. This decrease represents a correlative effect between the predictor variables, displaying the effect both variables have on each other by slightly washing each other out. No other significant findings were produced in this model.

Finally, Model 6 includes the interactive effects between feminism and the predictor variables. In this model, liberalism loses its significance, which means that the higher environmental concern among liberals is accounted for by practices of gendering nature among non-feminists and feminists. Additionally, rather than interacting with both levels of feminism, Model 6 introduces calculations for two-way effects, which tests the combined effect for both feminists and those who identify as strongly feminist on the predictor variables. The two-way effect calculations of 0.605 and .959 reduces the strength of the predictor variables to the point where their values are washed out. This means that just being a feminist is a stronger predictor of environmental concern, and not the use of gendered nicknames or viewing nature as feminine. Among those who do not identify as feminist, feminization of the environment significantly

elevates concern for the environment. However, feminizing the environment among feminists does not have an increased effect on environmental concern. See a visual depiction of these trends in Figure 1 below.

Figure 1

Among non-feminists, using gendered nicknames is associated with higher environmental concern, however no association is observed among feminists. The different bar colors denote the categories of feminism. (n = 233)

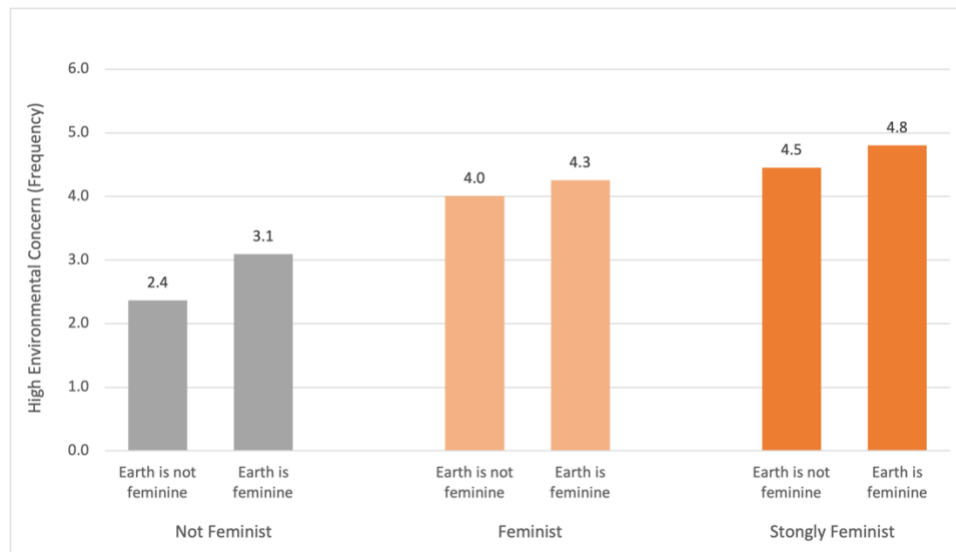


Note. * p < .05 ** p < .01 *** p < .001

For those who are not feminist, using gendered nicknames elevated environmental concern by 1.67 times (3.37/2.02). For those who are feminist, using gendered nicknames elevated environmental concern by only 1.06 times (nonsignificant). And among those who are ardent feminists, using gendered nicknames is estimated to lower environmental concern by 5% (4.4/4.65) (nonsignificant). Thus, overall, the predictor variable of using gendered nicknames is associated with higher concern for the environment, but only for those who do not hold feminist positions. Being a feminist or strong feminist is the biggest predictor of environmental concern.

Figure 2

Believing nature is inherently feminine increases environmental concern most strongly for those who identify as non-feminists. The different bar colors denote the categories of feminism. (n = 233)



Note. * p < .05 ** p < .01 *** p < .001

As seen in Figure 2, for those who are somewhat feminist or less and believe nature to be feminine, there was a 1.30 increase in high environmental concern (3.09/2.37). For those who are feminist or strongly feminist and believe nature to be feminine, there were 1.1 increases for both in high environmental concern (4.3/4.0; 4.8/4.5). The predictor variable of believing that nature is inherently feminine amplifies concern for the environment most strongly for those who are not already ardent feminists. So being a feminist or strong feminist, is the biggest predictor of environmental concern with rates of 2 times and 2.36 times.

Predictors of Low Environmental Concern

Six models predicting low environmental concerns are found below in Table 6. Model 1 includes all control variables to establish baseline associations between low environmental

concern and socio-demographic factors. There are significant age differences in the frequency in which respondents indicate low environmental concern. On average, those aged 35-64 years of age had 125% greater incidences of low environmental concern compared to those younger than 35 years old. Conversely, those under the age of 35 tend to have about 43% greater incidences of low environmental concern compared to those above the age of 65. Low environmental concern was found most in people aged 35-64, less so in those younger than 35, and with the least frequency in those aged 65 and above. Similar to high environmental concern, a notable interest is the large predictive power of liberal versus conservative. Specifically, liberals have a 57.4% lower frequency of indicating low environmental concern than conservatives, which is persistent across all models.

Table 6

Low Environmental Concern

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Controls						
Age (Ref <35)						
35-64	2.596***	2.203**	2.201**	2.065**	2.046**	2.218**
65+	0.532	0.599	0.602	0.564	0.567	0.558
Race (Ref Non-Hispanic White)						
Hispanic / Latino	1.163	1.564	1.573	1.517	1.538	1.519
Non Hispanic Other	1.842**	1.504†	1.502†	1.508†	1.501†	1.491†
Gender (Ref Women)						
Men	1.877***	1.277	1.283	1.24	1.254	1.304
Nonbinary / Other	0.533†	0.563	0.564	0.532†	0.533	0.551
Household Education (Ref high school diploma or less)						
Some college	0.969	1.034	1.038	1.029	1.041	1.021
Bachelor's degree or more	1.077	1.453	1.454	1.422	1.422	1.446
Annual Household Income (Ref less than \$75k)						
\$75k-125k	0.852	1.106	1.112	1.076	1.089	1.042
\$125k +	0.719	0.823	0.827	0.825	0.837	0.819
Didn't answer	1.487	1.604†	1.603†	1.552†	1.542	1.592†
Political Leaning (Ref Conservative)						
Liberal	0.512***	0.592**	0.593**	0.586**	0.588**	0.605**
Degree of Feminism (Ref Somewhat Feminist or Less)						
Feminist		0.467***	0.467***	0.479***	0.481***	0.415***
Strongly Feminist		0.261***	0.261***	0.278***	0.279***	0.241***
Gendering Nature						
Using gendered words to describe nature (i.e. "Mother Earth") (Ref = no)			1.028		1.083	0.905
Viewing nature as inherently feminine (Ref = no)				0.759	0.740	0.636
Two-way Effect						
Any Feminist * Gendered Words						1.430
Any Feminist * Viewing nature as inherently feminine						1.222

Note. † p < .1 * p < .05 ** p < .01 *** p < .001

Additionally, significant data in Model 1 shows that Non-Hispanic Others exhibited low environmental concern 1.84 times more frequently than Non-Hispanic White respondents. Also, men exhibited low environmental concern more often than women (88%), a significant difference between the two gender-identity categories. On the other hand, non-binary individuals

expressed low environmental concern less often than women (-47%), but this difference is not significant.

Model 2 tests my hypothesis that those with feminist dispositions would have increased environmental concern, meaning that those who do not identify as feminist would have lower environmental concern. Feminists tend to exhibit low environmental concern with 53.3% less frequency compared to those who are not feminist with significant evidence. Further, those who are strongly feminist exhibit low environmental concern with 73.9% less frequency compared to those who are not feminist with strong significance.

