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White Identity and Climate Change Skepticism: Assessing the Mediating Roles of Social Dominance Orientation and Conspiratorial Ideation

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Abstract: Prior research has found that white people are more likely to be climate change skeptics. In much of this prior work, white identity is treated as a categorical label, limiting the theoretical and empirical understanding of this relationship. Drawing on survey data from a US national sample of 933 white young adults, we theorize that white identity is a developmental process where people explore the meanings of their racial identity and commit to a white identity marked by enhanced levels of social dominance orientation and conspiratorial ideation, two social-psychological constructs consistently associated with climate change skepticism. Using regression analyses, we tested a mediation model that a strong white identity would increase climate change skepticism by enhancing one's social dominance orientation and conspiratorial ideation. We found partial support for our model. While a strong white identity was positively associated with social dominance orientation and conspiratorial ideation, only social dominance orientation increased climate change skepticism. Conspiratorial ideation reduced climate change skepticism. We discuss the implications of our findings for the climate change literature as well as how our findings can inform policies that could reduce climate change skepticism among white people.

Keywords: climate change skepticism; white identity; social dominance orientation; conspiratorial ideation; race; racial identity



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1. Introduction

Climate change is among the greatest racial justice issues facing the present generation [1]. Harlan and colleagues [1] explain the fundamental ways that institutional racism serves as a foundation for the climate crisis. They contend that social inequity is a cause of climate change—that former colonizing nations use fossil fuels in extreme excess of other countries, that it impacts wealthier (and disproportionately white) people less directly and immediately than those living in poverty, and that solutions to climate change are often cost prohibitive for low-income people and nations, thus only making them available for wealthy (and disproportionately white) individuals and nations.

Indeed, because of historical policies of racial exclusion and wealth inequity, Black Americans are currently 40% more likely to live in areas predicted to experience deadly increases in extreme temperature, and this geographical disparity is expected to increase as white residents flee for safer areas [2,3]. Due to historical forced resettlement and discriminatory policies, Native Americans disproportionately live in areas most vulnerable to climate change impacts such as extreme temperature and drought [4]. Already climate change has completely decimated the homelands of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Indians [5]. This inequity has led five tribes to appeal to the United Nations that the United States is violating their human rights by failing to mitigate climate change impacts resulting in their displacement [5].

Given the racially unequal impact of climate change, it is not surprising that public attitudes about climate change are also racially divided. According to the Pew Research

Center, white people are the least likely to recognize that human activity is the primary driver of climate change (44% white Americans as compared to 56% of Black Americans and 70% of Latinx Americans) [6]. Further, Black and Latinx Americans are more likely than white Americans to be “alarmed or concerned” about climate change [7].

In part, this difference may be connected to a phenomenon known as the “white male effect” wherein risk perception is inversely correlated with social status. People with higher social status (white men, especially of middle or upper class) have greater access to resources such as wealth and income, which insulate them from the negative effects of societal and environmental risks, and thus they evaluate those risks more benignly [8,9]. As noted above, white people experience the adverse consequences of climate change less frequently than people of color. As such, they may view climate change as less of a risk and thus exhibit greater skepticism of claims that climate change is happening and dangerous.

Sociological work has added further nuance to understanding this racial divide by examining the role of ideology in the emergence of climate change denial/doubt among white people. This scholarship demonstrates that climate change skeptics are disproportionately white men [10]. This phenomenon is so significant that scholars Aaron McCright and Riley Dunlap [11] refer to climate change skeptics as “Cool Dudes” in a nod to the predominance of conservative white men who align themselves with a rejection of climate science. In part, McCright and Dunlap contend, this disparity may be related to fundamental values common among conservative Republicans. Specifically, they find that white men have greater faith in authority than others, which may reflect a personal identification with the broader white, patriarchal control of the American government system [11,12]. As such, they propose climate change skepticism may be reflective of “identity-protective cognition” [13] wherein individuals accept messages from people with whom they identify and reject those from others [11].

Given the urgency of the climate crisis and the clear role that race and racism play in the emergence of climate change skepticism, it is vital to understand the role of white identity in the formation of climate change attitudes and specifically climate change skepticism. Most prior work has treated white identity as a categorical label [11], which limits the theoretical and empirical understanding regarding why and how being white influences climate change attitudes. We address this limitation by drawing on models of identity development [14,15] to conceptualize white identity as the outcome of a developmental process of exploration, learning, and eventual commitment to one’s racial group. Consistent with the identity-protective cognition thesis [11,13], we argue that attaining a strong white identity entails selectively navigating a conservative ecosphere that fosters a stronger social dominance orientation [16] and greater feelings of conspiratorial ideation [17], two social-psychological constructs associated with climate change skepticism [18,19]. Drawing on survey data from a national US sample of white young adults, we use regression analyses to test if a strong white identity indirectly promotes skepticism about climate change by enhancing one’s social dominance orientation and conspiratorial ideation.

2. Relevant Literature

2.1. Predictors of Climate Change Skepticism

Existing research on climate change skepticism classifies skeptics by type. In his leading research on the subject, Rahmstorf [20] identifies three types of skeptics—trend skeptics (those who reject climate change is occurring), attribution skeptics (those who deny that humans contribute to climate change), and impact skeptics (those who fail to accept the significant impacts of climate change on humanity). Subsequent scholarship has added a fourth type, consensus skeptics—those who reject a scientific consensus on the issue [11].

