

**Media use, race, and the environment: The converging of environmental attitudes based  
on self-reported news use**

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**Abstract**

Using a purposive sample with an even distribution of 299 non-Hispanic Whites, 294 African Americans, 292 Asian Americans, and 295 Hispanics, we test a moderated mediation model that examines the relationship between self-reported news media consumption (e.g., non-conservative and conservative) and environmental behavioral intentions. Our study found evidence supporting the mainstreaming hypothesis (converging attitudes) across key variables within the theory of planned behavior (TPB). Our results also reveal non-conservative outlets to be associated with more favorable environmental attitudes, subjective norms, and perceived behavioral control, while conservative outlets are associated with less favorable levels for two of these three variables. Results also indicate conditional indirect relationships between non-conservative news use on behavioral intentions through our TPB variables, which vary by race/ethnicity.

*Keywords:* Theory of planned behavior; environmental attitudes; media effects; race/ethnicity; mainstreaming

## **Introduction**

The United States faces significant challenges from anthropogenic climate change. According to a government sanctioned national climate assessment report, climate change is affecting U.S. energy production and use, the natural environment, human health and wellness, and natural resources (U.S. National Oceanic and Atmospheric Administration [NOAA], 2018). Effectively ameliorating climate change requires unprecedented efforts in all areas of society, including public engagement, widescale public advocacy in support of environmental policymaking, and cooperation among environmentalists, civil rights advocates, political leaders, policymakers, and at-risk populations (Bullard 2000).

To understand why people are (or are not) engaged with the issue of climate change, scholars have attempted to understand how news media use and exposure affect their beliefs and engagement (Feldman, Myers, Hmielowski, and Lieserowitz 2014; Hmielowski, Feldman, Myers, Leiserowitz, and Maibach 2014). Most adult Americans gain their understanding of climate change from the media, which has considerable implications for public interpretation and the assignment of meaning and legitimacy, and ultimately policy making (Zamith, Pinto, and Villar 2013). Media effects scholarship historically, however, has received criticism for overly simplistic models of persuasion and attitude change (McGuire 1986; Shrum 2009). To wit, largely missing from climate-related studies (e.g., Feldman et al, 2014; Hmielowski et al, 2014) is scrutiny of the underlying processes by which media use leads to changes in people's intentions to publicly display engagement and support for climate change mitigation.

In addition, media effects scholarship to date shows noticeably small effects, which scholars argue may be a result of inadequate scrutiny of media's varying effects across different cultural groups and insufficient focus on media use's indirect effects (McGuire 1986; Shrum 2009). Indeed, not all groups in the U.S. hold the same beliefs regarding climate change or environmental issues. Research has shown that not only are there differences in susceptibility to climate change by race/ethnicity, but attitudes and behaviors around climate change also vary by race and ethnicity (Elias 2019; Elias, Dahmen, Morrison, Morrison and Morris 2018). The only types of considerations that may be viable long term, however, are those that are appealing to a diversity of positions and are equitable and fair (Carvalho 2010). Ultimately, while U.S. racial/ethnic groups express varying levels of environmental concerns, our orientations, overall, currently do not translate into sufficiently impactful environmental behaviors (Gifford 2011).

In this paper, we attempt to fill two gaps in the literature regarding news media consumption and environmental behavioral intentions. First, we extend the existing scholarship on the theory of planned behavior (TPB) (Ajzen 1991, 2011) by connecting media effects research to TPB. Although a number of TPB studies illustrate the importance of attitudes, subjective norms, and perceived behavioral control as precursors to behavioral intentions and behaviors, few studies, in a manner that is not piecemeal, have examined the correlation between use of news media and our three key TPB variables (Ajzen 2011). Moreover, utilizing TPB illuminates the underlying process of how news media consumption could lead people to become engaged (or disengaged) with the issue of climate change.

Secondly, we extend the work on news media use by examining whether consumption of news from different ideological outlets decreases the gap in environmental orientations among racial/ethnic groups. To address this matter, we rely on the mainstreaming hypothesis from cultivation theory. The mainstreaming hypothesis proposes that heavy media use leads

people who hold divergent views on an issue to converge on a middle point, resulting in these different groups holding similar views on important cultural and political issues (Gerbner, Gross, Morgan, and Signorielli 2002). In essence, we examine whether use of different news media is associated with ethnic groups converging on a similar point regarding their attitudes and beliefs on the issue of climate change.

Altogether, we test a mediated moderated model using cross-sectional survey data, examining a previously understudied communication process, namely, the extent to which self-reported news media consumption correlates with important variables within the TPB. Specifically, we examine whether self-reported non-conservative and conservative news media consumption is associated with an enlargement or a reduction in gaps between racial/ethnic groups' environmental attitudes, norms, and perceived behavioral control, and indirectly, their behavioral intentions to contact government officials, attend climate change rallies, and volunteer or donate money to climate causes.

### **Psychological Mechanism: Theory of Planned Behavior**

The theory of planned behavior focuses on understanding why people engage in behaviors. A central tenet of TPB is that behavioral intention accounts for considerable variance in behavior, and is grounded in people's attitudes toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). TPB has successfully provided insight into a diverse array of pro-environmental behaviors including intentions to conserve water (Chaudhary et al, 2017), visit a green hotel (Han, Hsu, and Sheu 2010), purchase sustainable food (Qi and Ploeger 2019), and recycle (Ceschi, Dorofeeva, Sartori, Dickert, and Scalco 2015). Despite TPB's popularity, extant research suggests limited insight exists regarding the factors that influence the three major determinants of behavior within the theory—attitudes, subjective norms, and perceptions of behavioral control (see Ajzen 2011). One potentially overlooked factor is media use (Ajzen 2011), specifically, news media.