Model 3 tests the hypothesis that those who use gendered nicknames to describe the Earth tend to have lower environmental concern. There is an insignificant difference between those who gender nature as feminine and those who do not in terms of low environmental concern. However, in Model 4, those who view nature as inherently feminine have low environmental concern with 24% less frequency, although these results are still insignificant. Model 5 includes both predictor variables simultaneously. There are nonsignificant changes in these predictor variables compared to Model 4, and no other significant findings were produced in this model.

Finally, Model 6 includes the interaction effects between feminism and both predictor variables. In this model, liberalism remains significantly associated with low environmental concern. Additionally, rather than interacting with both levels of feminism, Model 6 introduces calculations for two-way effects, which tests the combined effect for both feminists and strong feminists on the predictor variables. The two-way effect calculation of 1.43, when multiplied by .905 results in a strength of 1.29 for using gendered nicknames. The 1.22 two-way calculation, when multiplied by .636 results in a strength of .78 for viewing nature as inherently feminine, which is trivially different from the strength of the predictor in the previous models. Yet, overall,

results from the two-way effect suggest that the associations between gendering nature and low environmental concern do not significantly vary by feminism.

VI. Discussion and Analysis

This study investigated the human tendencies to gender nature and hold environmental concern. This is important because holding concern for the environment impacts people's orientation towards environmental action. Taking pro-environmental action is essential towards a healthy climate, which is currently in jeopardy due to climate change and global warming. My initial hypotheses included that (1) there is an association between gendering nature as feminine and low environmental concern, (2) an association between feminism and high environmental concern, and (3) an association between hypermasculinity and low environmental concern.

Contrary to my initial hypothesis, gendering the environment did not have a negative association with high environmental concern. Instead, those who gender the environment showed amplified environmental concern. When the two-way effect between feminism and using gendered nicknames was tested, it produced nuanced results. Using gendered nicknames is a pathway for increasing environmental concern only for those who do not identify as ardently feminist. My second hypothesis investigated the impact of feminist ideologies on environmental concern, which proved to have a positive association, whereby environmental concern increased as one's level of feminism increased. The variable of feminism alone proved to be the strongest predictor of environmental concern, stronger than political preference which Strapko et al. (2016) had previously found. However, a third of the difference in environmental concern based on liberalism is due to liberals being more likely to adhere to a feminist identity.

The social implications of this data are significant and suggest that there may be generational and ideological divides in environmental attitudes and behavior. The data indicates that those aged 35-64 are the most likely to have low environmental concern, which suggests that this demographic may be less engaged with environmental issues than younger or older generations. Since this is the age demographic largely assuming current leadership positions, this could have significant implications on being less likely to advocate for environmental policies or take action to reduce their environmental impact.

The data suggests that there is a significant ideological divide in environmental attitudes, with liberals being much more likely to have high environmental concern than conservatives, confirming findings by Strapko et al. (2016). Although I found feminism to be a stronger indicator of environmental concern, the discrepancy between political ideologies is consistent across all age groups and therefore is still a relevant predictor of environmental attitudes. Tailoring environmental issues and campaigns to specific age groups or political ideologies may be important for increasing effective environmental advocacy and efforts. Additionally, bridging the generational and ideological divides in environmental attitudes is necessary to address pressing environmental issues such as climate change.

These findings on environmental concern are increasingly important as climate change adds greater stress to human populations, especially communities facing vulnerable situations imposed by systemic injustices. The findings suggest a strong need for feminist perspectives to play a greater role in politics, since feminist identities inform levels of environmental concern. Women and nonbinary individuals have the highest rates of environmental concern, yet these are the populations which have been uniquely excluded from powerful decision-making processes in the United States. Evidence from my research supports that as long as hypermasculine tendencies

infiltrate powerful, decision-making positions, there will be resistance towards pro-environmental concern. Thus, better representation of feminist tendencies is needed in these positions. Scientists call for immediate action yet are met with widespread inaction, and even resistance, among the American public (IPCC, 2022). For this reason, gendering nature may be beneficial in climate education and mobilization campaigns, particularly among populations with lower frequencies of feminist identities. Engaging people with climate literacy programs is essential to increasing awareness of current environmental issues and giving people the knowledge to make more informed decisions in terms of their relationship with the environment.

In Paulo Freire's *Pedagogy of the Oppressed*, he elaborates that the voices of the most marginalized should be centered to lead the strategy towards liberation and freedom (Freire, 2005). In this context, I apply Freire's foundational concepts to posit that feminine-identifying voices be the leaders in the environmental and feminist movements and continue to be amplified across the different platforms where these conversations are taking place. Further, this means having a women and youth led climate movement. This perspective supports the notion that everybody holds power, voice, agency, and wisdom, countering the problematic tendency to view the subjugated populations of the world as less educated and therefore less competent in academic and political arenas. In fact, it is the people who have been most affected who can create equality in the face of oppression (Freire, 2005). That is why the voices of those who intimately know the consequences of environmental and social oppression hold a special wisdom that can be used to pave the path forward towards climate and social resilience and wellbeing.

Additionally, people who believe nature to be feminine experienced anxiety about the climate future of Earth significantly more often than those who do not. This finding confirms what Waytz et al. (2010) discovered that those who humanize nature are more likely to treat

nature with heightened concern. Additionally, the amplified level of environmental concern, shown through worry and anxiety, among those who gender the environment corroborates research by Smith & Leiserowitz (2014) and Wang et al. (2018) that tolerating environmental degradation is, in part, determined by an individual's emotional affect. Emotional attachments and humanizing nature impact the way people experience concern for the environment, which therefore influences environmental behaviors.

These findings need to be considered within several limitations. First, this sample was not taken randomly, but instead drew upon a population with homogeneous characteristics and therefore is not a representative sample of the population. Since I did not collect enough data from people with hypermasculine beliefs, I could not study the impacts of hypermasculinity on environmental concern, which was one of my primary research questions. This is an important area of future research since patriarchy and institutionalized sexism are present in the culture of the United States. Future studies on hypermasculinity, gendering nature, and environmental concern can use probability sampling methods to better reach populations that my study did not.

Secondly, due to homogeneity of demographic characteristics, as well as not having interview or open-answer data, I was unable to explore the impacts of intersectionality to any significant depth in this study. I would have liked to use intersectionality as a social justice tool to make visible the multiplication of marginalization and oppression that exists concurrently based on analytical categories such as race, gender, class, as well as the hegemonic practices that accompany these identities (e.g., racism, sexism, classism, ageism, ableism, xenophobia, etc.). If I used a more developed lens of intersectionality, I could have placed meaning to the different levels and forms of oppression and discrimination and studied the multiplication of effects together (Crenshaw, 2017). The salience of race in the American context is central to the future

of feminist discourse and intersectional politics, and the diversion away from other systems of oppression must not occur in the future of feminist activism (Evans & Lépinard, 2019; Collins, 2020).

VI. Conclusion

This study set out to discover if there is an association between the human tendencies to gender nature and the tendencies to hold environmental concern. As humans rely intimately on the environment, understanding how ideologies impact environmental concern is increasingly important. Since the climate future of Earth is jeopardized by current human behaviors and institutional oppression, levels of environmental concern are inherent to accelerating pro-environmental behavior. My hypotheses considered that from a non-indigenous, Western perspective there would be an association between gendering nature as feminine and having low environmental concern. I also hypothesized an association between hypermasculinity and low environmental concern, and conversely between feminism and high environmental concern.