Approximately 17% of the population in the United States either rejects or is unsure whether climate change is occurring and 52% are unsure or reject that there are anthropogenic roots to the climate crisis [21]. When looking at studies of skeptics themselves, we see continued prevalence of both of these groups [22]. Skeptics are more likely to be white, conservative men [11]. While religiosity has inconsistent and contradictory effects

as a predictor of skepticism [10,11,23–25], adherence to specific religious beliefs (that the Bible is the literal word of God, end-of-days theology, and that climate change is God's will and/or punishment for sin) is associated with stronger climate denial [26–28].

Of all demographic factors, political ideology has emerged as the most robust predictor of climate change skepticism [11]. It is so powerful, in fact, that it moderates the effects of education. Whereas we would expect more educated people to be less skeptical about climate change, this is not true for conservative Republicans with high levels of education [29,30].

The saliency of political conservatism is reflective of the influence of a broad right-wing disinformation campaign that has been pushing climate change denial [11,31]. The denial countermovement follows what is called the “tobacco” model wherein representatives from conservative media, fossil fuel industries, and right-wing/libertarian think tanks hire and amplify the perspectives of rare contrarian scientists [11,31]. The effects of this disinformation campaign are further magnified by the phenomenon of an “echo chamber” wherein climate change skeptics and political conservatives tend to seek out information presented by those with whom they identify that affirms their worldview and reject information that challenges it [11,32].

2.2. Social Dominance Orientation, Conspiratorial Ideation, and Race

The impact of conservative political ideology on climate change skepticism can be seen through its interaction with other social constructs including social dominance orientation, conspiratorial ideation, and race. Some of this prior work has incorporated the process of identity-protective cognition, where people protect their belief structures by accepting messages from people with whom they identify and reject messages from people they perceive as outgroup members [13]. For climate change skeptics, identity-protective cognition likely entails a sense of identification with authorities and power [13]. This narrative has a deeper social history specific to the political right and represents an extension of what George Lakoff [33] calls the “strict father morality.” Lakoff contends that people on the right and the left have distinct moralities that underlie their broader worldviews. One of the moralities held by the right is that of the “strict father”: a metaphor predicated on the belief that the world is dangerous and that the key goal is survival. Such a belief structure emphasizes strict punishment when the values are threatened and high rewards when they are met.

Jost et al. [34] suggest that this feature of conservatism draws people who feel unsafe or uncertain in society. The authors claim that conservatism may be a form of motivated social cognition that emphasizes the maintenance of the status quo (i.e., system justification). As such, conservatism “serves to reduce fear, anxiety, and uncertainty; to avoid change, disruption, and ambiguity, and to explain, order, and justify inequality among groups and individuals [34] (p. 340).” Within the US context, the conservative emphasis on preserving the status quo entails legitimizing the prevailing economic and social systems (e.g., free-market capitalism) that produce and sustain group inequality [35]. This is effected through ideologies emphasizing colorblindness and meritocracy [36], which endorse laissez-faire principles and vertical hierarchies while shrouding how these systems foster group inequality. Consequentially, conservatives may view group hierarchies as a natural state of affairs, and develop what scholars call a “social dominance orientation” whereby they believe that certain groups of people are superior to others and have a legitimate right to power and privilege in society [16].

In addition to legitimizing unequal relations between social groups, a strong social dominance orientation provides a rationalization for unequal relations between people and the natural environment [18]. The findings of Milfont and colleagues [18] suggest that people with a strong social dominance orientation are more likely to be climate change skeptics because they hold attitudes supporting the right of people to hold dominion over the environment. Recent research also finds that conservatism offers a motivated social cognition that promotes a strong social dominance orientation and thus reduced concern for the environment [37]. In addition, insofar as a strong social dominance orientation reflects

an endorsement of the social and economic systems from which white people benefit, it might reduce the general sense of risk white people perceive from social and environmental threats [9], and thus enhance their skepticism about the threats posed by climate change.

Scholarship on conspiratorial thinking offers similar answers, suggesting that people accept and adhere to conspiracy theories to make sense of an overwhelming and complicated world [38]. Hofstadter [39] argues that adherence to conspiracies channels people's sense of powerlessness and fear. Through narratives that imbue small groups of enemies or agents as the cause of significant, complicated social problems, conspiracies package overwhelming situations into more psychologically manageable frames. As such, adherents feel greater empowerment and control [38,40–42].

Conspiracy theories range widely and attract people from a variety of religious and political frameworks. Common among political conservatives are conspiracies surrounding climate change and science whereas progressives' ideology is associated (inconsistently) with myths about genetically modified foods and vaccinations [43]. Concerning climate change specifically, adherents contend that a group of "elites" (e.g., Democrats, Al Gore, the United Nations) advance the myth of climate change to amass money and power [19,44]. Such a belief structure emerges from a broader distrust of so-called elites on the part of the political right, especially as it concerns environmental action [19]. This broader, what Hofstadter [39] terms "paranoia," comes out of a decades-long conspiracy regarding the "New World Order" among right-wing populists. This theory contends that the United Nations and other "elitists" seek to undermine American sovereignty and cultural values to amass power and wealth [19,45,46].

