Can Humor Facilitate Online Racial Justice Activism?

A thesis submitted by

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Abstract

Humor is a complex social experience that can incite positive affect, mitigate anxiety, and lead to changed behavior. Through humor, we sought to engage an audience to participate in activism behavior that may otherwise induce anxiety and reluctance. In this project, we explore how participants' (1) anxiety and (2) likelihood to engage with petitions addressing racial inequality, a highly controversial social justice topic in the United States, will vary depending on prior exposure to humorous or non-humorous content about racial inequality. In Experiment 1, results indicate that when racial inequality was discussed in a humorous manner, participants were more likely to engage with racial justice petitions. In Experiment 2, we proposed that the presence of humor stifles anxiety surrounding racial justice engagement and increases proclivity toward activism behaviors. Results indicate that humorous content elicits lower levels of anxiety but did not impact activism. Further implications are discussed.

Keywords: humor, racial justice, anxiety, petitions, activism

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Humor Facilitate Online Racial Justice Activism?

Despite the Civil Rights Act, which was signed into law nearly 50 years ago, evidence of inequality persists and fundamentally shapes U.S. society (Menasce-Horowitz, Brown & Cox, 2019). Recent national surveys indicate that 59% of White adults and 79% of Black adults are dissatisfied with how Black Americans are treated, and a substantial population of Americans display greater endorsement of racial equality, advocate for cultural awareness, and recognize historical struggles of minority groups than in years past (Gallup Minority Rights and Relations Survey, 2020). Considering the ubiquity of racial disparities despite rising trends of favorable attitudes towards racial equality spanning over several decades, we suspect that there is a desire to see progress towards racial equality, but also a reluctance to get involved personally. This dissonance is a potential source of anxiety. There are likely other factors that also elicit this reluctance, but in this project, we explored and addressed anxiety as an inhibiting mechanism towards activism behaviors. We aimed to employ humor to redress anxiety and increase engagement with racial justice petitions.

Humor perception and laughter are powerful social experiences that are correlated with several favorable outcomes, including heightened levels of interpersonal affection, decreased anxiety, and heightened self-esteem (Lefcourt & Martin, 1986). Humor is widely used to discuss and convey information about racism. This is notable in several late-night talk shows, comedians, and more recently, TikTok content creators who use humor to comment on racism. Racial humor, when employed under appropriate conditions, has the potential to facilitate message processing (LaMarre, 2014), increase positive attitudes (Borgella, Howard & Maddox, 2020), and heighten agreement (Lyttle, 2001). We are not aware of any empirical work that demonstrates that humor is advantageous to race-related causes. However, humor may have the

potential to encourage individuals to re-evaluate their attitudes associated with controversial topics and impact activism.

In this project, we seek to identify if humor increases the likelihood to advocate for racial justice and engage in activism behavior. We define activism as any action on behalf of a cause that goes beyond what is conventional or routine (www.activisthandbook.org). We will first discuss the role of anxiety in deterring racial justice activism behaviors, and then discuss how humor can operate to alleviate anxiety and encourage activism behavior.

Exploring the Role of Anxiety in the Relationship between Humor and Activism

Majority group individuals participating in conversations about inequality and racial justice are often inhibited by the experience of intergroup anxiety, the ambiguous sense of discomfort when interacting with out-group members (Stephan, 2014). Intergroup anxiety inflates normative behavior, polarizes evaluations of out-group members, and aggravates existing racial tensions (Stephan & Stephan 1985). Intergroup anxiety has also been observed to instill perceptions of threat amongst conversationalists during interracial interactions and to predict the desire to avoid these interactions with outgroup members (Trawalter, Richeson, & Shelton, 2009; Plant, 2004). In White participants, the prospect of engaging in interracial dialogue can be perceived as violation of social norms and can create cognitive dissonance and increase the salience of White fragility which can lead to feelings of discomfort and anxiety (DiAngelo, 2018; Sue, 2015; Frantell, 2019). Another study found that students willingly enroll in courses such as “The Psychology of Racism”, but their writing and in class behaviors demonstrate anxiety about the prospect of race conversations (Tatum, 1992). When participants engage in dialogue, there is also evidence for speech difficulty, as characterized by more stuttering, longer pauses, and avoidance of the words “race” and “racism” during dialogues (Utsey et al., 2005).

Researchers in the past have worked to identify strategies to reduce interracial anxiety (e.g., Schultz, Gaither, Urry & Maddox, 2015) however humor has not been investigated as a method to reduce interracial anxiety and promote positive affect. Therefore, we hypothesize that alleviating anxiety through humor may disentangle the complex obstructions of interracial anxiety and promote activism behavior.

Anxiety May Minimize Activism

In the present research, anxiety is viewed as a thwarting mechanism from activism behaviors. De Choudhury et al., (2016) demonstrated that lower anger and anxiety were correlated with greater masses of protesters during a Black Lives Matter movement. They measured anxiety by evaluating Twitter users' psycholinguistic lexicon, a measure by Chung and Pennebaker (2007), that considers positive and negative affect of shared content in posts. They also observed protest volume of participating individuals the next day throughout the U.S. They found that high negative affect and sadness, and low anger and anxiety are positively associated with greater numbers of protestors. The researchers propose that anger and anxiety may be replaced with empowerment derived from collective action and identity (De Choudhury et al., 2016). This suggests that anxiety can play a role in preventing activism and lower exhibitions of anxiety can lead to greater activism behaviors.

Humor Can Alleviate Anxiety

The relief theory of humor notes that laughter involves the release of pent-up nervous energy (Freud, 1928). Humor has also been observed to function as a means of relief from heightened arousal associated with anticipation of negative experiences (Shurcliff, 1968). As such, research indicates that humor is a reliable mechanism to reduce anxiety. Participants

undergoing a stressful task showed a reduction in state anxiety and improvement in positive affect when viewing a humorous video compared to a non-humorous video (Abel & Maxwell, 2002; Ford, Ford, Boxer & Armstrong, 2012). Engaging in self-enhancing humor reduces the experience of state anxiety and helps to adopt a non-serious and humorous outlook on a stressful situation (Ford, Lappi, O'Connor, and Banos, 2016). Interactions with humorous content served to transmit positive emotion and distancing from negative events during the COVID-19 lockdown, which otherwise triggered bouts of anxiety and depression (Amici, 2020). More recent work hypothesizes that racial humor may serve to alleviate intergroup anxiety for both minority and majority group members (Borgella et al., 2020). While there is empirical support for humor's role in reducing general anxiety, there is a lack of evidence supporting humor's role in reducing race-anxiety.

Humor Can Increase Engagement and Agreement

Positive emotions, particularly mirth, heighten positive attitudes and initiate higher engagement intentions with scientific content (Yeo, Yi-Fan Su, Cacciatore, McKasy & Qian, 2020) and increase the perceived credibility of a message (Skalski, Tamborini, Glazer & Smith, 2009). A study examining audience approval and engagement on a scientific topic found that those who found the content to be more humorous, funny, and amusing were significantly more likely to endorse the content (Cacciatore, Becker, Anderson & Yeo, 2020). Political comedy can also stimulate subsequent attentiveness to news media content in less politically interested viewers (Xenos & Becker, 2009). Research has also shown that a humorous clip about climate change consensus, compared to a humorous clip unrelated to climate change, can increase climate action intentions among politically liberal participants (Clarke, Klas, Stevenson, & Kothe, 2019). Moreover, in a study by Skurka, Niederdeppe, and Nabi (2019), they discovered

that humorous portrayals of climate change increased risk perceptions compared to an indignation condition which aroused negative emotions in participants.

Humor Can Influence Behavior and Behavioral Intentions

Studies have provided evidence for humor's effect on quantifiable behavioral changes. A study on the effectiveness of posters against littering found that a humorous poster reduced littering by 58% compared to an authoritarian poster which reduced littering by 25% (Hansmann & Steimer, 2016). Another study found that humor had a significant effect on shifting voting behavior to yield positive changes for sustainability (Kecinski & Messer, 2017).