My research found that gendering the environment was associated with amplified environmental concern and that feminism was the strongest indicator of high environmental concern. This adds a novel insight to the literature that previously stated that political leaning was the strongest indicator of environmental concern. Additionally, my research found that using gendered nicknames for the environment is a pathway towards higher environmental concern for those who do not identify as strongly feminist. I did not have enough data to investigate the impact of hypermasculinity on levels of environmental concern, so this has been left to future research inquiries.

The implications of this data are significant, indicating disparities in environmental concern and behaviors based on generation and ideology. My research reveals that individuals between the ages of 35-64 exhibit the lowest levels of environmental concern, hinting that this age group may be less invested in environmental issues compared to younger and older generations. This could potentially have far-reaching consequences, as this demographic may be less inclined to support environmental policies or make changes to mitigate their environmental impact. Additionally, this research suggests an amplified need for feminist perspectives in leadership as we navigate the environmental challenges of climate change. Certain populations, including women and nonbinary individuals, face entrenched gender barriers that undermine their authority, legitimacy, and retention in elite leadership roles in the United States, further perpetuating their underrepresentation in leadership positions (Lyness & Grotto, 2018). However, these individuals have the highest frequencies of environmental concern. Therefore, amplifying women and nonbinary folks' perspectives in political and leadership spheres is important for the representation of their voice and values on topics they care about, such as environmental concern. The growth and inclusion of feminist perspectives in climate literacy programs are essential to making informed decisions towards a healthy climate.

Future research should investigate the association between hypermasculinity and environmental concern, as well as incorporate a more developed intersection lens of analysis. Future research can also investigate how different levels of environmental concern among key decision makers impact environmental policy in the United States. Additionally, a comparative study is needed on how different ideologies and demographic characteristics related to environmental concern varies across regions of the United States, and potentially internationally as well.

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Appendix A: Survey Guide

[Block 1: Informed Consent]

- By entering this survey, you indicate that you have read and agree to the terms above and consent to participating in this anonymous research. Do you consent to participating in this research? (Skip Logic, No = end of the survey)
 - Yes
 - No
- Do you live in Colorado and are above 18 years of age? (Skip Logic, No = end of the survey)
 - Yes
 - No

[Block 2: Randomized Order of Questions]

- I use gendered nicknames to describe the environment (i.e., “Mother Earth”, “Mother Nature”, “protect our mother”)
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Nature is inherently feminine.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I support companies in outsourcing jobs to areas with less environmental regulation.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I avoid buying certain products for environmental reasons.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I have cried and/or have worried excessively about animal species going extinct.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I experience anxiety when I think about the climate future of our planet.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Consequences of climate change are overestimated.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Climate change is primarily caused by human activity.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Environmental challenges can be addressed through human technology.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Which of these terms best describes you?
 - (Strongly feminist, feminist, somewhat feminist, neither feminist nor anti-feminist, somewhat anti-feminist, anti-feminist, strongly anti-feminist)
- Feminism in the United States is outdated.

- (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I view femininity as weaker than masculinity.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- Physical strength is an important part of manhood.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- A sensitive man is a weak man.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I had many meaningful experiences in nature as a child.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)
- I feel a responsibility to care for Earth.
 - (strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree)

[Block 3: Demographics]

- Did you vote in the last state-wide gubernatorial election?
 - Yes
 - No
- If you had to choose, would you rather have...
 - A smaller government providing fewer services
 - A bigger government providing more services
- Do you think greater social acceptance of people who are transgender (people who identify as a gender that is different from the sex they were assigned at birth) is...
 - Very good for society
 - Somewhat good for society
 - Somewhat bad for society
 - Very bad for society
- Which of the following best describes your age? Select one.
 - 18-24 years old
 - 25-34 years old
 - 35-44 years old
 - 45-54 years old
 - 55-64 years old
 - 65+
 - Don't know or refuse to answer
- Which of the following genders do you most identify with? Select all that apply.
 - male
 - nonbinary
 - genderfluid
 - female
 - transgender
 - gender non-conforming

- Gender-expansive
- two-spirit
- questioning or unsure
- Other
- Don't know or refuse to answer
- I identify my race and/or ethnicity as: (Select all that apply)
 - Asian
 - Hispanic or Latino
 - Black or African American
 - Native American
 - Native Hawaiian
 - White or Caucasian
 - Pacific Islander
 - Other
 - Don't know or refuse to answer
- Which of the following best describes your personal income last year? Select one.
 - Less than \$25,000
 - Between \$25,000-\$75,000
 - Between \$75,000-\$125,000
 - More than \$125,000
 - Don't know or refuse to answer
- What is your total household income? *This is the total amount that all individuals in your home made within the last year.* Select one.
 - Less than \$25,000
 - Between \$25,000-\$75,000
 - Between \$75,000-\$125,000
 - More than \$125,000
 - Don't know or refuse to answer
- What is the highest degree or level of school you have completed? Select one.
 - Less than a high school diploma
 - High school degree or equivalent
 - Some college
 - Bachelor's degree (e.g., BA, BS)
 - Master's degree (e.g., MA, MS, MEd)
 - Doctorate (e.g., PhD, EdD)
 - Other
 - Don't know or refuse to answer

- What is the highest degree or level of school that your parent(s) or caregiver(s) has completed? Select one.
 - Less than a high school diploma
 - High school degree or equivalent
 - Some college
 - Bachelor's degree (e.g., BA, BS)
 - Master's degree (e.g., MA, MS, MEd)
 - Doctorate (e.g., PhD, EdD)
 - Other (please specify)
 - Don't know or refuse to answer

End of survey.

Appendix B: Recruitment Flyers



COMPLETELY ANONYMOUS, 5-MINUTE SURVEY FOR SENIOR THESIS RESEARCH

CU-B HONORS THESIS SOCIOLOGY '22-23

IRB PROTOCOL NUMBER: 22-0415

INVESTIGATOR: MOLLY FOX, molly.fox@colorado.edu



Appendix C: Codebook

genearth I use gendered nicknames to describe the environment

type: byte
 value label: lord6
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	strongly agree	25	10.73
	agree	64	27.47
	somewhat agree	60	25.75
	somewhat disagree	24	10.30
	disagree	38	16.31
	strongly disagree	22	9.44

natfem nature is inherently feminine

type: byte
 value label: lord6
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	strongly agree	16	6.87
	agree	43	18.45
	somewhat agree	60	25.75
	somewhat disagree	33	14.16
	disagree	53	22.75
	strongly disagree	28	12.02

envbehav1 I support companies outsourcing jobs with less env. regulation

type: byte
 value label: lord6
 missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	11	4.72
agree	8	3.43
somewhat agree	26	11.16
somewhat disagree	34	14.59
disagree	76	32.62
strongly disagree	78	33.48

envbehav2I avoid buying products for environmental reasons

type: byte
label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	54	23.18
agree	74	31.76
somewhat agree	62	26.61
somewhat disagree	18	7.73
disagree	22	9.44
strongly disagree	3	1.29

envbehav2I cried/worried about animal species going extinct

type: byte
label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	22	9.44
agree	40	17.17
somewhat agree	66	28.33
somewhat disagree	33	14.16

disagree	44	18.88
strongly disagree	28	12.02

envmo2 I experience anxiety about the climate future of the planet

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	105	45.49
agree	56	24.03
somewhat agree	42	18.03
somewhat disagree	12	5.15
disagree	8	3.43
strongly disagree	10	4.29

envtho1 consequences of climate change are overestimated

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	6	2.58
agree	3	1.29
somewhat agree	12	5.15
somewhat disagree	25	10.73
disagree	63	27.04
strongly disagree	124	53.22

envtho2 climate change is mainly caused by humans

type: byte
value label: lord6o
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	133	57.33
agree	72	31.03
somewhat agree	18	7.76
somewhat disagree	1	0.43
disagree	6	2.59
strongly disagree	2	0.86