Beyond social dominance and conspiracy ideation, political ideology also appears to be implicated in the relationship between race and climate change skepticism. Considering the period of the Obama administration, Benegal [47] finds that, following Obama's 2008 presidential election, white people with greater levels of "racial resentment" were more likely to reject climate change. More recently, Schuldt and Pearson [48] find that political polarization operates differently among distinct racial groups wherein white people are more likely than people of color to respond in accordance with polarized views when exposed to certain media frames about climate change. They conclude that, although people of color are less likely than white people to identify as environmentalists, they are more likely to support political initiatives to fight climate change. This suggests that racial identity may influence or correspond to climate change attitudes.

2.3. Theoretical Model

In the current study, we develop a theoretical model and test how white identity, social dominance orientation, and conspiratorial ideation collectively influence climate change skepticism.

Drawing on models of racial identity formation [14,15], we conceptualize white identity as not simply a categorical label, but rather a developmental process. Phinney [15] theorizes that racial identities are "achieved" through two iterative processes: exploration and commitment. After a crisis event, which causes people to question the value or meaning of their racial identity, they may explore and learn about the social significance of their racial group membership by immersing themselves in social contexts where the value of their group is affirmed [15]. With this knowledge, people develop greater clarity and understanding of their racial group membership, or commitment. An achieved identity is one defined by high levels of both exploration and commitment and is typically an identity that is important to oneself, positively defined, and accompanied by feelings of closeness to other group members [49,50].

Prior work in the racial identity literature has largely focused on people of color. A strong racial identity is generally viewed as more relevant to the lives of people of color, for whom it offers resilience against prejudice and discrimination [51]. For white people, on the other hand, racial identity is often invisible and taken for granted [36]. Due to their dominant group status, racial identity has been less central in the lives of white people [52].

The values of whiteness, including the presence of a racial hierarchy benefiting white people, have been legitimated through ideologies of meritocracy and colorblindness [36] and thus culturally mainstreamed. This limits the exposure of white people to anti-white sentiment, affording them “the luxury of not thinking about their racial group and its collective interests [52] (p. 36)”.

Despite the invisibility of racial identity, when the racial hierarchy and group position [53] of white people has been challenged with progressive policies, white people have been found to respond with racial resentment marked by animosity towards racial outgroups [54]. When these challenges are momentous and threaten the prevailing racial hierarchy, responses may move beyond racial resentment to the emergence of a salient racial identity marked by a common group consciousness and political orientation to preserve their privileged status [52,53]. Jardina [52] argues two such events have contributed to the enhanced salience of racial identity among white people: the election of the first African American president and the shifting ethnic–racial demographics of the US population due to the influx of Asian and Latinx immigrants, where white people are now estimated to be the statistical minority in the coming decades [55].

These events have threatened the privileged and often taken-for-granted status of white people, leading to an activation of white identity [52]. Consistent with the identity development model [15], we argue these threats create a crisis in the racial identity of white people. This triggers a period of exploration wherein white people immerse themselves in social environments that enhance and affirm their view of being white. Conservative media outlets provide one central learning environment where this can occur. These outlets extol traditional US values [56], including ideologies such as colorblindness and meritocracy that tacitly endorse the existing racial hierarchy. The conservative news ecosphere also platforms and helps normalize extreme right-wing movements [56], such as the Alt-Right, which explicitly endorses ideas of white nationalism and white supremacy [57].

In addition to ideological messaging affirming the privileged status of white people, conservative media outlets foster anti-elitist and anti-expert sentiments directed towards institutions that they perceive as threatening to the traditional American order [58]. At its most extreme, this anti-institutionalist sentiment involves the proliferation of conspiracy theories that mainstream institutions are controlled by small groups of elites acting in their own self-interest, thus undermining the legitimacy of science, medicine, education, government, and the mainstream media [19,43,59].

As white people explore the social meanings of their racial identity by navigating this conservative ecosphere, we argue that they will commit to a white identity that affirms their dominance in the prevailing racial hierarchy and thus exhibit an enhanced social dominance orientation. In addition, they will perceive their privileged status as secretly under attack from institutional elites and thus have higher levels of conspiratorial ideation. As a result, they will exhibit greater skepticism towards climate change science due to an enhanced social dominance orientation, which legitimizes the prevailing social hierarchies and economic systems that give them greater status and power over other social groups and the environment. Further, they will exhibit greater climate change skepticism due to a stronger belief that actors within mainstream institutions, which often promote the research and policy indicating that climate change is happening and manmade, are secretly conspiring to undermine the traditional US order (conspiratorial ideation). Analytically, we argue that a strong white identity indirectly increases climate change skepticism by enhancing levels of social dominance orientation and conspiratorial ideation. Therefore, the current study tests the following hypotheses.

H1: *White identity is positively associated with social dominance orientation.*

H2: *White identity is positively associated with conspiratorial ideation.*

H3: *Social dominance orientation is positively associated with climate change skepticism.*

H4: *Conspiratorial ideation is positively associated with climate change skepticism.*

Our work extends existing scholarship by directly considering the effects of ethnic and racial identity, social dominance orientation, and conspiracy ideation on climate change attitudes among white American adults. Applying scholarship examining the morality at the heart of conservatism and the fears held by conservatives, we seek to better assess the foundations of climate change attitudes in American society. Most importantly, racial identity has not been considered in depth in its relationship to climate change attitudes and skepticism.