Humor has also been observed to impact behavior intentions across multiple domains for social justice. Considering gender equality, participants exposed to subversive humor (humor that relies on social satire and highlights injustice) about sexism, compared to neutral humor, reported higher proclivity toward collective action (Riquelme, Carretero-Dios, Megias, Romero-Sanchez, 2020). Considering war, the use of humor, as expressed by jokes, chants, graffiti, and images, can present a sense of community and solidarity (Mersal, 2011). Considering politics, humor has been successful in negotiating ideas, and evaluating and sharing political developments on social media (Ayaşlıoğlu, & Aydın, 2021), and increases political efficacy and by extension political participation (Hoffman & Young, 2011). Considering climate change, participants in a humorous condition about climate change reported greater activism intentions, and mitigation of harmful behavior intentions compared to a control condition (Skurka, Niederdeppe, Romero-Canvyas & Acup, 2018).

Implications for Racial Justice Activism

Reflecting on the ability of humor to heighten engagement, agreement, activism behavior, and behavioral intentions as described in the sections above, we theorize that humor can be applied in other similarly debated topics, specifically racial justice. Considering the impacts of intergroup anxiety (Stephans, 2014), race-based stress in White adults (Carter, Roberson & Johnson, 2020), and humor's reduction of anxiety (Yovetich, Dale & Hudak, 1990), we reason that humor may promote activism behavior. Prior work on racial humor suggests that when employed strategically, it may produce prosocial effects (Saucier, O'dea & Strain, 2016), but empirical studies have yet to address the prospect of an increase in activism behaviors as a response to reduced anxiety due to racial humor. We hope to address this gap in the literature by providing evidence to indicate that humor can increase an individual's activism intentions.

Experimental Background

The aim of this current work is to explore the role humor may play in facilitating activism by mitigating related anxiety. We adapted and modified the experimental design used by Skurka et al. (2018) to explore the effect of humor on racial justice activism. Skurka et al. (2018) exposed participants to one of three videos about climate change or a fourth control condition video and assessed their likelihood of partaking in 10 activism behaviors towards mitigating the impacts of climate change (e.g., join or volunteer with an organization working to reduce climate change). Video stimuli included an actor portraying a meteorologist who describes the extreme impacts of climate change using a) a fear appeal, b) a humor appeal, or 3) an informational appeal. There was also a video of similar length about income inequality which served as a control variable. Results indicated that the humor appeal produced greater activism intentions compared to the control condition, but contrary to the hypothesis, humor did not significantly differ from the informational or fear appeal on activism intentions. While this study did not

obtain results in favor of humor's potential, we believed that slightly modifying the methodology to re-explore their hypothesis may produce the predicted effects of humor. We further proposed that humor will generate stronger results for racial justice activism because discussions about racial justice are prone to elicit greater anxiety in audiences (Trawalter, Richeson & Shelton, 2009).

We considered several aspects of the design for potential modification. First, we manipulated the type of humor that participants watched (racial or climate change). We also used videos that reflected a variety of humor styles. The humor condition for Skurka et al. (2018) employed ironic humor which participants reported to be moderately funny. Ironic humor, characterized by an incredulous demeanor from the actor, is based on inverted meanings with the speaker's statements contradicting their intended meaning; the use of ironic humor has been observed to be difficult to comprehend such that audiences take away the literal meaning rather than the ironic interpretations intended by the speaker (Burgers, van Mulken & Schellens, 2011). Conversely, satirical humor involves political judgment with aggressive intent represented in the spirit of play with the goal of inducing laughter (Test, 1991). Studies show that satirical humor positively affects attitudes via perceived funniness. Satirical humor can also help mediate emotions of fear, helplessness, and guilt that would otherwise elicit inaction thus offering an argument that satirical humor may be more influential than ironic humor in perceptions of humor and intentions of engagement (Boukes, Boomgaarden, Moorman & de Vreese, 2015). With these considerations, our experiment modified the methodology used by Skurka et al. (2018) by offering participants a series of videos reflecting both racial justice and climate change that used a combination of satirical, ironic, and sarcastic humor.

Experimental Overview

Across two experiments, we intended to understand if we can increase racial justice activism behaviors through humorous depictions of race content. In Experiment 1 and 2, participants watched three videos that discussed either racial inequality or the impacts of climate change delivered in a humorous and non-humorous manner by the speaker(s). Next, participants saw a list 12 petitions reflecting racial justice, climate change, and unrelated topics and were told they may sign any petitions at their discretion. We collected data on the number of petitions clicked on within the Qualtrics survey page, and self-reported indication of the petitions signed during the experiment.

As substantiated by observing evidence from previous studies, our theory rests on the intertwined connection between humor and activism.

Hypothesis 1. We expected to find that the presence of humor, compared to the absence of humor, in videos conveying information about racial inequality or climate change will increase relevant social justice activism behaviors.

Prior work also indicates that conversations about race-related experiences pose a threatening opportunity for both Black and White friends (Sanchez, Kalkstein & Walton, 2021) which leads to discomfort and avoidance (Appiah, Eveland Jr., Bullock & Coduto, 2021). Considering these negative impacts, engaging with content about racial inequality may lead to heightened anxiety. In comparison, climate change may be less controversial, and engaging with content may elicit lower levels of anxiety. To our knowledge, there is no evidence of heightened anxiety in anticipation of or response to discussions about climate change.

Hypothesis 2. We expected to find the effect of humorous content on activism behaviors will be larger when the content discusses racial inequality, compared to climate change.

Experiment 1

Method

Participants

Three hundred U.S. Participants were recruited on prolific.com and compensated $4.75 for completing a 30-minute survey. Participants were required to be between 18-35 years old to be eligible. This age restriction is in response to prior work by Skurka et al. (2018) which indicates that humorous portrayals of social issues are more effective in young adults since they are more likely to watch satirical news rather than a traditional news program. Seventeen participants were removed from analyses for correctly guessing the experiment's intentions. Two hundred and eighty-four participants were included in data analyses. The mean age of this sample was 28 years old, and the median age was 29 years old. The sample consisted of mostly cisgender males (55%), followed by cisgender females (41%), transgender (1%), non-binary (2.5%), and individuals whose gender identities were not listed (1%). Participants were mostly White/Caucasian/European American (58.5%), followed by Black/African/African American (28%), Latino/Latina American/Hispanic American (6.3%), East Asian/East Asian American (2.8%), South Asian/South Asian American (2.8%), or Multiracial (2.8%). Participants who identified as Middle Eastern and Native Americans comprised less than 1% of the sample. Participants were mostly politically affiliated with Democrats (58.5%), followed by Independent (17.6%), Republican (15.1%), and none/other (9%).

Research Design

Participants were randomly assigned to one condition in a 2 (Topic: Racial Justice or Climate Change) x 2 (humor: present or absent) between-subjects design. Dependent variables

were the participants' total number of racial justice petitions that were clicked, the self-reported total number of racial justice petitions that were signed, total number of climate change petitions that were clicked, and the self-reported total number of climate change petitions that were signed.

Stimulus Material

Participants watched three videos about their topic condition lasting 5-6 minutes total. The videos were linked from YouTube and automatically played in Qualtrics. Videos in the humorous conditions included stand-up comedy acts, late night talk show clips, and satirical segments. Videos in the non-humorous conditions included mini documentaries, infographic videos, and interview clips. The videos were selected based on pilot testing that accounted for relevant elements such as perceived funniness and informativeness. We also accounted for characteristics of the speakers to ensure consistency in factors such as age, gender, race to minimize variability across conditions (See Appendix A). While we controlled various characteristics of the speakers across multiple videos, we acknowledge that there are differences in how humor can be perceived relative to the identity of the speaker. For example, a Black joke teller making a disparaging joke about Black people is rated funnier than a White joke teller making the same joke (Thai et al., 2019). The present experiment did not focus on humor perception differences based on joke teller identity. We included speakers from multiple racial and ethnic backgrounds across all conditions. See videos here (https://tufts.box.com/s/yqwhv1joi08u8x2h0p3vc36v8ps07dm8).

Procedure

Participants on prolific confirmed they did not have any hearing or visual impairments and were using a laptop or desktop device to complete the survey to ensure they were able to hear and watch videos and access petitions as intended. Next, participants provided consent to participate and answered demographic information. Participants then watched 3 videos relevant to the topic and humor conditions they were assigned to at random by a Qualtrics randomizing function. Next, participants were given a list of 12 petitions. After viewing the petitions, participants were asked to reflect on why they did, or did not, sign any petitions during the experiment in an open response text box. Next, participants were asked to indicate from a list of all petitions that appeared during the experiment which petitions they signed during the experiment. Finally, participants were asked what they thought the experiment's true intentions were in an open response text box. Participants were thanked, debriefed, and compensated.