envtho3human technology can help solve environmental challenges

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	40	17.24
agree	97	41.81
somewhat agree	79	34.05
somewhat disagree	9	3.88
disagree	5	2.16
strongly disagree	2	0.86

degfemdegree of self-described feminism

type: byte
value label: lord6f
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly feminist	105	45.49
feminist	56	24.03
somewhat feminist	42	18.03
somewhat anti-feminist	12	5.15
anti-feminist	8	3.43

strongly anti-feminist 10 4.29

femout feminism in the U.S. is outdated

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	10	4.29
agree	20	8.58
somewhat agree	62	26.61
Somewhat disagree	30	12.88
disagree	66	28.33
strongly disagree	45	19.31

hyp1 femininity is weaker than masculinity

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	3	1.29
agree	5	2.15
somewhat agree	15	6.44
Somewhat disagree	18	7.73
disagree	56	24.03
strongly disagree	136	58.37

hyp2 physical strength is important part of manhood

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
-------	-------	---------

strongly agree	7	3.00
agree	26	11.16
somewhat agree	58	24.89
Somewhat disagree	35	15.02
disagree	57	24.46
strongly disagree	50	21.46

hyp3

a sensitive man is a weak man

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	2	.86
agree	2	.86
somewhat agree	8	3.43
Somewhat disagree	8	3.43
disagree	44	18.88
strongly disagree	169	72.53

natexp

had meaningful experiences in nature as a child

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	132	56.65
agree	62	26.61
somewhat agree	25	10.73
somewhat disagree	10	4.29

disagree	3	1.29
strongly disagree	1	.43

care I feel responsibility to care for earth

type: byte
value label: lord6
missing: 0/233

tabulation:

Label	Freq.	Percent
strongly agree	120	51.50
agree	86	36.91
somewhat agree	23	9.87
somewhat disagree	4	1.72
disagree	0	0
strongly disagree	0	0

vote voted in the last gubernatorial election

type: byte
value label: lord6
missing: 1/233

tabulation:

Label	Freq.	Percent
yes	121	52.16
no	111	47.84

pol smaller government vs bigger government

type: byte
value label: lord2
missing: 1/233

tabulation:

Label	Freq.	Percent
a smaller government providing fewer services	71	30.60
a bigger government providing more services	161	69.40

trans acceptance of transgender people is good for society

type: byte
 value label: ltrans4
 missing: 1/233

tabulation:

	Label	Freq.	Percent
	very good for society	174	75.00
	somewhat good for society	33	14.22
	somewhat bad for society	12	5.17
	very bad for society	13	5.60

age age range

type: byte
 value label: lage7
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	18-24 years old	177	75.97
	25-34 years old	25	10.73
	35-44 years old	5	2.15
	45-54 years old	8	3.43
	55-64 years old	10	4.29
	65+ years old	8	3.43

incomep personal income level

type: byte
 value label: lincome5
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	less than \$25,000	157	67.38
	between \$25,000-\$75,000	43	18.45

between \$75,000-\$125,000	8	3.43
more than \$125,000	8	3.43
don't know or refuse to answer	17	7.30

 incomeh household income level

type: byte
 value label: lincome5
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	less than \$25,000	34	14.59
	between \$25,000-\$75,000	46	19.74
	between \$75,000-\$125,000	37	15.88
	more than \$125,000	89	38.20
	don't know or refuse to answer	27	11.59

 educp personal education level

type: byte
 value label: leduc8
 missing: 0/233

tabulation:

	Label	Freq.	Percent
	less than a high school diploma	2	0.86
	high school degree or equivalent	20	8.58
	some college	137	58.80
	bachelor's degree	48	20.60
	master's degree	17	7.30
	doctorate	8	3.43
	other	1	0.43

 educ parent or caregiver education level

type: byte
 value label: leduc8
 missing: 0/233

tabulation:

Label	Freq.	Percent
less than a high school diploma	5	2.15
high school degree or equivalent	19	8.15
some college	17	7.30
bachelor's degree	79	33.91
master's degree	83	35.62
doctorate	30	12.88
other	0	0

 race

 race and/or ethnicity

type: byte
 value label: lrace9
 missing: 0/233

tabulation:

Label	Freq.	Percent
asian	5	2.15
hispanic or latino	13	5.58
black or african american	4	1.72
native american	1	.43
white or caucasian	194	83.26
other	4	1.72
don't know or refuse to answer	1	.43
multiple categories	11	4.72

 gender

 gender identity

type: byte
 value label: lgen11
 missing: 0/233

tabulation:

Label	Freq.	Percent
-------	-------	---------

male	51	21.89
nonbinary	5	2.15
genderfluid	2	0.86
female	153	65.67
transgender	1	0.43
questioning or unsure	2	0.86
multiple categories	19	8.15

Appendix D: PR Test Results

. prtest pred2hi if fem_cat<3, by(fem_cat)

Two-sample test of proportions 1: Number of obs = **61**
2: Number of obs = **101**

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
1	.1311475	.0432203			.0464372 .2158579
2	.2574257	.0435046			.1721583 .3426932
diff	-.1262782	.0613241			-.2464713 -.0060851
	under H0:	.066033	-1.91	0.056	

diff = prop(1) - prop(2) z = **-1.9123**
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = **0.0279** Pr(|Z| > |z|) = **0.0558** Pr(Z > z) = **0.9721**

. prtest pred2hi if fem_cat !=2, by(fem_cat)

Two-sample test of proportions 1: Number of obs = **61**
3: Number of obs = **71**

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
1	.1311475	.0432203			.0464372 .2158579
3	.3521127	.0566841			.2410138 .4632115
diff	-.2209651	.0712817			-.3606748 -.0812555
	under H0:	.0755951	-2.92	0.003	

diff = prop(1) - prop(3) z = **-2.9230**
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = **0.0017** Pr(|Z| > |z|) = **0.0035** Pr(Z > z) = **0.9983**

`. prtest pred2hi if fem_cat !=1, by(fem_cat)`

Two-sample test of proportions

2: Number of obs = 101
3: Number of obs = 71

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
2	.2574257	.0435046			.1721583 .3426932
3	.3521127	.0566841			.2410138 .4632115
diff	-.0946869	.0714545			-.2347351 .0453612
	under H0:	.0707333	-1.34	0.181	

diff = prop(2) - prop(3) z = -1.3386
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = 0.0903 Pr(|Z| > |z|) = 0.1807 Pr(Z > z) = 0.9097

`. prtest predlhi if fem_cat<3, by(fem_cat)`

Two-sample test of proportions

1: Number of obs = 61
2: Number of obs = 101

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
1	.3606557	.0614821			.240153 .4811585
2	.3663366	.0479412			.2723736 .4602996
diff	-.0056809	.0779642			-.1584878 .147126
	under H0:	.07803	-0.07	0.942	

diff = prop(1) - prop(2) z = -0.0728
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = 0.4710 Pr(|Z| > |z|) = 0.9420 Pr(Z > z) = 0.5290

`. prtest predlhi if fem_cat !=2, by(fem_cat)`

Two-sample test of proportions 1: Number of obs = 61
3: Number of obs = 71

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
1	.3606557	.0614821			.240153 .4811585
3	.4225352	.0586226			.307637 .5374334
diff	-.0618795	.0849509			-.2283802 .1046213
	under H0:	.0853033	-0.73	0.468	

diff = prop(1) - prop(3) z = -0.7254
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = 0.2341 Pr(|Z| > |z|) = 0.4682 Pr(Z > z) = 0.7659