3. Materials and Methods

3.1. Data and Sample

The survey data for this paper are drawn from a national study of white young adults examining ethnic–racial developmental processes (e.g., ethnic–racial socialization and ethnic–racial identity), and their impact on a variety of young adult psychosocial outcomes including political attitudes. After IRB approval was secured (University of Idaho, IRB protocol #21-220), Qualtrics distributed the survey to their online panels in January and February of 2022. The data were periodically scrubbed by Qualtrics to filter out bad responses (e.g., straight-lining, abnormally fast completion times, etc.). The research questions pursued by the team collecting the data required that the respondents only be included in the survey if they were born in the United States, resided in a US state, were between 18 and 25 years of age, self-identified exclusively as white, were raised by white parents, and were not adopted. The full sample consisted of 1009 respondents. Of these, 933 provided complete data to the survey items used for the current study and thus served as the analytical sample. Fifty-six percent of the analytical sample identified as women, while 44% identified as men. The average age was about 22 years, while about 15% were married. The median level of education was “high school”, while the median level of parental education was “some college”. These demographic characteristics were similar to the overall sample.

3.2. Measures

Climate Change Skepticism: Climate change skepticism was measured with two items drawn from prior research [22], each of which served as separate outcomes. The first item asked the extent to which the respondent agreed that climate change is happening (trend skepticism). The second item asked the extent to which the respondent agreed that climate change is manmade (attribution skepticism). The response options for both items ranged “strongly disagree” (1) to “strongly agree” (5) with a higher score indicating a stronger belief that climate change is happening and manmade. The items were then reverse-coded, so they could serve as measures of climate change skepticism.

Conspiratorial Ideation: Conspiratorial ideation was measured with a previously validated four-item scale [17]. The four items measure a general orientation to believe in conspiracies. Instead of referring to specific political issues that are the subject of conspiratorial thinking, the scale measures beliefs that tend to be held generally by people with a conspiratorial disposition (i.e., “Much of our lives are being controlled by plots hatched in secret places.”; “Even though we live in a democracy, a few people will always run things anyway.”; “The people who really ‘run’ the country are not known to the voters.”; “Big events like wars, and the outcomes of elections are controlled by small groups of people who are working in secret against the rest of us.”). The response options for the items ranged “strongly disagree” (1) to “strongly agree” (5). A factor analysis indicated a one-factor solution, consistent with Uscinski and colleagues [17], with good internal consistency ($\alpha = 0.73$). The items were averaged into a scale ranging from 1 to 5 with a higher score indicating greater conspiratorial ideation.

Social Dominance Orientation: Social dominance orientation was measured with the four-item Short Social Dominance Orientation scale (SSDO), which has been validated in previous research [60]. The respondents were first provided the following preamble: “There are many kinds of social groups in the world: men and women, racial groups, ethnic

and religious groups, nationalities, political factions. How much do you support or oppose the following ideas about groups in general?" Two of the four items measured the extent to which people show a preference for group inequality (i.e., "Superior groups should dominate inferior groups."; "We should not push for group equality."). The other two items measured the extent to which people show a preference for group equality ("In setting priorities, we must consider all groups."; "Group equality should be our ideal."). The latter two items were reverse coded to indicate a preference for group inequality. Response options ranged from "strongly oppose" (1) to "strongly support" (5). A factor analysis indicated a one-factor solution with good internal consistency ($\alpha = 0.73$). The items were averaged into a scale ranging from 1 to 5 with a higher score indicating a greater social dominance orientation.

White Identity: We used two previously validated scales to measure white identity. First, we used a modified 12-item social identity scale [61], which served as a measure of white racial identity. The items measure three dimensions of identity strength: cognitive (e.g., "In general, being a member of my racial group is an important part of my self-image."), affective (e.g., "I feel strong ties to other members of my racial group."), and evaluative (e.g., "Generally, I feel good when I think about myself as a member of my racial group."). The response options ranged from "strongly disagree" (1) to "strongly agree" (5). We could not determine a clear factor structure due to the presence of five negatively worded items. So, we shortened the scale by taking two positively worded items for each of the three dimensions and created one six-item scale. A factor analysis of this shortened six-item scale indicated a one-factor solution with good internal consistency ($\alpha = 0.76$).

Our second measure of white identity was the Revised Multigroup Ethnic Identity Measure (R-MEIM) [62], which served as a measure of white ethnic identity. The R-MEIM is a 12-item scale based on the original MEIM [49] that Roberts and colleagues [62] found to map onto the two developmental dimensions of identity achievement: commitment and exploration. Seven items assess the degree of commitment to one's white identity as well as the sense of belonging and affirmation that comes with high commitment (e.g., "I understand pretty well what my ethnic group membership means to me, in terms of how to relate to my own group and other groups."; "I have a strong sense of belonging to my own ethnic group."; "I feel good about my cultural or ethnic background.") The other five items assess the exploration of and interest in one's white identity (e.g., "I have spent time trying to find out more about my own ethnic group, such as its history, traditions, and customs."). The response options ranged from "strongly disagree" (1) to "strongly agree" (5). A factor analysis indicated a one-factor solution with very good internal consistency ($\alpha = 0.87$).