Measures

Video Perceptions. After viewing each video, participants rated the video on how funny, fear inducing, anger inducing, informative, and agreeable the video was. Ratings were distributed on a Likert scale from 1 (not at all) to 7 (very much).

Petitions. Participants saw a list of 12 petitions displayed in a randomized order. Three petitions advocated for racial justice and three petitions advocated for climate change reform, and six petitions were unrelated to either topic. Unrelated petition topics included three petitions supporting gun rights and three petitions supporting pro-life to politically balance the options available to participants and mitigate suspicion about the experiment's intentions. Petitions were

selected and analyzed based on pilot testing that examined how participants interact with petitions with no prior stimuli (See Appendix A).

Engagement with petitions was composited as a sum score for each participant (0-3) as a measure of activism, such that a participant who clicked on all 3 racial justice petitions will receive a score of '3' for petition clicking behavior.

Results

Data Reduction and Transformation

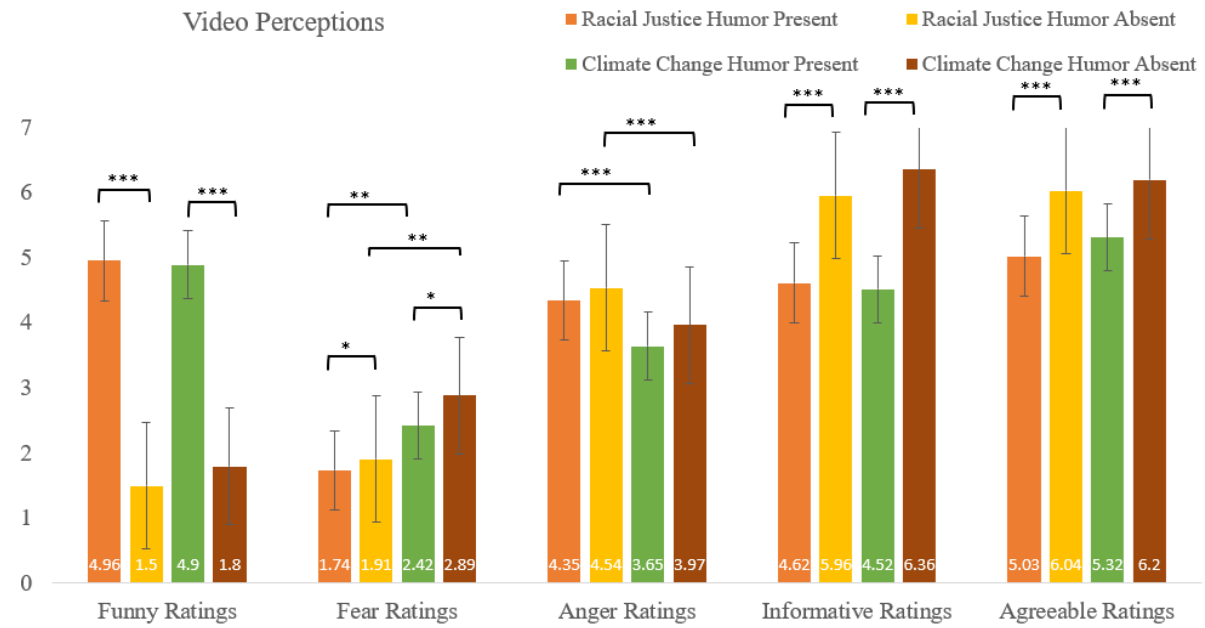
Any participant who accurately guessed the experiment's true intention or did not fully complete the experiment was removed from analyses (N =17). We performed analyses on 283 remaining participants. We computed four scores reflecting the total number of racial justice and climate change petitions that participants 1) clicked on and 2) self-reported that they signed.

Video Perceptions

We were interested in how participants perceived each video relative to the topic and presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the racial justice humorous condition were computed to a single score) and compared across conditions. Overall, we found significant differences for ratings of funny by humor present or absent indicating a successful manipulation of humor within the video stimuli. We also found significant variation in perceptions of fear, anger, informative and agreeableness between the topics and humor variables. See Figure 1.

Figure 1

Video Perceptions for Experiment 1



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

Funny Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 280) = 560.34$, $p < 0.001$, $\eta_p^2 = 0.67$, observed power = 1.00] where humorous videos were significantly more funny than non-humorous videos. There were no differences between topics [$F(1, 280) = 0.95$, $p = 0.33$, $\eta_p^2 = 0.00$, observed power = 0.16], and no interaction for humor and topic [$F(1, 280) = 1.89$, $p = 0.17$, $\eta_p^2 = 0.01$, observed power = 0.28] for funny ratings of the video.

Fear Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 280) = 3.80$, $p = 0.05$, $\eta_p^2 = 0.01$, observed power = 0.49] where non-humorous videos elicited greater fear than humorous videos. There were also significant differences between topics [$F(1,$

280) = 25.70, $p < 0.01$, $\eta_p^2 = 0.08$, observed power = 0.10] where climate change videos elicited greater fear ratings than racial justice videos. There was no interaction for humor and topic [F(1, 280) = 0.787, $p = 0.376$, $\eta_p^2 = 0.003$, observed power = 0.143] for ratings of fear experienced during the video.

Anger Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated no differences between presence/absence of humor [F(1, 280) = 1.72, $p = 0.19$, $\eta_p^2 = 0.01$, observed power = 0.26], and significant differences between topics [F(1, 280) = 10.63, $p = 0.001$, $\eta_p^2 = 0.04$, observed power = 0.90] where racial justice videos elicited greater anger ratings compared to climate change videos. There was no interaction for humor and topic [F(1, 280) = 0.12, $p = 0.73$, $\eta_p^2 = 0.00$, observed power = 0.06] for ratings of anger experienced during the video.

Informative Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [F(1, 280) = 104.33, $p < 0.001$, $\eta_p^2 = 0.27$, observed power = 1.00] where non-humorous videos were rated to be more informative compared to humorous videos. There were no significant differences between topics [F(1, 280) = 0.90, $p = 0.34$, $\eta_p^2 = 0.00$, observed power = 0.16], and no interaction for humor and topic [F(1, 280) = 2.63, $p = 0.11$, $\eta_p^2 = 0.01$, observed power = 0.37] for ratings of informativeness of the video.

Agreeable Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [F(1, 280) = 44.70, $p < 0.001$, $\eta_p^2 = 0.14$, observed power = 1.00] where non-humorous videos were rated more agreeable than humorous videos. There were no significant differences between topics [F(1, 280) = 2.48, $p = 0.12$, $\eta_p^2 = 0.01$, observed power = 0.35], and no interaction for

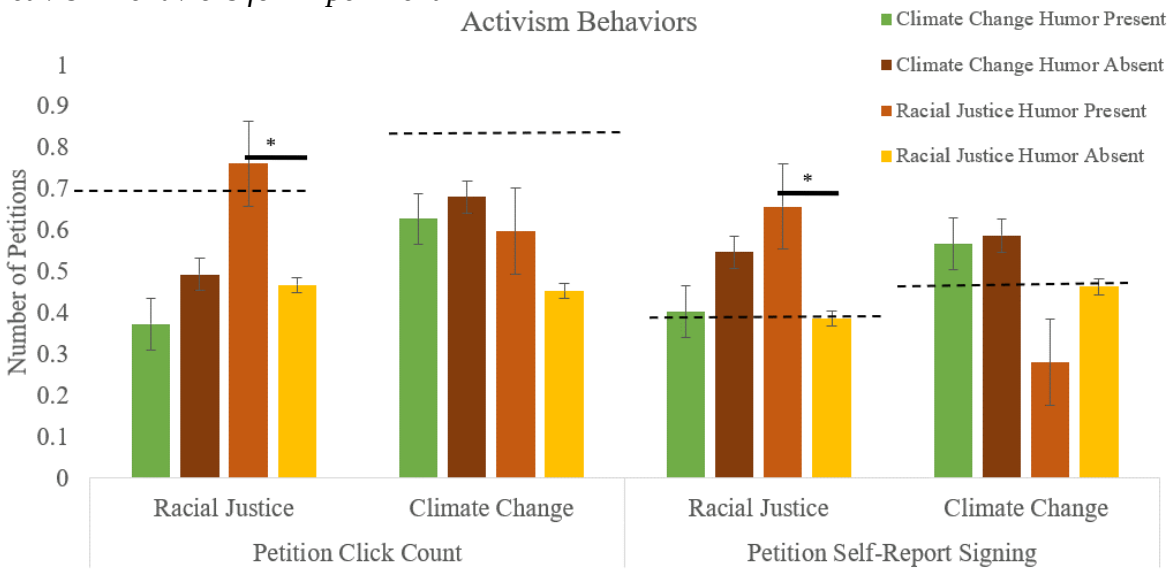
humor and topic [$F(1, 280) = 0.22$, $p = 0.64$, $\eta_p^2 = 0.00$, observed power = 0.08] for ratings of agreeability with the video's points.