`. prtest predlhi if fem_cat !=1, by(fem_cat)`

Two-sample test of proportions 2: Number of obs = 101
3: Number of obs = 71

Group	Mean	Std. err.	z	P> z	[95% conf. interval]
2	.3663366	.0479412			.2723736 .4602996
3	.4225352	.0586226			.307637 .5374334
diff	-.0561986	.0757296			-.2046258 .0922286
	under H0:	.0755228	-0.74	0.457	

diff = prop(2) - prop(3) z = -0.7441
H0: diff = 0

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(Z < z) = 0.2284 Pr(|Z| > |z|) = 0.4568 Pr(Z > z) = 0.7716

Appendix E: Model 6 Analysis

High Environmental Concern: Model 6 Poisson distribution

[xi: poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat i.income_cat i.pol_cat
i.fem_cat i.pred1hi i.pred2hi i.anyfem_inh i.anyfem_nic, irr]

Poisson regression Number of obs = 233
LR chi2(18) = 74.82
Prob > chi2 = 0.0000
 Log likelihood = -420.44269 Pseudo R2 = 0.0817

final_hicount	IRR	Std. err.	z	P> z	[95% conf. interval]	
_Iage_cat_2	.8699264	.1263348	-0.96	0.337	.6544357	1.156373
_Iage_cat_3	1.183739	.2372423	0.84	0.400	.7992088	1.753283
_Irace_cat_2	.7896441	.1372808	-1.36	0.174	.561628	1.110233
_Irace_cat_3	.9622794	.1102053	-0.34	0.737	.7688066	1.20444
_Igender_ca_2	1.058088	.1003418	0.60	0.552	.8786176	1.274219
_Igender_ca_3	1.06179	.1130629	0.56	0.573	.861787	1.30821
_Ieduc_cat_2	.7582927	.1402963	-1.50	0.135	.5276561	1.08974
_Ieduc_cat_3	.9173034	.1232243	-0.64	0.521	.7049664	1.193597
_Iincome_ca_2	.9183296	.09937	-0.79	0.431	.7428349	1.135285
_Iincome_ca_3	.9451452	.0779862	-0.68	0.494	.8040144	1.111049
_Iincome_ca_4	.8664309	.1045162	-1.19	0.235	.683998	1.097522
_Ipol_cat_2	1.156369	.094476	1.78	0.075	.9852645	1.357189
_Ifem_cat_2	2.014284	.2721488	5.18	0.000	1.545665	2.624981
_Ifem_cat_3	2.263353	.3249289	5.69	0.000	1.708257	2.998828
_Ipred1hi_1	1.658214	.2836473	2.96	0.003	1.185872	2.318695
_Ipred2hi_1	1.146673	.2516509	0.62	0.533	.7458192	1.762974
_Ianyfem_in_1	.9588737	.225446	-0.18	0.858	.6048264	1.52017
_Ianyfem_ni_1	.6050528	.1163852	-2.61	0.009	.4150115	.8821176
_cons	2.056465	.3947207	3.76	0.000	1.411694	2.995726

Note: **_cons** estimates baseline incidence rate.

Low Environmental Concern: Model 6 Poisson Regression

[xi: poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat i.income_cat i.pol_cat
i.fem_cat i.pred1hi i.pred2hi i.anyfem_inh i.anyfem_nic, irr]

Poisson regression

Number of obs = 233

LR chi2(18) = 93.72

Prob > chi2 = 0.0000

Pseudo R2 = 0.1747

Log likelihood = -221.35226

final_lowcount	IRR	Std. err.	z	P> z	[95% conf. interval]	
_Iage_cat_2	2.218326	.6243905	2.83	0.005	1.277727	3.851344
_Iage_cat_3	.5583172	.3478303	-0.94	0.350	.1646586	1.893118
_Irace_cat_2	1.519103	.6027455	1.05	0.292	.6979913	3.306166
_Irace_cat_3	1.491344	.3478698	1.71	0.087	.9441203	2.355746
_Igender_ca_2	1.303573	.267685	1.29	0.197	.8716532	1.949518
_Igender_ca_3	.5512853	.2011555	-1.63	0.103	.2696412	1.127111
_Ieduc_cat_2	1.02084	.3951763	0.05	0.958	.4780245	2.180045
_Ieduc_cat_3	1.446234	.4311575	1.24	0.216	.8062592	2.594194
_Iincome_ca_2	1.042138	.2726057	0.16	0.875	.6241162	1.740144
_Iincome_ca_3	.8193736	.1871544	-0.87	0.383	.52367	1.282054
_Iincome_ca_4	1.592261	.4262416	1.74	0.082	.9422178	2.690775
_Ipol_cat_2	.6053166	.1068621	-2.84	0.004	.4282645	.8555651
_Ifem_cat_2	.4154726	.0989566	-3.69	0.000	.2604981	.662644
_Ifem_cat_3	.240681	.0791536	-4.33	0.000	.1263293	.4585424
_Ipred1hi_1	.9049345	.2330366	-0.39	0.698	.546283	1.499052
_Ipred2hi_1	.6359636	.275893	-1.04	0.297	.2717471	1.488331
_Ianyfem_in_1	1.222096	.6422472	0.38	0.703	.4362884	3.423234
_Ianyfem_ni_1	1.430283	.5398457	0.95	0.343	.682566	2.997086
_cons	1.020598	.3722823	0.06	0.955	.4993015	2.086155

Note: _cons estimates baseline incidence rate.

Appendix F: Stata Do-File

```

1  *Loading Original Data- no strings 11/10/22
2
3  import excel "/Users/mollyfox/Desktop/HONORS WORD/DATA
  ANALYTICS/SOCY Honors Research_November 10, 2022_10.22.xlsx", sheet
  ("Sheet0") firstrow clear
4
5  *Change directory location
6
7  cd "/Users/mollyfox/Desktop/HONORS WORD/DATA ANALYTICS"
8
9  *Save original data
10
11 save "orig-data"
12
13
14 import excel "/Users/mollyfox/Desktop/HONORS WORD/DATA
  ANALYTICS/SOCY Honors Research_November 10, 2022_10.22.xlsx", sheet
  ("Sheet0") firstrow clear
15
16 *****
17 *Label Variables and Names
18 *****
19
20 rename Q2 cons
21 label variable cons "consent"
22
23 rename Q3 incl
24 label variable incl "inclusion criteria"
25
26 rename Q6 genearth
27 label variable genearth "use gendered nicknames to describe
  environment"
28
29 rename Q7 natfem
30 label variable natfem "nature is feminine"
31
32 rename Q8 outsource
33 rename outsource envbehav1
34 label variable envbehav1 "support companies outsourcing jobs"
35
36 rename Q9 envbehav2
37 label variable envbehav2 "avoid buying products for environmental
  reasons"
38
39 rename Q10 envemo1
40 label variable envemo1 "cried/worried about animal species going
  extinct"
41