Theoretical work has suggested that when studying youth of color, scholars should not draw a strong distinction between racial identity and ethnic identity as separate constructs since these youth do not generally distinguish between them in their everyday lives [63]. However, other scholars have noted that white people, adhering to principles of colorblindness, are often hesitant to see and discuss their whiteness in terms of race [64,65], preferring to frame their white identity exclusively in terms of ethnicity. By measuring white identity in both racial and ethnic terms, we can examine how similarly these two dimensions of white identity operate in our model to influence climate change skepticism.

Controls: We measured the following as theoretical and demographic control variables given past research showing their association with climate change skepticism, white identity, conspiratorial ideation, and/or social dominance orientation [19,29,66]: trust in climate change science, confidence in understanding climate change, gender, age, conservatism, parent's education, respondent's education, and marital status. Trust in climate change science was measured with one item ("I trust scientists as a source of information about climate change."). Confidence in understanding climate change was measured with one item ("I understand climate change very well."). Both items were measured with response options ranging from "strongly disagree" (1) to "strongly agree" (5). Given the small number of respondents who responded outside the man/woman binary, gender was measured dichotomously with man as the reference group. Age was measured in years.

Conservatism and respondent's education were measured each with single ordinally scaled items. Mother's and father's education were each measured with the same ordinally scaled item as respondent's education. Parents' education was constructed as an additive scale from mother's and father's education. Lastly, marital status was measured dichotomously with non-married respondents serving as the reference group.

3.3. Analytical Strategy

We used seemingly unrelated regression to simultaneously test the four regression equations in our model: (1) conspiratorial ideation as a function of ethnic-racial identity and controls, (2) social dominance orientation as a function of ethnic-racial identity and controls, (3) belief that climate change is happening as a function of ethnic-racial identity, social dominance orientation, conspiratorial ideation, and controls, and (4) belief that climate change is manmade as a function of ethnic-racial identity, social dominance orientation, conspiratorial ideation, and controls. When estimating more than one regression equation in a theoretical model, seemingly unrelated regression performs a more efficient test of the model by estimating the equations simultaneously and allowing the error terms from each equation to correlate with the others [67].

Given the high correlation between our two measures of white identity ($r = 0.66$), it was not feasible to test them in the same model. So, we performed two tests of the theoretical model, the first with our measure of white racial identity and the second with our measure of white ethnic identity. Lastly, the demographic controls were included in all the regression equations, while the two theoretical controls tied to climate change skepticism (trust in climate change scientists and confidence in understanding climate change) were only included in the regression equations when climate change skepticism was an outcome variable.

After the tests of the theoretical model, we used Sobel tests [68] to test the indirect effects between white identity and climate change skepticism via social dominance orientation and conspiratorial ideation to establish mediation.

4. Results

4.1. Descriptive Statistics

Table 1 shows the descriptive statistics for the study variables. Respondents reported low mean levels of climate change skepticism, both skepticism that climate change is happening ($M = 2.11$, $SD = 1.04$) and that climate change is manmade ($M = 2.23$, $SD = 1.09$). Respondents reported low levels of social dominance orientation ($M = 2.23$, $SD = 0.88$) and moderate levels of conspiratorial ideation ($M = 3.17$, $SD = 0.78$). Lastly, respondents reported moderate levels of white racial identity ($M = 3.08$, $SD = 0.77$) and white ethnic identity ($M = 3.15$, $SD = 0.70$).

Table 1. Descriptive Statistics of Study Variables.

Variable	Mean	SD	Min	Max
Climate Change Skepticism (Happening)	2.11	1.04	1	5
Climate Change Skepticism (Manmade)	2.23	1.09	1	5
Ethnic Identity	3.15	0.70	1	5
Racial Identity	3.08	0.77	1	5
Conspiratorial Ideation	3.17	0.78	1	5
Social Dominance Orientation	2.23	0.88	1	5
Trust in Climate Change Science	3.57	1.18	1	5
Confidence in Understanding Climate Change Science	3.47	1.06	1	5
Gender (Woman)	0.56	0.50	0	1
Age	21.71	2.30	18	25
Conservatism	3.97	1.76	1	7
Parents Education	7.89	2.09	2	12
Education	3.64	0.96	1	6
Married	0.15	0.36	0	1

4.2. Tests of Theoretical Model

Table 2 shows the test of the theoretical model with our measure of white racial identity. Consistent with our hypotheses, white racial identity was associated with greater conspiratorial ideation ($b = 0.09, p < 0.01$) and greater social dominance orientation ($b = 0.12, p < 0.01$). Also consistent with our hypotheses, social dominance orientation was associated with greater skepticism that climate change is happening ($b = 0.25, p < 0.001$) and greater skepticism that climate change is manmade ($b = 0.22, p < 0.001$). Contrary to our hypotheses, conspiratorial ideation was associated with less skepticism that climate change is happening ($b = -0.15, p < 0.001$) and less skepticism that climate change is manmade ($b = -0.15, p < 0.001$).

Table 2. Unstandardized Coefficients of Seemingly Unrelated Regression: Racial Identity.