Humor, Topic, and Activism

We examined a 2 (Topic: racial justice or climate change) × 2 (Humor: present or absent) × 2 (Petition: racial justice and climate change) mixed-model ANOVA with repeated measures on the petition factor to explore an interaction between humor, topic, and engagement with petitions. As indicated by Hypothesis 1, we predicted that humorous content about racial inequality or climate change will yield in higher engagement with relevant petitions. Contrary to this prediction, there was no significant three-way interaction between these variables. Alternatively, we explored the hypothesized relationships with separate 2 (Topic) × 2 (Humor) ANOVAs and simple effects tests for each petition type exploring clicks and reported signing (see Figure 2).

Figure 2

Activism Behaviors for Experiment 1



Note. Dashed lines correspond to Pilot experiment 2a baseline values.

*$p < 0.05$

Humor and Racial Justice Petitions Clicking Behavior

A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA yielded no differences between presence or absence of humor ($p = 0.43$) and no differences between topics racial justice and climate change ($p = 0.10$) in the clicking behavior for racial justice petitions. The predicted interaction between humor and petition clicking behavior was not statistically significant but the descriptive patterns were consistent with Hypothesis 1, [$F(1, 280) = 3.56$, $p = 0.06$, $\eta_p^2 = 0.01$, observed power = 0.47]. Simple effects tests revealed that the presence of humor in content describing racial inequality was associated with higher clicking behavior ($M = 0.76$, $SD = 1.09$), $t(120) = -0.79$, $p = 0.04$ compared to the absence of humor ($M = 0.47$, $SD = 0.79$) but this difference was not true for humor present vs absent in the climate change topic. Consistent with Hypothesis 1, the presence of humor in videos about race significantly increased clicking behavior for racial justice petitions but not climate change petitions. However, the presence or absence of humor about climate change did not affect clicking on racial justice petitions.

Humor and Climate Change Petitions Clicking Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor *(*$p = 0.70$) and no differences between topics racial justice and climate change ($p = 0.27$) in the clicking behavior for climate change petitions. There was also no interaction between topic and humor for clicking behavior for climate change petitions ($p = 0.40$). Contrary to Hypothesis 1, the presence of humor, compared to the absence of humor, did not impact clicking behavior for climate change petitions.

Humor and Racial Justice Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between the presence or absence of humor ($p = 0.55$) and no differences between topics racial justice and climate change ($p = 0.66$) in the self-reported signing behavior for racial justice petitions. The predicted interaction between humor and petition signing behavior was not statistically significant but the descriptive patterns were consistent with Hypothesis 1, [$F(1, 280) = 3.76$, $p = 0.05$, $\eta_p^2 = 0.01$, observed power = 0.50]. Simple effects tests revealed that the presence of humor in content describing racial inequality was associated with higher self-reported signing behavior ($M = 0.66$, $SD = 1.02$), $t(110) = 1.85$, $p = 0.03$ compared to the absence of humor ($M = 0.39$, $SD = 0.66$). Consistent with Hypothesis 1, the presence of humor significantly increased self-reported signing behavior for racial justice petitions.

Humor and Climate Change Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor ($p = 0.44$). There was however, a marginally significant difference between topics racial justice and climate change self-reported signing behavior for climate change petitions [$F(1, 280) = 3.77$, $p = 0.05$, $\eta_p^2 = 0.01$, observed power = 0.49]. There was no interaction between topic and humor for self-reported signing behavior for climate change petitions ($p = 0.34$). Contrary to Hypothesis 1, the presence of humor, compared to the absence of humor, did not impact self-reported signing behavior for climate change petitions.

Increased Activism Behavior for Racial Justice Petitions

We also predicted that the effect of humorous stimuli on activism behaviors could be larger in the race conditions compared to climate change conditions. Considering the significant simple effects above for humorous condition for self-reported signing behavior $t(110) = 1.85$, $p =$

0.03, and clicking behavior $t(120) = -0.79$, $p = 0.04$, in the racial justice conditions, the results support Hypothesis 2. There was no evidence that the humorous conditions promoted activism behaviors in the climate change conditions.

Comparison to Baseline Measures

The means of each dependent variable within each condition compared to baseline rates can be seen in Figure 2. These baseline rates were derived from pilot testing (see Appendix A) that assessed participant interactions with petitions with no exposure to video stimuli. The baseline rate for clicking behavior on racial justice petitions ($M = 0.69$, $SD = 1.00$) was less than that of the humor present racial justice condition in Experiment 1 ($M = 0.76$, $SD = 1.09$) only. The baseline rate for self-reported signing behavior on racial justice petitions ($M = 0.39$, $SD = 0.83$) was less than that of the humor present racial justice condition ($M = 0.66$, $SD = 1.02$). The baseline rate for clicking behavior for climate change petitions ($M = 0.86$, $SD = 1.07$) was greater than all four experimental conditions. Finally, the baseline rate for self-reported signing behavior for climate change petitions ($M = 0.47$, $SD = 0.89$) was less than only less than the humor present ($M = 0.57$, $SD = 1.00$) and absent ($M = 0.59$, $SD = 0.97$) climate change conditions.

Participant Race

The cited literature providing our theoretical background broadly focuses on humor to mobilize White Americans toward activism by reducing existing anxiety. In the analyses presented in this experiment, we considered all races in order to maintain generalizability and examine variations across White and BIPOC (Black, Indigenous, People of Color) perceivers. Main analyses separated by White and BIPOC participants can be viewed in Appendix C. Overall, there were a few notable differences from the analyses described above when analyzing

White and BIPOC participants separately. White participants demonstrated a significant difference in petition engagement (clicking and signing) as a function of humor with humorous depictions eliciting greater engagement. BIPOC participants demonstrated similar engagement rates across humorous and non-humorous conditions. This suggests that White participants may have a greater predisposition to the benefits of humor for increasing activism.

Discussion

Experiment 1 was an extension of existing research conducted by Skurka et al. (2018) exploring the role of humor in climate change activism intentions. We adapted their methodology to explore shifts in actual activism behavior as a response to humorous stimuli conveying information about racial inequality or climate change. Our results indicated that the presence of humor in discussing racial inequality did shift racial justice activism behavior. The presence of humor in discussing climate change, compared to the absence of humor, did not shift climate justice activism behavior, which is similar to the findings of Skurka et al. (2018). This suggests that there may be another mechanism that is driving the relationship between humor and racial justice activism that is not present in the relationship between humor and climate change activism.

Previously, we discussed the role of anxiety acting as a barrier to activism, especially when the content is regarding a controversial topic. Both climate change and racial inequality are politicized as contentious topics that divide Americans, but racial inequality is likely to be more controversial. Racism and racial inequality have gained renewed attention in recent years marked by large-scale movements such as Black Lives Matter and widespread disagreement in society regarding the pervasiveness of racial inequality in the modern U.S. (Gilette & Cicco, 2020).

Furthermore, we also discussed the role of humor in defusing anxiety. Previous research indicates that humor is a consistently reliable mechanism to suppress anxiety (Abel & Maxwell, 2002; Ford, Ford, Boxer & Armstrong, 2012). The results of experiment indicate that humor increases activism behavior when engaging with content about racial justice, but this design does not measure anxiety directly. Therefore, it is uncertain if shifts in anxiety, as a response to humor, are generating variations in activism behaviors. In Experiment 2, we directly measured anxiety and examined its mediating role in heightening activism behaviors.

We also recognize that the impact of anxiety may be stronger when individuals consider sharing the cause with close friends and family. Therefore, exploring sharing behavior may be meaningful to understand anxiety's role. We included a measure asking participants if they would be willing to share the petitions they saw on their personal social media accounts, and the likelihood of sharing each petition. We also inquired how sharing petitions may induce negative perceptions from family and friends by asking relevant questions.