## **Media and the Environment**

News media play a potentially significant role in shaping opinions and views on climate change (Hmielowski et al, 2014). In today's complex media environment, people select from a range of news outlets, many of which vary in their ideological leanings (Stroud 2011). News options include non-partisan nightly news broadcasts on major news networks (e.g., ABC Nightly News), liberal channels (e.g., MSNBC), and conservative outlets (e.g., Fox News) (Stroud 2011). Research has shown that when it comes to environmental content, liberal and non-partisan outlets tend to cover issues in a manner more congruent with scientific consensus (Feldman, Maibach, Roser-Renouf, and Leiserowitz 2012). By contrast, outlets like Fox News tend to emphasize anti-environmental positions such as questioning the existence of climate change (Feldman et al., 2012). These differences in coverage have translated into dissimilar effects on public attitudes (Feldman et al, 2012; Hmielowski et al, 2014).

## **Media and Attitudes**

An extensive set of studies exist that have looked at relationships between self-reported news use and attitudes toward environmental issues. Relative to this study, research shows that consumption of news from different outlets is likely to result in different environmental attitudes. People who consume non-partisan and liberal news, for instance, have been found to express greater environmental concern and less skeptical attitudes regarding climate change (Feldman et al, 2014; Hmielowski et al, 2014). Conversely, use of conservative news channels tends to be associated with questioning the existence of climate change and less environmental concern (Feldman et al, 2012; Feldman et al, 2014; Hmielowski et al, 2014). Accordingly, the following is proposed:

H1: a) Self-reported non-conservative news media consumption will be associated with positive environmental attitudes, while b) self-reported conservative news media consumption will be associated with more negative environmental attitudes.

### **Media and Subjective Norms**

Next, we examine the relationship between self-reported news media consumption and subjective norms. Subjective norms are motivations to conform with behavioral expectations that individuals believe respected others have about them (Davis, Ajzen, Saunders, and Williams 2002). Individuals have been shown to change views and behaviors based on cues from family members, friends, and even media (Yanovitzky and Stryker 2001). Studies have also intimated that media shape perceptions of subjective norms.

Determining perceptions of the attitudes and behaviors of others as exemplars for action or to calibrate one's own beliefs requires information seeking and processing (Spartz et al., 2017). News media have been found to be sources through which people infer public sentiment from their perceptions of the content of media coverage and their assumptions of the persuasive impact of that coverage on others (Gunther 1998). Spartz and colleagues (2017) contend that scanning of one's social environment, whether through mediated sources such as television and advertising or via direct personal contact, may lead to inferences about the behaviors and attitudes of others, and the basis to adjust their own behavior to fit the actions of those around them. Given that research suggests that non-partisan and liberal news media tend to include a lower portion of climate change skeptics, as opposed to conservative news media (Feldman et al., 2012), it is possible that viewers will believe that other people hold pro-environmental attitudes and expect them to as well. By contrast, viewing conservative news could be associated with individuals believing that the types of people they respect or admire want them to hold anti-environmental attitudes. Accordingly, the following is proposed:

H2: a) Self-reported non-conservative news media consumption will be positively associated with subjective norms, while b) self-reported conservative news media consumption will be negatively associated with subjective norms.

### **Media and Perceived Behavioral Control**

Perceived behavioral control has been described as perceptions of ease or difficulty relative to performing a behavior (Ajzen 2002). This is also known as self-efficacy, which is a major catalyst of behavioral intentions (Bandura 1997). Ultimately, belief in one's efficacy influences the endeavors that one opts to pursue, the amount of effort exerted, and how long one endures in the face of failure and obstacles (Bandura 1997).

Media use has been found to be associated with efficacy. For instance, O'Neill and Nicholson-Cole (2009) found that images of climate change impacts, such as devastating floods, increased perceptions of the importance of climate change. However, these images also made people feel powerless. On the other hand, images portraying actions that address climate change, such as wind turbines, fitting low energy light bulbs, and cycling, engendered feelings of efficacy (O'Neill and Nicholson-Cole 2009). Given that research suggests non-partisan and liberal news media tends to emphasize the effects of and threat posed by climate change, and are more likely to include positive efficacy information (Feldman, Hart, and Milosevic 2017), it is possible that consuming this content could be associated with people's levels of perceived efficacy regarding climate change amelioration. Alternatively, conservative news outlets' greater inclusion of negative efficacy content (Feldman et al., 2017) could be associated with lower levels of efficacy. We propose the following hypothesis:

H3: a) Self-reported non-conservative news media consumption will be associated with higher levels of perceived behavioral control, while b) self-reported conservative news media consumption will be associated with lower levels of perceived behavioral control.

### **Attitudes, Norms, and Behavioral Control as Predictors of Behavioral Intentions**

TPB research examines the relationships between individuals' attitudes, subjective norms, and perceived behavioral control with their reported levels of behavioral intentions and behaviors. Existing scholarship has shown that positive attitudes toward a behavior tend

to correlate with reported intentions to engage in this behavior. For example, Chen (2016) found a positive and significant relationship between attitudes toward the mitigation of global climate change and intentions to engage in energy saving and carbon reduction behaviors. Higher levels of subjective norms and perceived behavioral control were also found to be associated with intentions to engage in energy savings and carbon reduction behaviors (Chen 2016). Similarly, Chan and Lau (2001) found positive relationships between subjective norms and green purchase intentions for both American and Chinese samples. Finally, scholars have examined the relationship between perceived behavioral control and intentions. Mancha and Yoder (2015) found a positive and significant relationship between green perceived behavioral control and green behavioral intentions. Based on the research presented here regarding these three TPB variables and behavioral intentions, we propose the following hypotheses:

H4: Participants' a) environmental attitudes, b) subjective norms, and c) perceived behavioral control will be associated with higher levels of behavioral intentions.

H5: There will be positive indirect relationships for a) self-reported non-conservative media use on behavioral intentions through attitudes, norms, and behavioral control, while there will be negative indirect relationships for b) self-reported conservative media use on behavioral intentions through the same three endogenous variables.