Independent Variable	Outcome Variable			
	Conspiratorial Ideation	Social Dominance Orientation	CCS (Happening)	CCS (Manmade)
Racial Identity	0.09 **	0.12 **	0.01	0.05
Conspiratorial Ideation	-	-	-0.15 ***	-0.15 ***
Social Dominance Orientation	-	-	0.25 ***	0.22 ***
Controls				
Trust in Climate Change Science	-	-	-0.37 ***	-0.29 ***
Confidence in Understanding Climate Change Science	-	-	-0.20 ***	-0.19 ***
Gender (Woman)	0.04	-0.16 **	-0.21 ***	-0.15 **
Age	0.02	-0.01	-0.02	-0.01
Conservatism	0.06 ***	0.13 ***	-0.04 **	0.10 ***
Parents Education	-0.05 ***	-0.05 ***	-0.03 *	-0.03 *
Education	-0.03	0.03	0.02	0.04
Married	0.11	0.17 *	-0.05	0.07
R ²	0.06	0.13	0.51	0.41

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

We used Sobel tests to test the indirect effects of white racial identity to each of the climate change skepticism outcomes via social dominance orientation and conspiratorial ideation. We found that white racial identity indirectly increased both skepticism that climate change is happening ($b = 0.03, p < 0.01$) and that climate change is manmade ($b = 0.03, p < 0.01$) by increasing one's social dominance orientation. We also found that white racial identity decreased one's climate change skepticism that climate change is happening ($b = -0.01, p < 0.05$) and that climate change is manmade ($b = -0.01, p < 0.05$) by increasing one's conspiratorial ideation.

Table 3 shows the test of the theoretical model with our measure of white ethnic identity. Consistent with our hypotheses, white ethnic identity was associated with greater conspiratorial ideation ($b = 0.10, p < 0.01$) and greater social dominance orientation ($b = 0.16, p < 0.001$). Also consistent with our hypotheses, social dominance orientation was associated with greater skepticism that climate change is happening ($b = 0.26, p < 0.001$) and greater skepticism that climate change is manmade ($b = 0.22, p < 0.001$). Contrary to our hypotheses, conspiratorial ideation was associated with less skepticism that climate change is happening ($b = -0.15, p < 0.001$) and less skepticism that climate change is manmade ($b = -0.15, p < 0.001$).

Table 3. Unstandardized Coefficients of Seemingly Unrelated Regression: Ethnic Identity.

Independent Variable	Outcome Variable			
	Conspiratorial Ideation	Social Dominance Orientation	CCS (Happening)	CCS (Manmade)
Ethnic Identity	0.10 **	0.16 ***	0.01	0.07
Conspiratorial Ideation	-	-	-0.15 ***	-0.15 ***
Social Dominance Orientation	-	-	0.26 ***	0.22 ***
Controls				
Trust in Climate Change Science	-	-	-0.37 ***	-0.29 ***
Confidence in Understanding Climate Change Science	-	-	-0.20 ***	-0.19 ***
Gender (Woman)	0.04	-0.16 ***	0.21 ***	-0.15 **
Age	0.02	-0.01	-0.02	-0.01
Conservatism	0.06 ***	0.12 ***	0.05 **	0.10 ***
Parents Education	-0.05 ***	-0.05 ***	-0.02 *	-0.03 *
Education	-0.03	0.02	0.02	0.04
Married	0.11	0.17 *	-0.05	0.07
R ²	0.06	0.14	0.51	0.42

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

We used Sobel tests to test the indirect effects of white ethnic identity on each of the climate change skepticism outcomes via social dominance orientation and conspiratorial ideation. We found that white ethnic identity indirectly increased both skepticism that climate change is happening ($b = 0.04$, $p < 0.001$) and that climate change is manmade ($b = 0.03$, $p < 0.001$) by increasing one's social dominance orientation. We also found that white ethnic identity decreased one's climate change skepticism that climate change is happening ($b = -0.02$, $p < 0.05$) and that climate change is manmade ($b = -0.02$, $p < 0.05$) by increasing one's conspiratorial ideation.

5. Discussion

Prior climate change research has found that race, conspiratorial ideation, and social dominance orientation are linked to greater climate change skepticism. Drawing on the theoretical narrative of the identity developmental literature [15], we constructed and tested a theoretical model integrating these three constructs and how they relate to climate change skepticism.

We argued that with growing threats to the racial hierarchy in the United States, which advantages white people, white people are increasingly viewing their racial identity as a central part of their self-concept [52]. Consistent with developmental models of identity [15], we argued that these threats are a crisis that triggers an exploration process where white people engage social contexts, such as the conservative news ecosphere, which affirm the value of their white identity. With this affirmation, people commit to a white identity that is important to oneself, positively defined, and accompanied by feelings of closeness to other group members. We further argued that this developmental process entails exposing white people to beliefs that foster a greater social dominance orientation and sense of conspiratorial ideation. These beliefs become a part of how white people with a strong racial identity view the world, thus leading to greater climate change skepticism.

Our findings generally supported this mediation model. Those with a strong white identity had greater levels of social dominance orientation and conspiratorial ideation, with social dominance orientation leading to greater levels of skepticism about whether climate change is happening and whether climate change is anthropogenic. However, contrary to prior research and our expectations, we found that conspiratorial ideation was associated with lower levels of both climate change skepticism outcomes.