Furthermore, we are also interested in exploring and understanding other mechanisms, unrelated to anxiety, that may be driving the relationship between humor and activism behaviors. For example, another reason why the presence of humor may heighten interactions with petitions is because humorous content retains interest and engagement (Hackathorn et al. 2011; Eisend, 2009). We explored this potential relationship by including additional questions about engagement with video stimuli. Other possible reasons for humor eliciting greater interactions with petitions may be due to participants (1) feeling guilty for laughing or (2) fearing that they may appear to be racist for laughing in the humorous videos condition. To explore this, we included questions probing laughter and racial insensitivity perceptions.

Experiment 2

Experiment 2 was designed to replicate and extend Experiment 1 by directly examining anxiety in participants. We used the same stimuli as Experiment 1 to expose participants to humorous or non-humorous content about racial inequality. We removed the climate change condition from the experimental design for Experiment 2 because (1) there was a lack of evidence in experiment 1 that humor elicits changes in climate change activism behavior and (2) we are more focused on understanding racial justice. We also included a measure to examine shifts in anxiety thus aiming to improve our experimental design to test our hypotheses about anxiety's role in mediating controversial discussions and activism behaviors.

Hypothesis 1. We expected to replicate the findings from Experiment 1 to show that the presence of humor, compared to the absence of humor, in videos conveying information about racial inequality will increase relevant social justice activism behaviors.

Hypothesis 2. We expected to find that videos with humor will decrease state anxiety scores more than videos without humor. If so, we explored whether changes in state anxiety explained the effects of humor on activism behaviors (self-reported signing behavior and clicking behavior of petitions) with mediational analyses.

We were also interested in understanding various other mechanisms, related and unrelated to anxiety, that may also play a role in the relationship between humor and activism. We pursued exploratory analyses to understand how participants may share petitions with close friends and family and if they anticipate negative perceptions and interactions in response to sharing. We also explored how humorous videos may be more engaging or guilt-inducing which can result in heightened activism behaviors.

Methods

Participants

We recruited 300 participants on Prolific to detect a medium effect size (Cohen's d = 0.31) with a one-tailed $\alpha = 0.05$ at 80% power in order to replicate significant findings from Experiment 1. Twenty-nine participants were removed from analyses for correctly guessing the experiment's intentions or failing attention checks. Two hundred and seventy-one participants were included in data analyses. The mean age of this sample was 29.9 years old, and the median age was 30 years old. The sample consisted of mostly cisgender males (52%), followed by cisgender females (44%), transgender (1%), non-binary (1%), and individuals whose gender identities were not listed (2%). Participants were mostly White/Caucasian/European American (59.4%), followed by Black/African/African American (12.5%), Latino/Latina American/Hispanic American (10.3%), East Asian/East Asian American (7.4%), Multiracial (5.2%) or South Asian/South Asian American (3.3%). Participants who identified as Middle Eastern or Native American comprised less than 1% of the sample. Participants were mostly politically affiliated with Democrats (55.4%), followed by Independent (25.8%), Republican (11.4%), and none/other (7%).

Research Design

Participants were randomly assigned to a condition in a 2 (Humor: humorous or non-humorous content) x 2 (Anxiety Assessment: pre- and post-content) mixed design. Primary dependent variables were the participants' total number of racial justice petitions that were clicked, the self-reported total number of racial justice petitions that were signed, and self-reported state anxiety at Time 1 and Time 2.

Stimulus Material

Participants watched three videos about racial inequality delivered in either a humorous or non-humorous manner. The videos used in Experiment 2 were the same videos used in the racial inequality conditions of Experiment 1.

Procedure

Participants on prolific confirmed they did not have any hearing or visual impairments and were using a laptop or desktop device to complete the survey to ensure they were able to hear and watch videos and access petitions as intended. Next, participants provided consent to participate, answered demographic information, followed by a baseline measure of their state anxiety by completing the State-Trait Anxiety Inventory (STAI) (Spielberger, 1983). Participants then watched three videos relevant to the humor condition they were assigned to at random by a Qualtrics randomizing function. After watching all three videos, participants completed a second measure of the STAI before they were shown a list of 12 petitions. After viewing the petitions, participants were asked to reflect on why they did, or did not, sign any petitions during the experiment in an open response text box. Participants were asked to answer other items and measures before they were asked to comment on what they thought the experiment's true intentions were in an open response text box. Participants were thanked, debriefed, and compensated.

Measures

Video Perceptions. After viewing each video, participants rated the video on how funny, interesting, anger inducing, informative, and agreeable the video was. Ratings were distributed on a Likert scale from 1 (not at all) to 7 (very much).

Petitions. Like Experiment 1, participants saw the same list of 12 petitions displayed in a randomized order. Engagement with petitions was composited as a sum score for each participant (0-3) as a measure of activism, such that a participant who clicked on all 3 racial justice petitions will receive a score of '3' for petition clicking behavior.

State Trait Anxiety Inventory. We collected data on state anxiety using the State Trait Anxiety Inventory (STAI) (Spielberger, 1983). This self-reported data was collected during two timepoints: before watching videos and after watching videos. The STAI is a 20-item questionnaire that assesses various statements that a participant may feel at the moment of measure. Example items include, "I feel secure" and "I am presently worrying over possible misfortunes". Participants responded on a Likert scale ranging from 1 (Not at all) to 4 (Very much so). State anxiety was composited as a sum score of all 20 items, with appropriate reverse coding for positive items. Scores ranged from 20-80 with higher scores indicating greater state anxiety.

Likelihood of Sharing Relevant Petitions. We asked participants if they are likely to share (Yes or No) the petitions they saw during the experiment on their social media accounts in an effort to bolster support from their friends and family. Only participants who answer "Yes" saw each petition on likelihood of sharing questionnaire ranging from a 1 (Extremely unlikely to share) to 7 (Extremely likely to share) Likert scale. We computed a sum score for the 3 racial justice petitions. Scores will range from 3 to 21 where higher scores indicate greater likelihood of sharing. We analyzed how exposure to humorous or non-humorous content impacted sharing likelihood.

Social Media Perceptions. We investigated how humor may differently impact concerns about posting content on social media. Participants answered three questions on a Likert scale

from (1) Strongly Disagree to (5) Strongly Agree. The questions are as follows: (1) “I am reluctant to share petitions on my social media accounts”, (2) “I fear my friends and followers on social media will perceive me negatively if I share petitions”, (3) “I worry that I may have to engage in discussions with friends and followers who disagree with petitions I’ve shared”. Higher scores on each question indicate greater concern surrounding posting to social media. We analyzed how exposure to humorous or non-humorous content impacted concern.

Engagement with Videos. We were also interested in understanding how engagement with videos may differently impact activism behaviors. In our experiment, participants self-reported engagement by answering “How engaged were you with this video?” after each of the three videos they saw. Responses ranged on a Likert from 1 (not at all) to 7 (extremely). We computed averages for all three videos, with higher scores indicating greater engagement, and examined differences in humorous and non-humorous content.

Racial Insensitivity Perceptions. Finally, we were interested in how presence of humor may differently impact racial insensitivity perceptions. Participants answered two questions on a Likert scale from (1) Never to (5) Always. The questions are as follows: (1) “I think people who laugh at racial jokes are probably racially insensitive themselves” and (2) “I worry that if I laugh at racial jokes, other people will think I am racially insensitive”. Higher scores on each question indicate greater perceptions of racial insensitivity. We analyzed how exposure to humorous or non-humorous content impacted perceptions of racial insensitivity

Results

Data Reduction and Transformation

Any participant who accurately guessed the experiment's true intention or did not fully complete the experiment was removed from analyses. Participants who failed both attention checks or reported being less than 80% serious about completing the experiment were also removed from analyses. We performed analyses on 271 remaining participants.