```

```
42 rename Q11 envemo2
43 label variable envemo2 "anxious about climate future of planet"
44
45 rename Q12 envtho1
46 label variable envtho1 "consequences of climate change are
overestimated"
47
48 rename Q34 envtho2
49 label variable envtho2 "climate change caused by humans"
50
51 rename Q35 envtho3
52 label variable envtho3 "human technology can help environmental
challenges"
53
54 rename Q13 degfem
55 label variable degfem "degree of feminism"
56
57 rename Q14 femout
58 label variable femout "feminism is outdated"
59
60 rename Q15 hyp1
61 label variable hyp1 "femininity weaker than masculinity"
62
63 rename Q16 hyp2
64 label variable hyp2 "physical strength is important to manhood"
65
66 rename Q17 hyp3
67 label variable hyp3 "sensitive man is weak man"
68
69 rename Q18 natexp
70 label variable natexp "have meaningful experiences in nature as
child"
71
72 rename Q19 care
73 label variable care "feel responsibility to care for earth"
74
75 rename Q36 vote
76 label variable vote "vote in last gubernatorial election"
77
78 rename Q37 pol
79 label variable pol "political leaning"
80
81 rename Q38 trans
82 label variable trans "acceptance of transgender people is good for
society"
83
84 rename Q20 age
85 label variable age "age range"
```

```
86
87 rename Q21 gender
88 label variable gender "gender identity"
89
90 rename Q22 race
91 label variable race "race and/or ethnicity"
92
93 rename Q23 incomep
94 label variable incomep "personal income"
95
96 rename Q24 incomeh
97 label variable incomeh "household income"
98
99 rename Q25 educp
100 label variable educp "personal educational attainment"
101
102 rename Q26 educch
103 label variable educch "parent or caregiver educational attainment"
104
105 *Save edited data for analysis
106 save "edited-data"
107
108 **** Data cleaning, retaining 233 cases for final analytic
109 sample*****
110 *****
111 *could have said keep if progress == 100
112 drop if genearth == .
113 drop if educch == .
114 drop if DistributionChannel == "preview"
115 drop if educch >= 7 & educch <=8
116
117 *create new gender and race bc they are string
118 * create new "multirace" and "multigender" categories
119 gen nrace = 10
120 replace nrace = 1 if race == "1"
121 replace nrace = 2 if race == "2"
122 replace nrace = 3 if race == "3"
123 replace nrace = 4 if race == "4"
124 replace nrace = 5 if race == "5"
125 replace nrace = 6 if race == "6"
126 replace nrace = 7 if race == "7"
127 replace nrace = 8 if race == "8"
128 replace nrace = 9 if race == "9"
129
130 gen ngen = 12
131 replace ngen = 1 if gender == "1"
```

```

132 replace ngen = 2 if gender == "2"
133 replace ngen = 3 if gender == "3"
134 replace ngen = 4 if gender == "4"
135 replace ngen = 5 if gender == "5"
136 replace ngen = 6 if gender == "6"
137 replace ngen = 7 if gender == "7"
138 replace ngen = 8 if gender == "8"
139 replace ngen = 9 if gender == "9"
140 replace ngen = 10 if gender == "10"
141 replace ngen = 11 if gender == "11"
142
143 *drop string variables and rename new variables
144 drop race
145 rename nrace race
146
147 drop gender
148 rename ngen gender
149
150 tab gender
151 tab race
152
153 *****
154 *Create Codebook and assigning meaning to var values
155 *****
156
157 *****Create ghost vars to assign meaning to different numerical
values*****
158
159 *for regular likert scale agree-disagree: lord6
160 label define lord6 1 "strongly agree" 2 "agree" 3 "somewhat agree"
5 "somewhat disagree" 6 "disagree" 7 "strongly disagree"
161
162 *for envtho2 likert scale regular: lord6o
163 label define lord6o 1 "strongly agree" 2 "agree" 3 "somewhat agree"
4 "somewhat disagree" 5 "disagree" 6 "strongly disagree"
164
165 *for special likert scale qualtrics: lord6s
166 label define lord6s 14 "strongly agree" 15 "agree" 16 "somewhat
agree" 18 "somewhatdisagree" 19 "disagree" 20 "strongly disagree"
167
168 *for degfem quesiton: lord6f
169 label define lord6f 1 "strongly feminist" 2 "feminist" 3 "somewhat
feminist" 5 "somewhat anti-feminist" 6 "anti-feminist" 7 "strongly
anti-feminist"
170
171 *for yes or no questions
172 label define lyesno2 1 "yes" 2 "no"
173

```

```

174 *for political leaning
175 label define lpol2 1 "a smaller government providing fewer
services" 2 "a bigger government providing more services"
176
177 *for age
178 label define lage7 1 "18-24 years old" 2 "25-34 years old" 3
"35-44 years old" 4 "45-54 years old" 5 "55-64 years old" 6 "65+
years old" 7 "Don't know or refuse to answer"
179
180 *for gender
181 label define lgen11 1 "male" 2 "nonbinary" 3 "genderfluid" 4
"female" 5 "transgender" 6 "gender non-conforming" 7
"gender-expansive" 8 "two-spirit" 9 "questioning or unsure" 10
"other" 11 "don't know or refuse to answer" 12 "multiple categories"
182
183 *for race
184 label define lrace9 1 "asian" 2 "hispanic or latino" 3 "black or
african american" 4 "native american" 5 "native hawaiian" 6 "white
or caucasian" 7 "pacific islander" 8 "other" 9 "don't know or
refuse to answer" 10 "multiple categories"
185
186 *for income
187 label define lincome5 1 "less than $25,000" 2 "between
$25,000-$75,000" 3 "between $75,000-$125,000" 4 "more than
$125,000" 5 "don't know or refuse to answer"
188
189 *for educ
190 label define leduc8 1 "less than a high school diploma" 2 "high
school degree or equivalent" 3 "some college" 4 "bachelor's degree"
5 "master's degree" 6 "doctorate" 7 "other" 8 "don't know or
refuse to answer"
191
192
193 ***** Assign ghost labels to variables *****
194 label values genearth natfem envbehav1 envbehav2 envemo1 envemo2
envtho1 envtho3 femout hyp1 hyp2 hyp3 natexp care lord6
195 label values envtho2 lord6o
196 label values degfem lord6f
197 label values vote lyesno2
198 label values pol lpol2
199 label values trans ltrans4
200 label values age lage7
201 label values gender lgen11
202 label values race lrace9
203 label values incomep incomeh lincome5
204 label values educp educ h leduc8
205
206 *****

```

```

*****
207 *****
*****
208 *Create High/Low Categories for the 6 Environmental Likert Scales
209 *High = Strongly Agree (1) + Agree (2) [unless reverse coded,
    where it would be 6 and 7]
210 *Low = Strongly Disagree (7) + Disagree (6) [unless reverse coded
    where it would be 1 and 2]
211
212 *****
213 * High "Concern" *
214 *****
215
216 * Outcome 1: Behavior Q1 = I support companies that outsource jobs
217
218 gen out1hi = .
219 replace out1hi = 1 if envbehav1 >= 6
220 replace out1hi = 0 if envbehav1 < 6
221
222 * Outcome 2: Behavior Q2 = I avoid buying certain products
223
224 gen out2hi = .
225 replace out2hi = 1 if envbehav2 <= 2
226 replace out2hi = 0 if envbehav2 > 2
227
228 * Outcome 3: Emotion Q1 = I have cried/worried excessively
229
230 gen out3hi = .
231 replace out3hi = 1 if envemo1 <= 2
232 replace out3hi = 0 if envemo1 > 2
233
234 * Outcome 4: Emotion Q2 = I experience anxiety when I think about
    climate future
235 * (numbers are different here because of how the variables were
    originally coded in Qualtrics)
236
237 gen out4hi = .
238 replace out4hi = 1 if envemo2 <= 15
239 replace out4hi = 0 if envemo2 > 15
240
241 * Outcome 5: Attitude Q1 = Consequences of climate change are
    overestimated
242
243 gen out5hi = .
244 replace out5hi = 1 if envtho1 >= 6
245 replace out5hi = 0 if envtho1 < 6
246
247 * Outcome 6: Attitude G2 = Climate change is primarily caused by