In their widely cited work on climate change denial among conservative white men, McCright and Dunlap [11] offer two main, complementary reasons to explain the higher level of skepticism observed among this fraction of the American public: (1) identity-

protective cognition, that those with a stronger white identity may harbor greater bias towards protecting their social status and self-esteem that arises from their in-group membership [13], and, (2) system justification, the tendency among some political conservatives to defend the status quo, i.e., protect the “industrial capitalist order” [11], which they benefit from and thus perceive as less risky and threatening [9]. Our work parallels this scholarship in that we center the effects of white identity on climate change skepticism and examine how white identity affects skepticism via two related pathways, i.e., social dominance orientation and conspiratorial ideation.

Given that in the United States climate change skeptics are more likely to be politically conservative and white [11], and, given that white identity development often entails the emersion in a value system that reinforces social dominance and conspiratorial ideation, both of which are tied to a conservative political ideology [18,19,34,37], it is not at all surprising that we find a strong white identity to be associated with greater levels of both social dominance orientation and conspiratorial ideation. This finding aligns with identity-protective cognition discussed above [11,13]. A stronger white identity may instill in white people a sense of group superiority [16] and fuel the construction of a “common enemy” against whom their group identity is solidified (e.g., a common enemy consisting of “elites” such as Democrats, Al Gore, and the United Nations, in the case of climate change) [19,44].

A social dominance orientation favors a hierarchical worldview that promotes human dominion over the environment [18] and downplays environmental risks that are seen as threatening to in-group positions [13]. Regarding climate change attitudes, it is likely that those with a strong white identity and a strong social dominance orientation would hold attitudes reflecting entitlement to environmental resources and identify more strongly with elites in the conservative movement, embracing and espousing messages from the climate change denial countermovement (actors such as the fossil fuel industry, conservative media, and think tanks) [31]. This in turn may steep them more deeply in conservative “echo chambers” where they continue to seek out information that further confirms their preexisting beliefs of skepticism or denial [24].

On the other hand, while we found evidence that a strong white identity is associated with a higher level of conspiratorial ideation, we surprisingly did not find conspiratorial ideation to be associated with a higher level of climate change skepticism. In fact, conspiratorial ideation reduced climate change skepticism. This contradictory and novel finding is worthy of closer scrutiny. We offer four possible explanations.

First, it is important to interpret these findings within the context of the unique sample that we used for this study. Our sample is exclusively white and comparatively young (between 18 and 25 years of age). Overall, respondents reported low mean levels of climate change skepticism on both dimensions that we tested for: climate change is happening ($M = 2.11$, $SD = 1.04$) and climate change is anthropogenic ($M = 2.23$, $SD = 1.09$). Elsewhere in the climate change literature, scholars have pointed out that while age is an inconsistent predictor of climate views overall, younger adults tend to report stronger pro-climate views (and lower levels of skepticism) than older adults [29]. These characteristics of the unique sample (and the population of young adults represented by it) may have affected the relationships examined in our theoretical models.

Second, we operationalized climate change skepticism via two specific dimensions—trend skepticism and attribution skepticism. Yet, due to more frequent and more intense extreme weather events the world over, effects of climate change are becoming harder to deny. Furthermore, scientists have reached unanimous consensus on anthropogenic climate change [69]. As such, fewer people now tend to deny the physical realities and human causes of climate change. It is not surprising then that younger people, who typically harbor stronger pro-climate views, would also hold less trend or consensus skepticism. Yet, significant disagreement remains, for instance, on effective solutions to climate change and/or whether climate solutions will work at all [70]. These changing skeptical views suggest that theoretical models that take into consideration conspiratorial ideation’s effects on other

aspects of skepticism (such as “solution skepticism”), and other ways of operationalizing skepticism, should also be tested in the context of white racial identity.

Third, we point to extant research which concludes that the nature of one’s conspiracy ideation is shaped heavily by other ideological drivers. For example, people often accept conspiracy stories that align with their religious views. For instance, those who accept New Age perspectives are more likely than Christians to believe in the Da Vinci Code conspiracies, whereas Christians disproportionately believe in medical conspiracies [71]. Political ideology also shapes the conspiracies to which one adheres: conservatives are more likely to believe in political and medical conspiracies wherein progressives accept those regarding genetically modified food [43]. Climate skepticism is associated with ideologies around free-market capitalism and associated conspiracies regarding the rejection of science (e.g., a rejection of the facts that HIV causes AIDS or that smoking leads to lung cancer) [72]. The questions we ask in our survey focus on general conspiracy ideation, whereas conspiracies around science may be more likely to influence climate change skepticism.

Fourth, given the youth of our sample, our use of a general measure of conspiratorial ideation, and our selection of control variables, we might have tapped into a unique form of conspiratorial ideation. At a bivariate level, we found no association between conspiratorial ideation and climate change skepticism. However, in the multivariate tests of this relationship, we found a negative association. In these tests, we controlled for markers of political ideology (e.g., conservatism) and a theoretical correlate of climate science conspiratorial ideation (trust in climate change scientists). Given the inclusion of these control variables in our analysis, the source of the institutional distrust underlying conspiratorial ideation in our analyses should not have covaried with trust in climate science or political ideology.