### **Race/Ethnicity and Mainstreaming**

An area that has been largely ignored by media effects scholars is the extent to which media effects could vary by racial/ethnic groups. This deserves greater empirical attention considering numerous findings that environmental attitudes and beliefs vary by race/ethnic groups. Historically, those thought to be the most environmentally and ecologically committed were White, affluent, college educated, suburbanite, and younger individuals (Trop and Roos 1971). The least environmentally concerned were deemed to be “the poor, the black, and those with only grade school education” (Trop and Roos, 1971, p. 53). However, extensive empirical research has shown that African Americans, Hispanics, and

Asian Americans' environmental attitudes and concerns are either commensurate with or surpass those of non-Hispanic Whites (e.g., Elias 2019; Elias et al., 2018; Leiserowitz and Akerlof 2010). Therefore, based on previous research, we first propose that variables associated with the TPB will vary by race/ethnicity. Specifically, we propose:

H6: Environmental attitudes, norms, and behavioral control will vary by race/ethnicity, with minority groups reporting more positive attitudes, greater perceived norms, and higher levels of perceived behavioral control compared to Whites.

### **Ideological News Media's Influence on Racial/Ethnic Differences in Environmental Orientations**

Cultivation research provides the potential to explain the role media play in influencing differential environmental concerns across racial/ethnic groups. Cultivation studies—interested in the aggregate patterns of images and representations to which entire communities are exposed—explores how exposure to the world and media shape audiences' conceptions of the real world (Gerbner et al., 2002; Shanahan, Morgan, and Stenbjørre 1997). While cultivation studies initially focused solely on the long-term effects of television, scholars have applied this theory to other media (e.g., video games, social networking, etc.) as well (e.g., Chong, Teng, Siew, and Skoric 2012).

From this framework, researchers have outlined the mainstreaming phenomenon as a way to explain how high levels of media use supersede differences in perspectives and behavior that result from other factors and influences and draw people, who would normally have seemingly divergent views, to a similar point (Morgan, Shanahan, and Signorielli 2015). Research has shown support for the mainstreaming hypothesis for media, for instance, on attitudes toward same-sex relationships based on religiosity—the gap in support for same-sex relationships among those high and low in religiosity diminishes as people's media use increases (Calzo and Ward 2009). Scholars have applied a similar idea to the context of environmental issues and subgroups. Shanahan and colleagues (1997) found mixed evidence

for the mainstreaming hypothesis. They found a consistent relationship between television viewing and attitudes toward science/technology; however, a homogenizing effect was found regarding willingness to sacrifice for the environment among liberals, moderates, and conservatives based on viewership. In short, there was a narrowing of the range of attitudes among heavy viewers relative to light or medium viewership. We make a similar case here in our paper, expanding and adapting the work of Shanahan et al. by examining the ideological nature of news consumption and using U.S. racial/ethnic groups as our comparative subgroups.

Environmental orientations have been found to differ based on race/ethnicity; however, little is known about how these orientations are formed. Studies have found mere racial/ethnic categorization, as biologically defined, to have no behavioral, psychological, or social implications (e.g., Masuoka, 2016). Hence, differences in environmental orientations stem from social factors, one of which could be the socialization that occurs through ideological news consumption. In essence, differences between racial/ethnic groups' environmental orientations should be smaller among those using higher levels of the same ideologically oriented news media. Given the proclivities of racial/ethnic minorities toward pro-environmentalism, and in line with the mainstreaming hypothesis, it is anticipated that the gap between racial/ethnic minority individuals and Whites' will be smaller among Whites and minorities who are high consumers of non-conservative news. The correlation between use of non-conservative media and more favorable environmental orientations will be stronger among non-Hispanic Whites, which should translate into smaller attitudinal gaps between non-Hispanic Whites and the other three racial/ethnic groups of interest in our study. We propose a similar mainstreaming effect for conservative news media consumption. However, in this case, we believe that heavy conservative news media consumption will be associated with racial minority groups' environmental orientations reflecting the less

favorable environmental orientations of non-Hispanic Whites—that is, less favorable attitudes and lower perceptions of subjective norms and perceived behavioral control. In this case, the correlation between conservative media and environmental orientations should be stronger among minorities, resulting in these groups holding more similar environmental orientations as non-Hispanic Whites. Accordingly, we propose the following hypotheses:

H7a: There will be mainstreaming based on self-reported use of non-conservative outlets, with the relationship between use of these outlets being associated with higher levels of our three outcomes among non-Hispanic Whites, resulting in all racial/ethnic groups holding similar views to one another.

H7b: There will be mainstreaming based on self-reported use of conservative outlets, with the relationship between use of these outlets being negative for minorities, resulting in all racial/ethnic groups holding similar views to one another.

Lastly, we combine all of our research to assess our full model examining whether the indirect relationships outlined above (H5a, H5b, H5c) vary by race/ethnicity. We propose mediated moderated hypotheses examining whether the conditional relationships on our three TPB outcomes result in subsequent shifts in our main outcome variable of environmental behavioral intentions:

H8a: The indirect relationships between self-reported non-conservative media use on behavioral intentions through attitudes, norms, and behavioral control, will vary by race, with there being positive indirect relationships among Whites.

H8b: The indirect relationships between self-reported conservative media use on behavioral intentions through attitudes, norms, and behavioral control, will vary by race, with there being negative indirect relationships among minorities.

## **Method**

### **Survey Procedures**

Our purposive quota sample consisted of a relatively even distribution of individuals across racial/ethnic categories (non-Hispanic White = 299, African American = 294, Asian Americans = 292, Hispanics = 295) and examined participants' attitudes, beliefs, values, knowledge, and behaviors. Online survey

services, Qualtrics and Clear Voice Research (CVR), were used to collect data. CVR sent online invitations to a national panel of participants who have agreed to be accessible for its online panels. Their respondents are eligible to receive a small financial incentive such as cash vouchers in exchange for their participation. Participants accessed the survey on their computer or phone via an online link from Qualtrics. Once the number of participants exceeded 300 for each group (i.e., Black, White, Asian-American, and Hispanic), the survey was terminated. Scholars have found that opt-in Internet panels using quota groups to represent populations provide little difference in terms of response quality (Ansolabehere & Schaffner, 2014). Each survey participant received a cash value reward of approximately \$2. The study received Institutional Review Board exemption in March 2018.