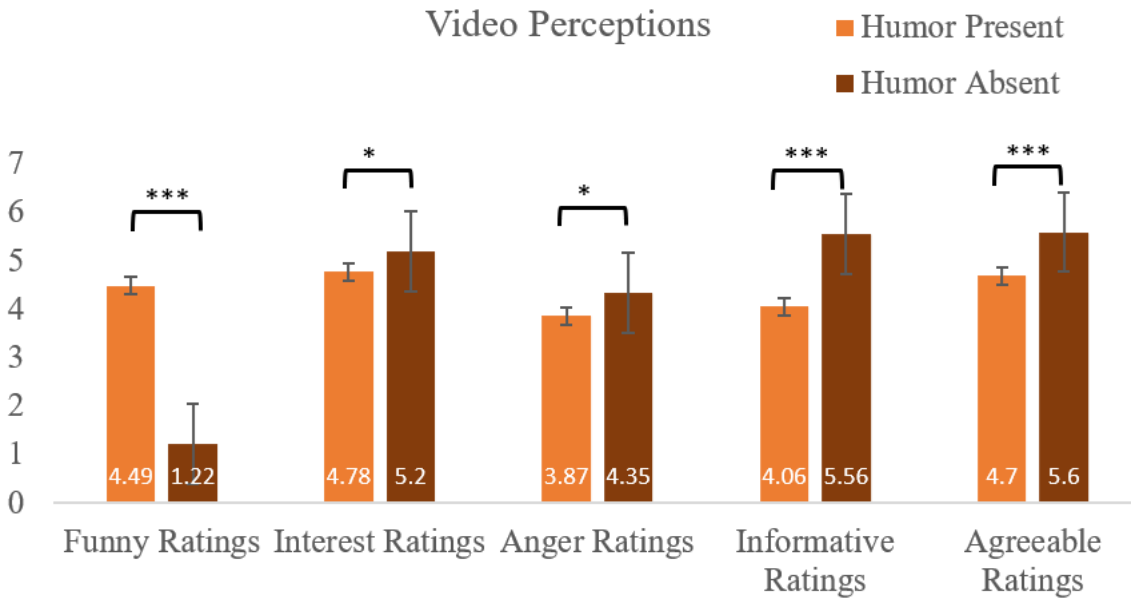
We computed two dependent variable scores, reflecting the total number of racial justice petitions that participants 1) clicked on and 2) self-reported that they signed. We also created an anxiety change score by subtracting post-videos STAI from pre-videos STAI which reflected the magnitude of anxiety shift in each participant. These scores ranged from -13 to 46 with lower scores indicating a decrease in state anxiety and larger scored indicating an increase in state anxiety.

Video Perceptions

We were interested in how participants perceived each video relative to presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the humorous condition were computed to a single score) and compared across conditions. Overall, we found significant differences for ratings of funny by humor present or absent indicating a successful manipulation of humor within the video stimuli. We also found significant variation in perceptions of fear, interest, anger, informative and agreeableness between presence and absence of humor in the videos. See Figure 3.

Figure 3

Video Perceptions for Experiment 2



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

Funny Ratings. An independent samples t-test indicated that humorous videos were significantly more funny than non-humorous videos $t(181) = -24.49$, $p < 0.001$.

Interest Ratings. An independent samples t-test indicated that non-humorous videos were significantly more interesting than humorous videos $t(269) = 2.22$, $p = 0.03$.

Anger Ratings. An independent samples t-test indicated that non-humorous videos significantly elicited greater rates of anger than humorous videos $t(269) = 2.26$, $p = 0.02$.

Informative Ratings. An independent samples t-test indicated that non-humorous videos were significantly more informative compared to humorous videos $t(269) = 7.71$, $p < 0.001$.

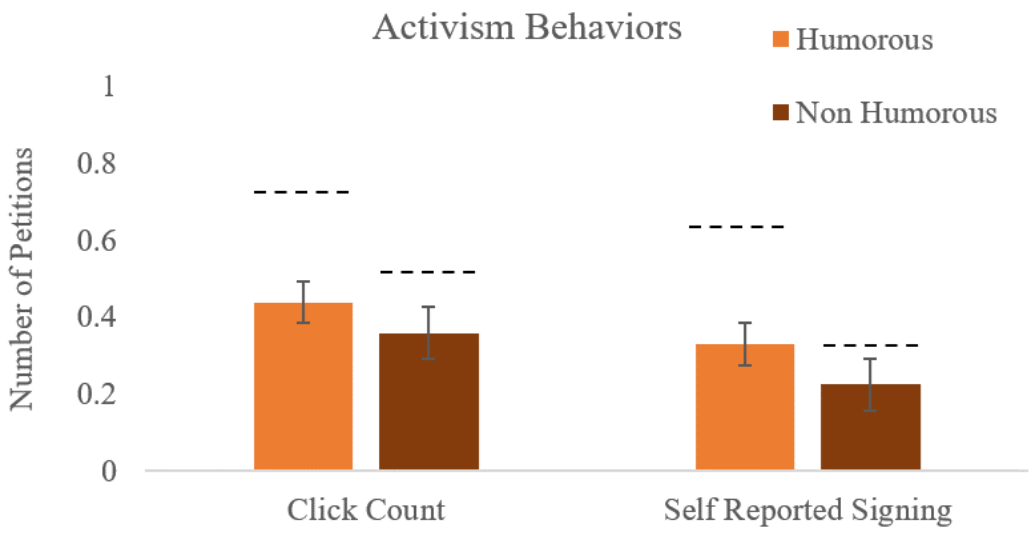
Agreeable Ratings. An independent samples t-test indicated that non-humorous videos were significantly more agreeable than humorous videos $t(269) = 4.69$, $p < 0.001$.

Humor and Activism Replication

Simple effects tests from Experiment 1 revealed that the presence of humor in content describing racial inequality was associated with higher clicking behavior and self-reported signing behavior. Contrary to hypothesis 1, we did not replicate these findings in Experiment 2. T-tests indicate that there were no differences between humorous content ($M = 0.33$, $SD = 0.81$) and non-humorous content ($M = 0.22$, $SD = 0.54$) conditions in self-reported signing behavior $t(269) = -1.25$, $p = 0.11$. There were also no differences between humorous content (M=0.44 SD= 0.86) and non-humorous content (M =0.36, $SD = 0.77$) condition in clicking behavior $t(269) = -0.85$, $p = 0.12$. See responses and comparisons to Experiment 1 results in Figure 4.

Figure 4

Activism Behaviors for Experiment 2



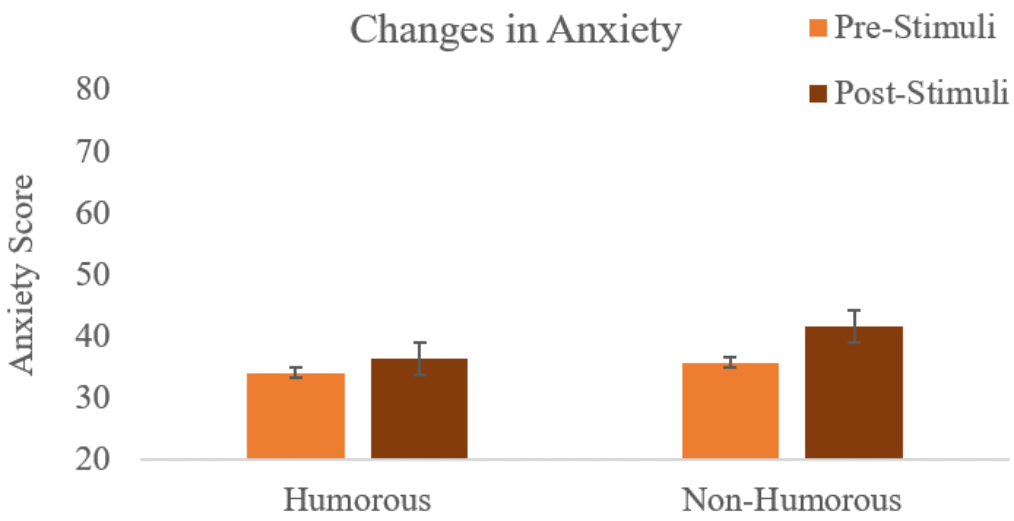
Note. Dashed lines correspond to Experiment 1 values.

Changes in Anxiety

We predicted that videos with humor will decrease state anxiety more than videos without humor. Contrary to hypothesis 2, we did not find evidence of decreased state anxiety in participants in either condition. However, a (between subjects: humorous vs non humorous) x (repeated measures: pre-content anxiety measure and post-content anxiety measure) Mixed ANOVA with a Greenhouse-Geisser correction showed that state anxiety differed significantly between time points (pre-content vs post-content) by condition (humorous vs non-humorous) [$F(1.00, 269.00) = 10.46$, $p = 0.001$]. Results indicate that participants who viewed humorous videos experienced a lower rise in state anxiety compared to those who viewed non-humorous videos who experienced a greater rise in state anxiety (see Figure 5).

Figure 5

Anxiety Changes in Experiment 2



Note. *$p < 0.05$

Mediational Role of Anxiety in Humor and Activism Behaviors.