Recent scholarship has noted that over the last 15 years, right-wing and left-wing social movements have increasingly converged in their distrust of corporations [73]. Corporations are increasingly viewed by both movements as entities with undue political and economic influence that actively operate against the interests of the United States and its people. The influence of conspiratorial ideation in our multivariate analyses might have tapped into this anticorporate sentiment since it is commonly held across the political spectrum, especially by young people (as in our sample) whose politically formative years have coincided with this convergence. Since corporate malfeasance is viewed as a central cause of climate change, higher levels of conspiratorial ideation marked by distrust for corporations could reduce levels of climate change skepticism, thus accounting for the negative relationship we found in our study. If true, this implies that the nature of the relationship between conspiratorial ideation and political attitudes might vary based on the institutional domain of distrust underlying the ideation (e.g., corporate, scientific, political, educational, etc.). In the case of climate change attitudes, conspiratorial ideation of scientific institutions appears to increase skepticism [19], while conspiratorial ideation of corporations might reduce skepticism. Future research should test conspiratorial ideation along multiple institutional domains to more accurately understand its association with climate change skepticism.

Our study has several implications for climate change communication and policy. Firstly, results suggest that those with a strong white identity and a strong social dominance orientation, for whom equality between racial and ethnic groups is not a priority, are less likely to be moved by messages of racial equality or environmental justice. Social movements (and messages) such as “Debt for Climate” that advocate for Global South-driven initiatives—for “connecting social and climate justice struggles by uniting labor, social and climate movements from the Global South and North toward a common goal of turning debt-trap diplomacy on its head by canceling the debt of impoverished nations . . . ” [74]—are unlikely to find much traction among those with a strong social dominance orientation. For these groups, protecting the status quo, rather than challenging it is the desired goal, to maintain their hierarchical social status. Yet, given that they are motivated to maintain group superiority, they may still gravitate towards messages (and related policies) of economic growth that can simultaneously align with urgently needed climate actions. For

example, investments in renewable energy and novel transportation infrastructure, when presented as creating avenues for economic self-interest, energy independence, or ensuring national security, may find support among those with a strong social dominance orientation.

More recently, while some groups and individuals in academic and activist circles have embraced the degrowth movement (slowing down or halting economic growth to ensure environmental sustainability [75]), the idea is not likely to find much traction among those who hold a strong social dominance orientation either. Many would see degrowth as directly challenging their group's dominant political, economic, and cultural standing. Perhaps US climate activists (such as The Sunrise Movement) decidedly do not embrace degrowth and similar movements for related reasons, instead, opting to advocate for the Green New Deal or the more recent Inflation Reduction Act of the Biden administration, which are seen as coupling climate solutions with sustainable economic growth.

Recent work suggests that pro-environmental views can be fostered through the development of a superordinate identity [37]. Among a sample of UK residents, this research found that a strong European identity was associated with pro-environmental views, while a strong British identity was not. Within an American context, linking US global influence and dominance to the eradication of climate change may activate a superordinate American identity, which leads people to accept and address climate change out of motivation to enhance American influence. Perhaps what is needed is a holistic message on moving America forward towards a new frontier for economic growth and environmental sustainability, akin to a rising tide that lifts all up; an American identity that activates a desire to ensure a better future for all Americans.

For those with a strong white racial identity, climate change communications may also be more effective when using images or stories of people who are seen as similar to them in race and ethnicity or cultural values [76]. Presenting stories that activate other intersecting identities (e.g., Christian stewards or loving grandparents, for instance) might also move them towards pro-environmental and pro-climate action. These groups may also be more receptive to messages communicated by those that are seen as members of their own in-group (e.g., conservative or white politicians or religious leaders, for instance). Climate change messages and policy frameworks should also focus on areas of shared concern among skeptics and believers, such as curbing air pollution and habitat loss, or investing in some clean energy sources that have wider cross-partisan support (wind and solar) [77].

Our data have limitations that future research can address. Our national sample was non-probabilistic and limited to young adults in the US. In addition, our data were cross-sectional. Although we tested our model with a strong battery of control variables, the cross-sectional nature of our data limits the ability to draw definitive conclusions about the causal direction of our hypotheses. Although we had strong theoretical reasons for the hypothesized direction of the pathways in our model, it is also possible we did not identify some feedback effects due to the nature of the data. For instance, prior research argues that having a strong social dominance orientation leads to a strong white racial identity [52]. Thus, future work that can test our model with a probabilistic sample across more age groups with longitudinal data can add further confidence and nuance to our findings.

More broadly, while social scientific research on climate change has significantly enhanced our state of knowledge regarding climate change attitudes, perceptions, and behavior, enacting much-needed climate action has remained a significant challenge, especially in countries such as the United States where climate policies often confront ideologies and identities related to global/economic dominance. As a result, we now know why climate change is happening, how we contribute to it, and what to do about it, but not enough about how to raise the necessary political and public will to fight against the climate crisis. Given their focus on human dimensions, social scientists have a lot to contribute in this area as well. Identity development remains a critical aspect in this regard, that may enhance or hinder climate action based on where one's group affinities lie.

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