Findings from survey research (e.g., Greenberg 2005), as well as public opinion polls (e.g., Leiserwitz and Akerloff 2010), have shown that disparities in concern about the environment between non-Hispanic White and racial/ethnic minorities have declined. These studies, which utilize nationally representative samples, allow for conclusions about absolute levels of distribution (see Hayes 2005), but are limited in their ability to illuminate intergroup interactions between specific participant subsets (e.g., racial/ethnic groups) to a meaningful degree. Extant scholarship has expressed concerns about findings based on a typical random sample of 800-1,600 Americans where the sample sizes of the minority groups are 50-100 for each non-White group as opposed to multiple studies with sample sizes of 250-400 in each racial/ethnic group (see Greenberg 2005). Today, numerous survey studies exist that either comparatively study racial/ethnic minorities' orientations to the exclusion of other groups or which oversample racial/ethnic groups intentionally based on theoretical and conceptual gaps in the literature (e.g., Elias 2019). This study adopts a similar approach, focusing on specific population subsets due to their lack of representation in climate change research.

## Measurement Instruments

*Self-Reported Media Use.* The average of three items was used to measure participants' self-reported use of non-conservative media sources (i.e., liberal and non-partisan) to get news. Respondents were asked "How often do you use the different sources listed below to get news information." The three items were: "A liberal web site or app (e.g. Daily Kos);" "A liberal cable news channel (including website or app);" and "A non-partisan web site or app (e.g., Politico)." The anchors for each ranged from never (1) to several times a day (7) (*Cronbach's*  $\alpha = 0.83$ ,  $M = 2.74$ ,  $SD = 1.66$ ). In addition, the average of two items was used to ascertain self-reported use of conservative sources (*Spearman-Brown* = 0.81;  $M = 2.63$ ,  $SD = 1.72$ ) for news. The two items were: "A conservative web site or app (e.g. Red State)" and "A conservative cable news channel (including website or app)." The anchors for each were also never (1) to several times a day (7). Each of the five items used were adapted from Leiserowitz and Akerlof (2010).

*Behavioral Intentions.* The average of three items was used to measure intentions. Respondents were asked: "Please indicate your intention to take the following actions in the next 12 months" ( $M = 4.34$ ,  $SD = 1.55$ ). The items were adapted from the Pisano and Lubell (2017) index, and included: "Writing letters, emails, or phoning government officials to urge them to take action to reduce climate change," "Attending a community meeting or rally about climate change," and "Volunteering with or donating money to an organization working to reduce climate change" (*Cronbach's*  $\alpha = 0.89$ ). All items used the same scaling structure of very unwilling (1) to very willing (7).

*Attitudes Toward Pro-Environmental Behaviors.* An index was created from the average of four seven-point items ( $M = 5.41$ ,  $SD = 1.31$ ), which included: "I support efforts to reduce climate change even if they mean I personally incur greater costs" and "This country should do whatever it takes to reduce climate change." Items used were adapted from

Leiserowitz and Akerlof (2010) to create the index (*Cronbach's*  $\alpha = 0.88$ ). All items used the same scaling structure of strongly disagree (1) to strongly agree (7).

*Subjective Norms.* The average of responses across five items were used to determine participants' perceptions of subjective norms ( $M = 4.65$ ,  $SD = 1.31$ ). Sample items from the Davis et al. (2015) index included: "My friends and family think acting in a pro-environmental manner is important," "People who are important to me think that I should be pro-environmental," and "People whose opinion matters to me think pro-environmental behavior is vital" (*Cronbach's*  $\alpha = 0.93$ ). All items used the same scaling structure of strongly disagree (1) to strongly agree (7).

*Perceived Behavioral Control.* An index was created from the average of five items measuring respondents' perceptions of effectiveness of engaging in pro-environmental behaviors ( $M = 5.22$ ,  $SD = 1.21$ ). Items were adapted from Masud and colleagues' (2016) included: "I have the ability to reduce the impact of climate change in this country," "I'm confident that I could contribute to reduce the impact of climate change," and "I'm able to contribute to reduce greenhouse gas emission through adaptation" (*Cronbach's*  $\alpha = 0.91$ ).<sup>1</sup> All items used the same scaling structure of strongly disagree (1) to strongly agree (7).

*Race/Ethnicity.* Consistent with the 2010 U.S. Census, Hispanic self-identifiers were categorized as members of an ethnic group, capable of any racial classification, while African American, non-Hispanic White, and Asian American identifiers were categorized as self-identifying non-Hispanic members of distinct racial categories.

*Demographic and Control Variables.* We also included a set of control variables in our models. The demographic variables included were age ( $M = 40.57$ ,  $SD = 14.74$ ), gender

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<sup>1</sup> We ran an exploratory factor analysis to examine whether our measures of environmental behavioral intentions, environmental attitudes, social norms, and perceived behavioral control loaded onto four separate factors. Indeed, our exploratory factor analysis utilizing image extraction with oblimin rotation found our four variables received eigen values above 1 and did not have cross loadings for any items above 0.40.

(65.3% female), household income (*Median* = \$40,000 to \$49,999), education (*Median* = Associates degree), and political ideology ( $M = 3.37$ ,  $SD = 1.57$ ). Our age question asked people to report their age as of their last birthday. The biological sex question asked people to report their current biological sex. Household income asked individuals to report their household income in 2017. The responses ranged from less than \$10,000 (1) to more than \$150,000 (12). Education options ranged from no formal education (1) to graduate/professional degrees (12). Next, because of the importance tied to religiosity when it comes to support for environmental issues (Arbuckle and Konisky 2015), we included people's level of religiosity in the analyses. Religiosity was measured with one item that asked people how often they attend religious services on a scale that ranged from practically never (1) to at least once a day (7) ( $M = 3.24$ ,  $SD = 2.00$ ). Political ideology asked respondents to report their ideological position on a scale that ranged from extremely liberal (1) to extremely conservative (7). Lastly, because interpersonal communication could affect people's attitudes regarding environmental issues (Ho, Liao, Rosenthal, 2015), we included a measure that assessed how often people use word of mouth from friends as a source of information. The item measured this concept on a scale of never (1) to several times a day (7) ( $M = 3.66$ ,  $SD = 1.76$ ).