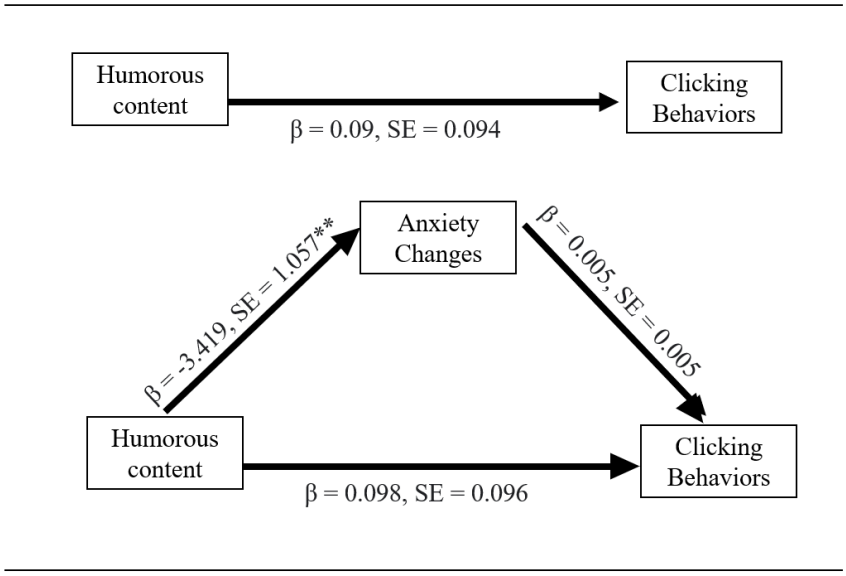
We also intended to explore whether changes in state anxiety explain the effects of humor on activism behaviors (self-reported signing behavior and clicking behavior of petitions) with mediational analyses. According to Hayes (2009), it is permissible to conduct simple mediational analyses despite no direct and significant path from the independent variable, humor, to the dependent variable, activism behaviors. We followed Uedufy (2022) and Stats-Moderation (2013) steps to running mediation analyses in SPSS.

Racial Justice Clicking Behaviors. In Step 1 of the mediation model, the regression of humor on clicking behaviors, ignoring the mediator, was non-significant, [b = 0.08, F(1,270) = 0.72, p = 0.40]. Step 2 showed that the regression of humor on the mediator, anxiety change, was significant, [b = -3.42, F(1,270) = 10.46, p = 0.001] demonstrating that humorous videos decrease anxiety. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of clicking behaviors, [b = 0.10, F(1,270) = 0.84, p = 0.33]. See Figure 6.

Racial Justice Signing Behaviors. In Step 1 of the mediation model, the regression of humor on signing behaviors, ignoring the mediator, was non-significant, [b = 0.11, F(1,270) = 1.56, p = 0.21]. Step 2 showed that the regression of humor on the mediator, anxiety change, was significant, [b = -3.42, F(1,270) = 10.46, p = 0.001] demonstrating that humorous videos decrease anxiety. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of signing behaviors, [b = 0.13, F(1,270) = 2.31, p = 0.12]. See Figure 7.

Figure 6

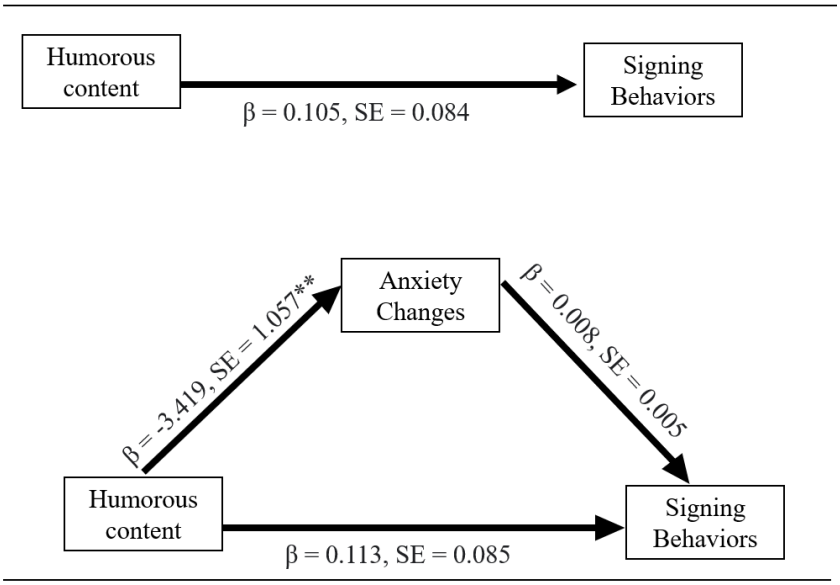
Clicking Behaviors Mediation Model



Note. **p < 0.01

Figure 7

Signing Behaviors Mediation Model



Note. **p < 0.01

Likelihood of Sharing Relevant Petitions

Thirty-three participants who viewed non-humorous content and 27 participants who viewed humorous content (total $N = 60$) indicated that they are likely to share the petitions they saw during the experiment on their social media accounts in an effort to bolster support from friends and family. We analyzed how exposure to humorous racial inequality content may impact likelihood of racial justice petitions. An independent samples t-test indicated that there were no differences in likelihood to share by presence of humor (M =15.00, SD = 4.44) compared to absence of humor (M =14.24, SD = 4.31) $t(58) = -0.67$, $p = 0.25$.

Social Media Perceptions

We further investigated how humor may differently impact participants' concerns about posting content on social media with 3 questions about their reluctance, fear of negative perceptions, and anticipation of engaging in discussion with those who disagree. Participants who viewed humorous content ($M = 3.95$, $SD = 1.17$) were significantly more reluctant than those who viewed non-humorous content ($M = 3.59$, $SD = 1.33$) to share petitions on social media accounts $t(269) = -2.36$, $p = 0.01$. There were no significant differences by humor for fear of negative perceptions or anticipation to engage in discussions with those who disagree.

Engagement with Videos

We were also interested in understanding how engagement with videos may differently impact activism behaviors. An independent samples t-test indicated there were no differences in self-reported engagement in response to humorous ($M = 16.71$, $SD = 4.35$) or non-humorous content ($M = 17.34$, $SD = 4.06$) $t(269) = 1.23$, $p = 0.11$.

Racial Insensitivity Perceptions

Finally, we were interested in how presence of humor may differently impact racial insensitivity perceptions. An independent samples t-test indicated that participants who viewed humorous videos (M = 2.53, SD = 1.16) compared to non-humorous videos (M = 3.17, SD = 1.28) perceived those who laugh at racial jokes as less insensitive $t(269) = 4.37$, $p = < 0.001$. Furthermore, participants who viewed humorous videos (M = 2.26, SD = 1.30) compared to non-humorous videos (M = 2.91, SD = 1.43) were less concerned about other people perceiving them as racially insensitive for laughing at racial jokes $t(269) = 3.96$, $p < 0.001$.

Participant Race

The cited literature providing our theoretical background broadly focuses on humor to mobilize White Americans toward activism by reducing existing anxiety. In the analyses presented in this experiment, we considered all races in order to maintain generalizability and examine variations across White and BIPOC (Black, Indigenous, People of Color) perceivers. Analyses separated by White and BIPOC participants can be viewed in Appendix D. Overall, there were no notable differences from the analyses described above when analyzing White and BIPOC participants separately. White and BIPOC participants alike did not demonstrate a significant difference in petition engagement (clicking and signing) as a function of humor. BIPOC participants, compared to White participants, experienced a stronger increase in anxiety when exposed to non-humorous content compared to humorous content.

Experiment 2 Discussion

Overall, we did not find support for our hypotheses in Experiment 2. We did not replicate findings from Experiment 1 which showed that participants exposed to humorous content about racial inequality were more likely to click on and sign petitions pertaining to racial justice. We

also theorized that anxiety may play a role in de-incentivizing activism behaviors. We predicted that by employing humor to subvert anxiety, we may see an increase in activism behaviors. While humor and anxiety did not corroborate the relationship we expected, there is an interesting relationship to be observed. Content and discussions about racism increases state anxiety in all participants, however, humorous portrayals of race topics elicit significantly less anxiety than non-humorous portrayals.