```



```
human activity
248
249 gen out6hi = .
250 replace out6hi = 1 if envtho2 <= 2
251 replace out6hi = 0 if envtho2 > 2
252
253 * Final "High Concern" Outcome Variable: Cumulative Count of the #
of Times Respondent is in "High" Category
* 0, 1, 2, 3, 4, 5, 6
254
255
256 gen final_hicount = out1hi + out2hi + out3hi + out4hi + out5hi +
out6hi
257 label variable final_hicount "high concern for the environment"
258
259 *****
260 * Low "Concern" *
261 *****
262
263 * Outcome 1: Behavior Q1 = I support companies that outsource jobs
264
265 gen out1low = .
266 replace out1low = 1 if envbehav1 <= 2
267 replace out1low = 0 if envbehav1 > 2
268
269 * Outcome 2: Behavior Q2 = I avoid buying certain products
270
271 gen out2low = .
272 replace out2low = 1 if envbehav2 >= 6
273 replace out2low = 0 if envbehav2 < 6
274
275 * Outcome 3: Emotion Q1 = I have cried/worried excessively
276
277 gen out3low = .
278 replace out3low = 1 if envemo1 >= 6
279 replace out3low = 0 if envemo1 < 6
280
281 * Outcome 4: Emotion Q2 = I experience anxiety when I think about
climate future
282 * (numbers are different here because of how the variables were
originally coded in Qualtrics)
283
284 gen out4low = .
285 replace out4low = 1 if envemo2 >= 19
286 replace out4low = 0 if envemo2 < 19
287
288 * Outcome 5: Attitude Q1 = Consequences of climate change are
overestimated
289
```

```

290 gen out5low = .
291 replace out5low = 1 if envtho1 <= 2
292 replace out5low = 0 if envtho1 > 2
293
294 * Outcome 6: Attitude G2 = Climate change is primarily caused by
    human activity
295
296 gen out6low = .
297 replace out6low = 1 if envtho2 >= 5
298 replace out6low = 0 if envtho2 < 5
299
300 * Final "Low Concern" Outcome Variable: Cumulative Count of the #
    of Times Respondent is in "Low" Category
301 * 0, 1, 2, 3, 4, 5, 6
302
303 gen final_lowcount = out1low + out2low + out3low + out4low +
    out5low + out6low
304 label variable final_lowcount "low concern for the environment"
305
306 *****
    *****
307 *Create High/Low Categories for the Predictor Variable
308 *High = Strongly Agree (1) + Agree (2)
309 *Low = Strongly Disagree (7) + Disagree (6)
310
311 *****
312 * High "Gendering of Nature" *
313 *****
314
315 * Predictor 1: I use gendered nicknames to describe the environmnet
316
317 gen pred1hi = .
318 replace pred1hi = 1 if genearth <= 2
319 replace pred1hi = 0 if genearth > 2
320
321 * Predictor 2: Nature is inherently feminine
322
323 gen pred2hi = .
324 replace pred2hi = 1 if natfem <= 2
325 replace pred2hi = 0 if natfem > 2
326
327 gen final_pred_hicount = pred1hi + pred2hi
328 label variable final_pred_hicount "high gendering of nature"
329
330 *****
331 * Low "Gendering of Nature" *
332 *****
333

```

```

334 * Predictor 1: I use gendered nicknames to describe the environmnet
335
336 gen pred1low = .
337 replace pred1low = 1 if genearth >= 6
338 replace pred1low = 0 if genearth < 6
339
340 * Predictor 2: Nature is inherently feminine
341
342 gen pred2low = .
343 replace pred2low = 1 if natfem >= 6
344 replace pred2low = 0 if natfem < 6
345
346 gen final_pred_lowcount = pred1low + pred2low
347 label variable final_pred_lowcount "low gendering of nature"
348
349 *****
350 *****
351 *Create High/Low Categories for the Costants
352 *High = Strongly Agree (1) + Agree (2)
353 *Low = Strongly Disagree (7) + Disagree (6)
354 *****
355 * High "Feminist Disposition" *
356 *****
357
358 * Constant 1: Which term best describes you? (Feminist Scale)
359
360 gen fem1hi = .
361 replace fem1hi = 1 if degfem <= 2
362 replace fem1hi = 0 if degfem > 2
363
364 * Constant 2: Feminism in the United States is "outdated"
365
366 gen fem2hi = .
367 replace fem2hi = 1 if femout >= 6
368 replace fem2hi = 0 if femout < 6
369
370 gen final_fem_hicount = fem1hi + fem2hi
371 label variable final_fem_hicount "high feminist disposition"
372
373 *****
374 * High "Hyper-masculine Disposition" *
375 *****
376
377 * Constant 3: I view femininity as weaker than masculinity
378
379 gen hyp1hi = .
380 replace hyp1hi = 1 if hyp1 <= 2

```

```

381  replace hyp1hi = 0 if hyp1 > 2
382
383  * Constant 4: Physical strength is an important part of manhood
384
385  gen hyp2hi = .
386  replace hyp2hi = 1 if hyp2 <=
387  2
388  replace hyp2hi = 0 if hyp2 > 2
389
390  * Constant 5: A sensitive man is a weak man
391
392  gen hyp3hi = .
393  replace hyp3hi = 1 if hyp3 <= 2
394  replace hyp3hi = 0 if hyp3 > 2
395
396  gen final_hyp_hicount = hyp1hi + hyp2hi + hyp3hi
397  label variable final_hyp_hicount "high hypermasculine disposition"
398
399  *****
400  * High "Time spend in Nature" *
401  *****
402
403  * Constant 6: I had many meaningful experiences in nature as a child
404
405  gen nat1hi = .
406  replace nat1hi = 1 if natexp <= 2
407  replace nat1hi = 0 if natexp > 2
408
409  label variable nat1hi "high time spent in nature"
410
411  *****
412  * High "Conservative Stance" *
413  *****
414
415  * Constant 7: If you had to choose, would you rather have:
416
417  gen polc1hi = .
418  replace polc1hi = 1 if pol <= 1
419  replace polc1hi = 0 if pol > 1
420
421  * Constant 8: Do you think greater social acceptance of people who
  are transgender..
422
423  gen polc2hi = .
424  replace polc2hi = 1 if trans >= 3
425  replace polc2hi = 0 if trans < 3
426
427  gen final_polc_hicount = polc1hi + polc2hi

```

```

428 label variable final_polc_hicount "high conservative stance"
429
430 *****
431 * High "Liberal Stance" *
432 *****
433
434 * Constant 7: If you had to choose, would you rather have:
435
436 gen lib1hi = .
437 replace lib1hi = 1 if pol >= 2
438 replace lib1hi = 0 if pol < 2
439
440 * Constant 8: Do you think greater social acceptance of people who
    are transgender..
441
442 gen lib2hi = .
443 replace lib2hi = 1 if trans <= 2
444 replace lib2hi = 0 if trans > 2
445
446 gen final_lib_hicount = lib1hi + lib2hi
447 label variable final_lib_hicount "high liberal stance"
448
449
450 *****
451 ***** BIVARIATE ANALYSIS *****
452 *****
453 ***Example
454 ** Tab out1low pred2hi, col
455 ** prtest out1low, by(pred2hi)
456
457 *Tab high-y (behavior) high-x, col
458 tab out2hi pred2hi, col
459 prtest out2hi, by(pred2hi)
460
461 *Tab high-y (emotion) high-x, col
462 tab out4hi pred2hi, col
463 prtest out4hi, by(pred2hi)
464
465 *Tab high-y (thought) high-x, col
466 tab out5hi pred2hi, col
467 prtest out5hi, by(pred2hi)
468
469 *Tab low-y (behavior) high-x, col
470 tab out2low pred2hi, col
471 prtest out2low, by(pred2hi)
472
473 *Tab low-y (emotion) high-x, col
474 tab out4low pred2hi, col