### **Data Analysis**

To analyze these data, we used Ordinary Least Squares (OLS) regression. Specifically, we ran separate OLS models to test the relationships between news media consumption and our three TPB variables (see Table 1 and 2). To test for mediation, interactions, and indirect relationships we used the process macro (Hayes, 2017). Process model 4 was used to test our indirect relationships. We used model 1 to test our interactions. Model 7 was used to test for conditional indirect relationships. Throughout the paper we

report unstandardized beta coefficients with standard errors in parentheses. For our indirect correlations, we include 95% confidence intervals instead of p-values.

### **Results**

Our results found significant correlations between self-reported use of non-conservative news media consumption and all three of our TPB outcomes (i.e., environmental attitudes, subjective norms, and perceived behavioral control), reflecting support for H1a, H2a, and H3a (see Table 1). The relationship between conservative news media use and these three variables of interest were also examined, and of the three relationships assessed, two were significant. Moreover, they were in the direction of what was proposed in H1b and H3b. Our results show that greater self-reported use of conservative news media is associated with less favorable environmental attitudes and lower levels of perceived behavioral control (see Table 1). There was no significant relationship between conservative news media and subjective norms.

Next, we examined the relationships between environmental attitudes, subjective norms, and perceived behavioral control with behavioral intentions. As predicted in H4a, 4b, and 4c, the three key variables tied to TPB are all associated with environmental behavioral intentions. The higher people's level of environmental attitudes, subjective norms, and perceived behavioral control, the greater their intentions to engage in environmental behaviors (see Table 2).

We then examined the indirect relationships for different media outlets through the three TPB variables on environmental behavioral intentions. Beginning with the indirect relationship for self-reported use of non-conservative news media, our results found all three indirect relationships estimated were statistically significant (see Table 3). Our results showed that higher levels of non-conservative news media use were associated with all three of our TPB measures, which then translated into people being more likely to report a greater

intention to engage in environmental behaviors. In the end, these results show support for H5a. Next, we examined the indirect relationships for self-reported conservative news media consumption. Of the three indirect relationships estimated, two were significant (see Table 3). There were indirect relationships for conservative news media consumption through environmental attitudes and perceived behavioral control. In both cases, the indirect relationships were negative, which indicates that use of conservative news media is associated with less favorable environmental attitudes and lower perceptions of behavioral control, resulting in lower intentions to engage in pro-environmental behaviors. The indirect relationship for conservative news media on subjective norms was not significant. Therefore, these results only show partial support for H5c.

Before examining whether the relationships between self-reported news media consumption and our three TPB variables varied by race, we examined whether minorities did indeed hold more environmentally friendly positions. In general, our results showed some support for H6. To test this hypothesis, we ran a regression model where non-Hispanic Whites were the reference group using dummy coding. These models also included all of the controls outlined in the method section. Of the nine coefficients estimated, four were significant. First, our results showed that both Asian Americans ( $\beta = 0.37, SE = 0.10, p < 0.05$ ) and Hispanics ( $\beta = 0.24, SE = 0.10, p < 0.05$ ) held more positive environmental attitudes compared to non-Hispanic Whites. We found Asian Americans reported higher levels of subjective norms regarding climate change issues ( $\beta = 0.23, SE = 0.10, p < 0.05$ ) compared to non-Hispanic Whites. We found the same result for our measure of perceived behavioral control ( $\beta = 0.23, SE = 0.10, p < 0.05$ ). In the end, our results found that non-Hispanic Whites and Asian Americans differed on all three of our TPB measures. Hispanics and Whites only differed on one of our three TPB measures (i.e., environmental attitudes).

Lastly, there were no differences between African Americans and Whites on any of our TPB measures.

We also examined whether the relationships between our news media consumption measures vary by race/ethnicity. For our assessments of these interactions, we treat non-Hispanic Whites as the reference group. Therefore, the proposed interactions examine the relationship between self-reported news media consumption and our racial/ethnic minority categories (e.g., African Americans) compared to the non-minority group (i.e., non-Hispanic White). First, we found the self-reported non-conservative news media use by race interaction was significant for our measure of environmental attitudes ( $R^2 = 0.006, p < 0.05$ ). Specifically, our results found the relationship was stronger among Whites compared to Asian Americans ( $\beta = -0.14, SE = 0.06, p < 0.05$ ) and Hispanics ( $\beta = -0.16, SE = 0.06, p < 0.05$ ). As our graph indicates, there is evidence for the mainstreaming hypothesis, with the gap between non-Hispanic Whites and both Asian Americans and Hispanics being smaller among those using high levels of non-conservative news. We found a similar pattern for perceived behavioral control. In this case, our interaction was statistically significant ( $R^2 = 0.007, p < 0.05$ ). For this outcome, the correlation for non-conservative news consumption was stronger for non-Hispanic Whites compared to Asian Americans ( $\beta = -0.12, SE = 0.06, p < 0.05$ ) and Hispanics ( $\beta = -0.17, SE = 0.06, p < 0.05$ ). In essence, Whites were more likely to hold similar views as racial/ethnic minority groups regarding perceived behavioral control the more they use non-conservative news media. Our results also found some evidence that self-reported conservative news media resulted in different races/ethnicities holding similar views on environmental issues. Although the overall interaction was not significant ( $R^2 = 0.005, p < 0.10$ ), the relationship between conservative news media use and perceived behavioral control was stronger for Hispanics compared to non-Hispanic Whites ( $\beta = -0.13, SE = 0.06, p < 0.05$ ). In the end, we found partial support for H7a and little support for H7b.

Finally, we examined the full moderated mediation models. In these analyses, we only focus on indirect relationships when our interaction had approached significance in the previous paragraph. For our indirect relationships for self-reported non-conservative news media consumption on intentions through attitudes, the results from the index of moderated mediation showed the correlations were stronger among Whites compared to Asian Americans ( $\beta = -0.02$ ,  $SE = 0.01$ , 95% CI = -0.05 - - 0.00) and Hispanics ( $\beta = -0.02$ ,  $SE = 0.01$ , 95% CI = -0.05 - - 0.01). In essence, we found that there were indirect relationships across racial/ethnic groups for non-conservative news media consumption, but that these associations were stronger among non-Hispanic Whites compared to Asian Americans and Hispanics. For our indirect relationship of non-conservative news media consumption through perceived behavioral control, we once again find that the indirect relationship is significant across all races/ethnicities (see Table 4). However, as the index of moderated mediation shows, the correlation was stronger among non-Hispanic Whites compared to Asian Americans ( $\beta = -0.03$ ,  $SE = 0.02$ , 95% CI = -0.07 - - 0.00), and Hispanics ( $\beta = -0.05$ ,  $SE = 0.02$ , 95% CI = -0.10 - - 0.02). Lastly, we examined the conditional indirect relationship for self-reported conservative news media consumption through perceived behavioral control. Our results show that the indirect relationship was significant among African Americans, Asian Americans, and Hispanics. Moreover, looking at the index of moderated mediation, the indirect relationship for Hispanics was stronger compared to non-Hispanic Whites ( $\beta = -0.04$ ,  $SE = 0.02$ , 95% CI = -0.08 - - 0.00). In essence, Hispanics who watch more conservative news media held similar views regarding behavioral control as non-Hispanic Whites, which then translated into them reporting similar levels of environmental behavioral intentions as Whites.

## **Discussion**

Based on our results, self-reported ideological news consumption is associated with environmental behavioral intentions of U.S. racial/ethnic group members in divergent ways, including by being associated with their attitudes toward environmental behaviors, their subjective norms, and their perceptions of behavioral control. Specifically, self-reported non-conservative media use has positive relationships with all three TPB measures, while self-reported conservative news media consumption has negative relationships, but only with environmental attitudes and perceived behavioral control. Additionally, three significant indirect relationships were found between self-reported non-conservative news and environmental intentions, while two indirect relationships were found for self-reported conservative news consumption through attitudes and perceived behavioral control. The correlation between non-conservative news consumption and environmental attitudes was stronger among non-Hispanic Whites compared to minority groups and the indirect relationship for non-conservative news use was also stronger for non-Hispanic Whites compared to racial/ethnic minorities. We found similar results regarding the conditional indirect relationship for perceived behavioral control. Lastly, we found the correlation between conservative news use and perceived behavioral control was stronger among Hispanics and resulted in them holding similar views on this variable as non-Hispanic Whites. Moreover, the indirect relationship for conservative news through perceived behavioral control was stronger among Hispanics and resulted in similar levels of environmental behavioral intentions as non-Hispanic Whites.

Our study makes three contributions to the literature. First, our findings find support for Ajzen's (2011) assertion that media may play an important role regarding the determinants of a person's behavior via his or her attitudinal, normative, and control beliefs. Secondly, we found evidence for the mainstreaming hypothesis. In particular, our results show that heavy consumption of non-conservative news is stronger among White individuals'

regarding their environmental attitudes and perceptions of behavioral control, resulting in smaller gaps between Whites and racial/ethnic minorities when the consumption of non-conservative news is high. Understanding the manner in which media consumption evokes environmental behavioral intentions for non-Hispanic Whites remains important. Although racial/ethnic minorities will comprise the majority of the American population by 2065, non-Hispanic Whites will remain the largest single racial group in the U.S. (Cohn 2015).

Therefore, use of certain media could help reduce the disproportional effects that non-Hispanic Whites contribute to climate change (Bozeman et al., 2019). However, this result is paired with the finding that Hispanics' perceptions of behavioral control is closer to White's among heavy consumers of conservative news. Finally, our study provides results for previously unsupported hypotheses. For instance, despite arguing for positive effects of media on subjective norms, research has found mixed or null results (e.g., Spartz et al, 2017). Results from our study support the thesis that media use is correlated with subjective norms.

### **Policy Implications**

Results of our study indicate that media could play an important role in shaping people's agency, public engagement, and support for environmental issues. As people continue to self-select into different media environments and, as the U.S. becomes more racially diverse, it is important to understand when and how environmentally related public engagement and support vary based on race/ethnicity. Some studies have shown that the orientations about a number of important issues can be predicted by the political ideology of a large segment of the White population compared to their non-white counterparts (e.g., Schuldt and Pearson 2016). Therefore, understanding what media is being used across racial/ethnic groups, political and otherwise, and the potential effects that these media could have on the public will remain an important area of inquiry moving forward given their potential impact on policymaking.

## **Limitations**

As with any study, there are weaknesses and limitations that could affect our results. First, there are weaknesses with the measures employed in this study. Specifically, our measures rely on self-reported use of media. In essence, our measure is relying on people to recall how often they used different media outlets instead of their actual use of these outlets. Our measures also categorize media based on our views of these outlets. For instance, we categorize Politico as non-partisan. Moving forward, scholars could just ask people's use of various outlets and identify them as conservative and liberal after respondents have filled out the questions rather than classifying the outlets for our respondents. Our measures also failed to ask respondents their use of social networking sites (SNS) for news purposes, though these outlets have become increasingly important sources of information for the public (Matthes, Nanz, Heiss, and Stubenvoll 2019).