```

```
475 prtest out4low, by(pred2hi)
476
477 *Tab low-y (thought) high-x, col
478 tab out5low pred2hi, col
479 prtest out5low, by(pred2hi)
480
481 *to see how many of each gender category makes up each fem category
482 tab fem_cat gender_cat, col
483
484 *****
485 ***** Collapsing all controls into smaller categories for easier
486 analysis-- race, gender, age, education, income *****
487 *****
488 **Collapse age into three categories **AS RYAN SHOWED
489 * young <35 = 1
490 * midlife 35-64 = 2
491 * older adults 65+ = 3
492 gen age_cat = age
493
494 replace age_cat = 1 if age == 2
495 replace age_cat = 2 if age >= 3 & age <= 5
496 replace age_cat = 3 if age == 6
497
498 tab age_cat, missing
499
500 ***Collapse race into three categories
501 * non hispanic white = 1
502 * latino = 2
503 * non hispanic other = 3
504 gen race_cat = race
505
506 replace race_cat = 1 if race == 6
507 replace race_cat = 2 if race == 2
508 replace race_cat = 3 if race == 1
509 replace race_cat = 3 if race >= 3 & race <= 5
510 replace race_cat = 3 if race >= 7
511
512 tab race_cat, missing
513
514 **Collapse gender into three categories
515 * female = 1
516 * male = 2
517 * nonbinary/other = 3
518 gen gender_cat = gender
519
520 replace gender_cat = 1 if gender == 4
521 replace gender_cat = 2 if gender == 1
```

```
522 replace gender_cat = 3 if gender >= 2 & gender <= 3
523 replace gender_cat = 3 if gender >= 5
524
525 tab gender_cat, missing
526
527 **Collapse education into three categories **AS RYAN SHOWED
528 * highschool diploma or less = 1
529 * some college = 2
530 * bachelor's degree or more = 3
531 *not sure what to do with the "other or don't know"
532
533 gen educ_cat = educ_h
534
535 replace educ_cat = 1 if educ_h == 2
536 replace educ_cat = 2 if educ_h == 3
537 replace educ_cat = 3 if educ_h >= 4 & educ_h <=6
538
539 tab educ_cat, missing
540
541 **Collapse income into three categories **AS RYAN SHOWED
542 * less than 75k = 1
543 * 75 - 125k = 2
544 * more than 125k = 3
545 *not sure what to do with the "other or don't know"
546 gen income_cat = income_h
547
548 replace income_cat = 1 if income_h == 2
549 replace income_cat = 2 if income_h == 3
550 replace income_cat = 3 if income_h == 4
551 replace income_cat = 4 if income_h == 5
552
553 tab income_cat, missing
554
555
556 **Collapse political leaning into three categories
557 * conservative = 1
558 * liberal = 2
559
560 gen pol_cat = pol
561
562 replace pol_cat = 1 if pol == 1
563 replace pol_cat = 2 if pol == 2
564 replace pol_cat = 2 if pol == .
565
566 tab pol_cat, missing
567
568 **Collapse Feminism into three categories
569 * somewhat feminist = 1
```

```

570 * feminist = 2
571 * strongly feminist = 3
572
573 gen fem_cat = degfem
574
575 replace fem_cat = 1 if degfem >= 3
576 replace fem_cat = 2 if degfem == 2
577 replace fem_cat = 3 if degfem == 1
578
579 *****
580 ***** MULTIVARIATE ANALYSIS *****
581 *****
582
583 *HI
584 ***** New MODEL 1 -- poisson for all controls
585 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat, irr
586
587 ***** New MODEL 2 -- Bring in Feminist Disposition (fem_cat_)
588 **show here that Fem is stronger than Liberal !!!
589 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat, irr
590
591 ***** New MODEL 3 -- Bring in Nicknames (genearth)
592 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred1hi, irr
593
594 ***** New MODEL 4 -- Bring in Nat is Fem (natfem)
595 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred2hi, irr
596
597 ***** New MODEL 5 -- Both genearth and natfem
598 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred1hi i.pred2hi, irr
599
600 ***** New MODEL 6 -- Interacting fem x natfem
601 *create new variable = shared effect of feminist
602 gen anyfem = 0
603 replace anyfem = 1 if fem_cat >= 2
604 gen anyfem_inh = anyfem*pred2hi
605
606 *xi: poisson final_hicount i.age_cat i.race_cat i.gender_cat
i.educ_cat i.income_cat i.pol_cat i.fem_cat i.pred2hi
i.anyfem_inh, irr
607
608 gen anyfem_nic = anyfem*pred1hi
609
610 *xi: poisson final_hicount i.age_cat i.race_cat i.gender_cat

```



```

i.educ_cat i.income_cat i.pol_cat i.fem_cat i.pred1hi
i.anyfem_nic, irr
611
612 xi: poisson final_hicount i.age_cat i.race_cat i.gender_cat i.
educ_cat i.income_cat i.pol_cat i.fem_cat i.pred1hi i.pred2hi i.
anyfem_inh i.anyfem_nic, irr
613
614
615
616 *Low
617 ***** New MODEL 1 -- poisson for all controls
618 poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat, irr
619
620 ***** New MODEL 2 -- Bring in Feminist Disposition (fem_cat_)
621 **show here that Fem is stronger than Liberal !!!
622 poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat, irr
623
624 ***** New MODEL 3 -- Bring in Nicknames (genearth)
625 poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred1hi, irr
626
627 ***** New MODEL 4 -- Bring in Nat is Fem (natfem)
628 poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred2hi, irr
629
630 ***** New MODEL 5 -- Both genearth and natfem
631 poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat i.pred1hi i.pred2hi, irr
632
633 ***** New MODEL 6 -- Interacting fem x natfem
634 xi: poisson final_lowcount i.age_cat i.race_cat i.gender_cat i.
educ_cat i.income_cat i.pol_cat i.fem_cat i.pred1hi i.pred2hi i.
anyfem_inh i.anyfem_nic, irr
635
636
637 *** TO DO THE T TEST FOR LIB vs STRONGLY FEM
638 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat
639
640
641 tab pred2hi fem_cat, col
642 prtest pred2hi if fem_cat<3, by(fem_cat)
643 prtest pred2hi if fem_cat !=2, by(fem_cat)
644 prtest pred2hi if fem_cat !=1, by(fem_cat)
645
646 tab pred1hi fem_cat, col

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647 prtest pred1hi if fem_cat<3, by(fem_cat)
648 prtest pred1hi if fem_cat !=2, by(fem_cat)
649 prtest pred1hi if fem_cat !=1, by(fem_cat)
650
651
652 **** MARGINS**** to make Figure 1
653 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat#i.pred1hi i.pred2hi, irr
654
655 margins, at(pred1hi=0 fem_cat=1) at(pred1hi=0 fem_cat=2) at(pred1hi
=0 fem_cat=3) at(pred1hi=1 fem_cat=1) at(pred1hi=1 fem_cat=2) at(
pred1hi=1 fem_cat=3) atmeans
656
657 **** MARGINS**** to make Figure 2
658 poisson final_hicount i.age_cat i.race_cat i.gender_cat i.educ_cat
i.income_cat i.pol_cat i.fem_cat#i.pred2hi i.pred1hi, irr
659
660 margins, at(pred2hi=0 fem_cat=1) at(pred2hi=0 fem_cat=2) at(pred2hi
=0 fem_cat=3) at(pred2hi=1 fem_cat=1) at(pred2hi=1 fem_cat=2) at(
pred2hi=1 fem_cat=3) atmeans
661
```