Additionally, this study over-represents minority groups and uses a quota sample, which means that the sample is not representative of the U.S. population. However, the purpose of this study was to examine the correlation between media use and attitudes across races/ethnicities. Hence, including enough individuals from different racial/ethnic groups rather than getting a sample that looks like the U.S. population in terms of racial/ethnic distribution was instrumental.

Thirdly, our study cannot claim causality. Our results are not able to say whether media affects our outcomes, or whether the TPB variables affect behavioral intentions. However, studies have looked at the effects of media using experimental methods and over time data and found that media do indeed affect outcomes (Feldman et al., 2014; Hmielowski et al., 2014). Moreover, previous work on TPB has shown causal links between key variables (e.g., attitudes) and behavioral intentions (e.g., Armitage and Conner, 1999). Additionally, attitudes toward pro-environmental behaviors, while determined to have a significant

relationship with environmental behavioral intentions, was not measured with items tied to a specific object. Instead, the measures of attitudes, norms, behavioral control, and behavioral intentions were generic. While this approach has also been successfully utilized in other studies (e.g., Davis et al, 2002; Masud et al., 2016), future research should integrate more specific measures.

Another potential limitation is the impact of social desirability in participants' response to the question of their future environmental intentions. Social desirability occurs when responding honestly may violate social norms or expectations (Krumpal, 2013; Latkin, Edwards, Davey-Rothwell, & Tobin, 2017). Existing research on social desirability argues that it consists of two central factors: a) image-management: representation of oneself in a morally or socially acceptable manner; and b) self-deception: where individuals believe their positive self-reports or inaccurately attribute positive characteristics to themselves (Paulhus, 1984; Wheeler, Gregg, & Singh, 2019). A major finding of our exploratory study was the mediating role played by subjective norms on environmental intentions. Due to self-presentation motivations, it is possible that there may be a positive correlation between subjective norms, impression management, and self-deception, such that individuals that rank high on these scales may be more likely to provide socially desirable responses and overrepresent their projected environmental intentions. This needs to be considered in future models.

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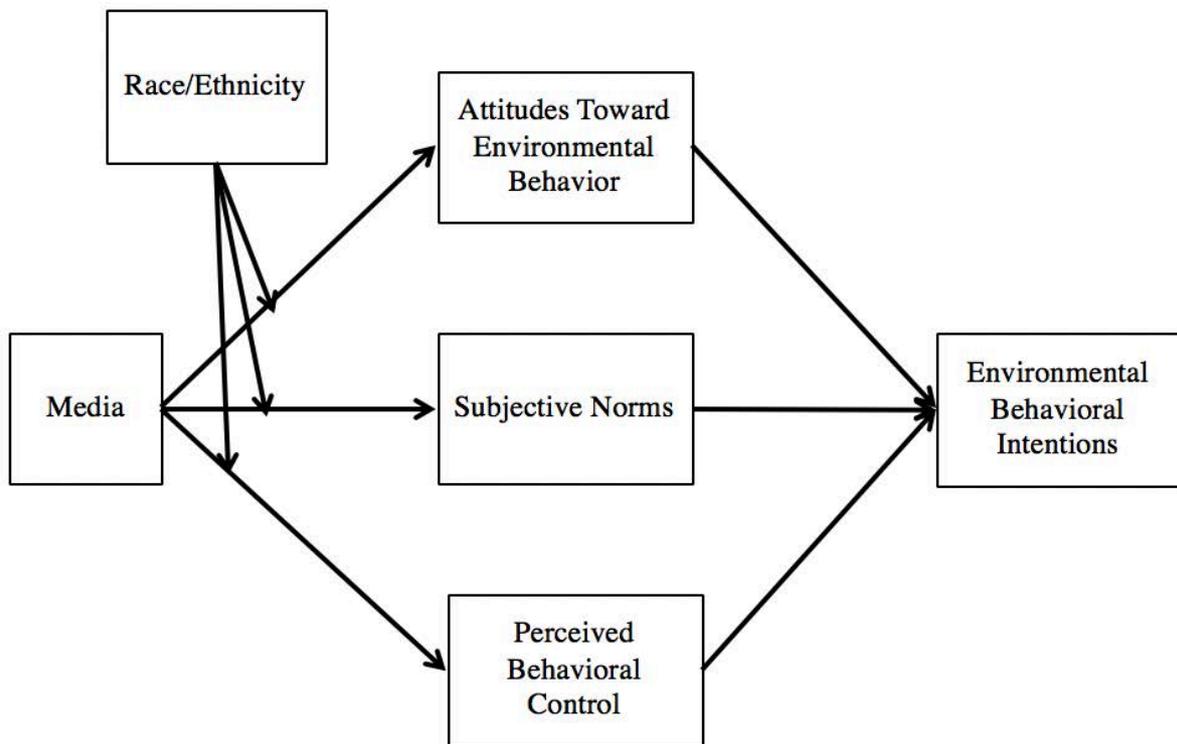


Figure 1. Proposed mediated moderated model

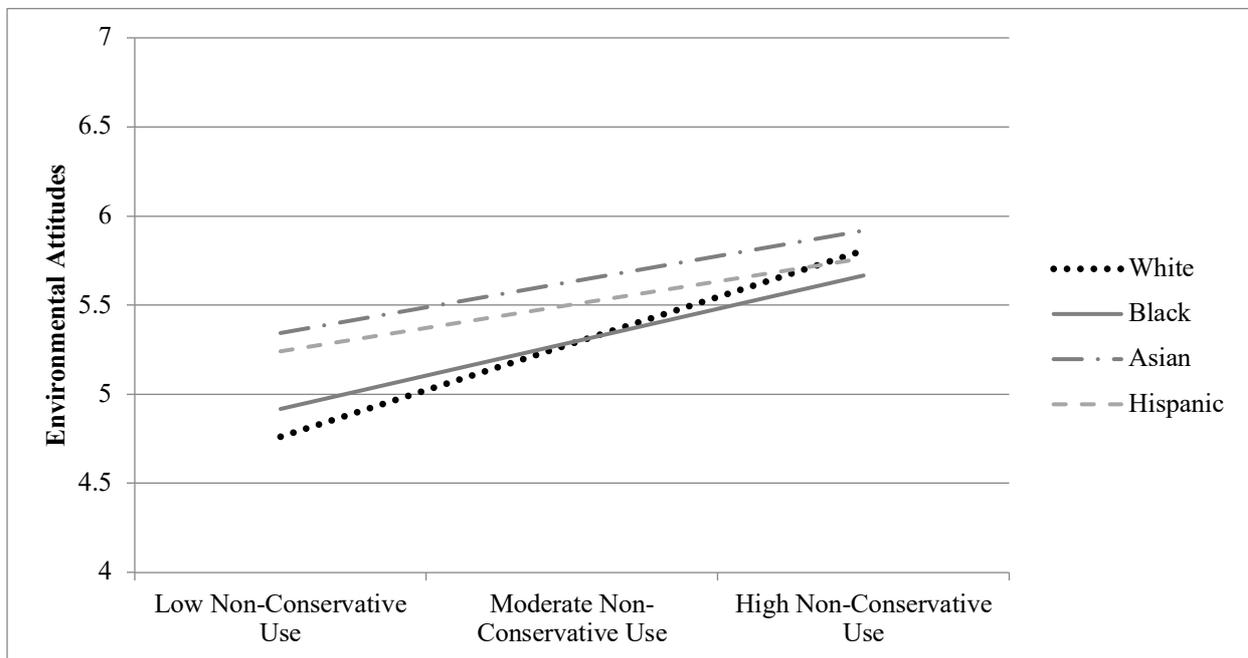


Figure 2. Self-reported non-conservative media use by race on environmental attitudes

Table 1.  
 Relationship Between Self-Reported Media Use and TPB Outcomes

	Attitudes	Subjective Norms	Behavioral Control
Age	0.004(0.002)	0.005(0.002)*	0.004(0.002)
Biological Sex	0.154(0.073)*	-0.057(0.075)	0.199(0.071)**
Education	0.010(0.019)	0.009(0.020)	-0.014(0.019)
Income	0.018(0.011)	0.026(0.011)*	0.022(0.011)*
Religiosity	-0.006(0.018)	0.020(0.018)	0.022(0.017)
Political Ideology	-0.222(0.025)***	-0.128(0.025)***	-0.138(0.024)***
Discuss with Friends	0.136(0.023)***	0.100(0.023)***	0.115(0.022)***
Non-Conservative Media	0.216(0.031)***	0.215(0.032)***	0.172(0.030)***
Conservative Media	-0.201(0.029)***	0.002(0.030)	-0.118(0.028)**

Note: Unstandardized coefficients with standard errors in parentheses. \*\*\*p < .001, \*\*p < .01, \*p < .05

Table 2.  
 TPB Variables and Behavioral Intentions

	Behavioral Intentions
Age	-0.005(0.002)*
Biological Sex	0.012(0.072)
Education	-0.034(0.019)
Income	-0.011(0.011)
Religiosity	0.066(0.017)***
Political Ideology	-0.035(0.025)
Discuss with Friends	0.025(0.023)
Non-Conservative Media	0.163(0.031)***
Conservative Media	0.065(0.029)*
Attitudes	0.155(0.038)***
Subjective Norms	0.298(0.034)***

Behavioral Control 0.311(0.042)\*\*\*

Note: Unstandardized coefficients with standard errors in parentheses. \*\*\*p < .001, \*\*p < .01, \*p < .05

Table 3.

Indirect Relationships for Self-Reported Media through TPB Variables

	Indirect Relationships
Non-conservative → Attitudes → Behavioral Intentions	<b>0.034 (0.015-0.057)</b>
Non-conservative → Sub. Norm → Behavioral Intentions	<b>0.064 (0.040-0.092)</b>
Non-conservative → PBC → Behavioral Intentions	<b>0.054 (0.030-0.080)</b>
Conservative → Attitudes → Behavioral Intentions	<b>-0.031 (-0.054- -0.012)</b>
Conservative → Sub. Norm → Behavioral Intentions	0.000 (-0.019 - 0.021)
Conservative → PBC → Behavioral Intentions	<b>-0.037 (-0.061- -0.015)</b>

Note: Unstandardized coefficients with 95% confidence intervals in parentheses. Bold numbers are statistically significant.

Table 4.

Conditional Indirect Relationships on Behavioral Intentions

	Conditional Indirect Relationships
Non-conservative → Attitudes → Behavioral Intentions (White)	<b>0.049 (0.019-0.084)</b>
Non-conservative → Attitudes → Behavioral Intentions (African Am.)	<b>0.035 (0.014-0.060)</b>
Non-conservative → Attitudes → Behavioral Intentions (Asian)	<b>0.027 (0.009-0.052)</b>
Non-conservative → Attitudes → Behavioral Intentions (Hispanic)	<b>0.024 (0.007-0.047)</b>
Non-conservative → PBC → Behavioral Intentions (White)	<b>0.085 (0.050-0.123)</b>
Non-conservative → PBC → Behavioral Intentions (African Am.)	<b>0.054 (0.026-0.087)</b>
Non-conservative → PBC → Behavioral Intentions (Asian)	<b>0.048 (0.019-0.080)</b>
Non-conservative → PBC → Behavioral Intentions (Hispanic)	0.031 (-0.001-0.065)
Conservative → PBC → Behavioral Intentions (White)	-0.020 (-0.054-0.012)
Conservative → PBC → Behavioral Intentions (African Am.)	<b>-0.030 (-0.059- -0.003)</b>
Conservative → PBC → Behavioral Intentions (Asian)	<b>-0.037 (-0.067- -0.010)</b>
Conservative → PBC → Behavioral Intentions (Hispanic)	<b>-0.061 (-0.010- -0.028)</b>

Note: Unstandardized coefficients with 95% confidence intervals in parentheses. Bold numbers are statistically significant.

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