Furthermore, as indicated by responses to the racial insensitivity questions, the presence of humor can negate concerns surrounding harmful perceptions of others and self. This suggests that humor may, nevertheless, be a worthy tool to promote involvement and participation. Contrary to this notion, participants who viewed humorous content also reported greater reluctance to share petitions on social media. Therefore, there is some inconsistency in how humor induces a reluctance to share petitions on social media while also diminishing racial insensitivity perceptions of others and self. This suggests that humor can make participants feel comfortable and laughing at racial humor does not indicate racial insensitivity, but nevertheless humor prompts reluctance in direct action.

This disconnect between attitude and behavior prompts further questions about the processes involved to understand the complex relationship between humor and activism. Therefore, future research may examine how to inspire favorable attitudes into favorable actions.

General Discussion

Across 2 experiments, we sought to demonstrate how humor can translate to and advance activism behavior by defusing anxiety. In Experiment 1, we examined if humor could increase activism behaviors for two topics: racial inequality and climate change. Our results showed that

humor did increase activism behaviors surrounding racial inequality only. This suggested that the mechanisms surrounding humor function differently across these topics with an enhanced capacity for racial inequality. We considered reasons why racial inequality benefits from humor while climate change does not and proposed that it could be related to the enhanced anxiety surrounding racial discussions and anxiety-reducing processes of humor.

In Experiment 2, we aimed to replicate Experiment 1 and test the anxiety theory by examining how anxiety shifts in response to humor. The results did not replicate the findings of Experiment 1 to show an increase in racial justice activism behaviors in response to humorous content. Nonetheless, we did find a notable difference in anxiety in response to humorous content. All participants, regardless of watching humorous or non-humorous content about racial inequality, experienced a rise in state anxiety. However, participants who viewed humorous content experienced a slighter rise in anxiety compared to those who viewed non-humorous content and experienced a sharper rise in anxiety.

As observable through these results, the presence of anxiety can deter involvement in racial justice activism and humor can alleviate this anxiety. Regardless, our initial theory did not stand; while humor may reduce anxiety, this relationship did not necessarily mediate activism behaviors. Therefore, it is possible that anxiety is not related to activism. There is currently only one empirical research experiment, that I am aware of, that connects anxiety to activism. De Choudhury et al., (2016) found evidence that lower anger and anxiety, as expressed by tweets online, is associated with greater masses of Black Lives Matter protestors. However, it is important to note a design limitation in this experiment that the sample used to examine anxiety (twitter users) may not be the same sample used to measure activism engagement (protestors). Therefore, the link observed between anxiety and activism is indirect.

We also found inconsistent results between Experiment 1 and Experiment 2. Experiment 2 was intended to be a replication and extension of Experiment 1. We had used the same video stimuli and petitions to test our hypotheses. Experiment 2 included additional variables such as an anxiety measure and other exploratory dependent variables such as petition sharing likelihood. To our understanding, the addition of these variables after the primary dependent variables should not have impacted the relationship between humor and activism, we observed in Experiment 1. We evaluated several extraneous reasons that may have caused inconsistency between Experiment 1 and 2.

First, we evaluated stimuli ratings across the two experiments. We noted that across all videos and ratings, participants in Experiment 1 rated the videos more extremely than participants in Experiment 2. For example, participants rated the humorous videos as funnier in Experiment 1 (M=4.96) compared to Experiment 2 (M=4.49). This is similar to the non-humorous video condition where Experiment 1 videos were rated funnier (M=1.50) than Experiment 2 (M=1.22). This pattern is true for the anger, informative, and agreeable ratings. These patterns indicate some extraneous factor that elicited more extreme ratings of the stimuli for Experiment 1 that did not elicit similar ratings for Experiment 2.

We considered political climate during data collection. Experiment 1 was launched in September of 2021 and Experiment 2 was launched in May 2022. Experiment 2 was launched on the same day as the Robb Elementary School shooting in Uvalde, Texas. There was no practical approach to assess if participants had been aware of the shooting when they completed the survey. If they were aware, it is possible they were politically heightened. Given the political nature of this experiment and the inclusion of gun rights petitions as activism options, it is possible that this event negated the results of Experiment 2. We assessed interactions with gun

rights petitions across Experiment 1 and 2 and there were no differences in how participants clicked on or self-reported signed gun right petitions. It is also possible that the Uvalde shooting did not affect the results.

We also considered seasonal affective disorder (Kurlanksik and Ibay, 2012) as a possible suppressor of humor perception across the two experiments. Bokarius et al., (2011) demonstrated a negative correlation between depressive symptoms and humor perception. Therefore, the seasonal difference between Experiment 1 and 2 data collection timepoints may have shifted humor perception.

Finally, we considered variations in demographic factors of the participants between Experiment 1 and 2. We found that there was a similar distribution of age, ethnicity, and political identity of the participants between Experiment 1 and 2. Education levels varied between the experiments. Experiment 1 had 77 participants with master's degrees and 12 participants with Ph.D.'s. Experiment 2 had 17 participants with master's degrees and 1 participant with a Ph.D. This stark difference between education levels of sample may have also contributed to the inconsistency between Experiment 1 and 2 results.

Nonetheless, the null findings of Experiment 2 do not invalidate the original theory. We believe there are limiting factors within our experimental design that may have contributed to null results, specifically our dependent variable. We measured engagement with petitions as indicative of activism behaviors because it could be quantifiably conceptualized given our limited time and resources. Unfortunately, signing petitions is a minor form of activism that maintains a marginal societal impact. In fact, a study that examined effectiveness of petitions found that only 6.8% of petitions were reviewed by relevant leaders and less than 1% of petitions on Change.org were marked as "Victory" (Said Elnoshokaty et al., 2016). This limitation was

also observed by 24% of participants in our sample who cited “ineffectiveness of petitions” as a reason they did not engage with any petitions. This flaw in experimental design may be contributing to the null results. However, this reasoning does not explain mixed results between Experiment 1, where there were effects for petitions, and Experiment 2, where there were no effects for petitions. Therefore, petitions may simply be a low consistent mode to activism and engagement.

In future iterations of this experiment, we predict ample evidence for our humor, anxiety, and activism theory by employing effective forms of activism into our experimental design. For example, more pronounced forms of activism may be evident from attending protests, joining organizations, donating money to causes, or self-education on a controversial topic.

These findings offer insight into the issues of inequality and provide a deeper understanding of humor in social spaces and the conditions in which they can be influential. Humor is widely used as a coping mechanism to anxiety (Ford, Lappi, O’Connor & Banos, 2017; Lefcourt & Martin, 1986), and understanding how humor can facilitate message processing by mitigating anxiety during controversial topics is imperative to understand. The results of these studies are still helpful to inform future work.

The use of humor is pervasive in popular culture and media. Humor makes difficult topics digestible (Jones, 2010), accessible (Baumgartner & Morris, 2008) and retains attention (Kaplan & Pascoe, 1977). Lots of creators on social media rely on humor to connect with their followers and convey information (e.g., John Green). Therefore, humor holds a profound role in society and media while allowing for a practical approach to direct focus on large issues.

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Appendix A

Pilot Test 1A: Videos

In the first pilot test, we tested a 2 (Topic: Racial Justice or Climate Change) x 2 (humorous videos or non-humorous videos) between-groups design. Participants were randomly assigned to a condition that included watching a series of 4-6 videos lasting a total of 12-12.5 minutes. The research team browsed the internet for segments of videos that discussed climate change or racial justice in humorous or non-humorous contexts. We identified dozens of videos across talk shows, stand-up comedy, satirical segments, documentary clips, and news segments. We filtered the available content according to their traits and controlled, to the best of our ability, to eliminate as many confounds without yielding our purpose. The characteristics present within each condition were evenly distributed on the following domains: race, gender, age, and celebrity status of the speaker; audience and laugh-track presence; and the type of video (e.g., stand-up comedy, interview, talk show, skits). The results of the pilot test were used to finalize the stimuli that would be used in the main experiment and assessed how activism intention may vary in response to the stimuli. Activism intentions were measured using a 5-item scale as used by Skurka et al. (2018). The activism intention measure was used to gather preliminary information about shifts in activism for the purposes of this pilot test. In the main experiment, we will use a direct measure of activism in the form of petitions.

Video Criteria 1: Humorous videos must be rated to be significantly funnier and elicit a greater urge to laugh compared to non-humorous videos.

Video Criteria 2: All videos within each condition must have overlapping 95% Confidence Intervals among the nine ratings: funny, urge to laugh, amusing, fear-

inducing, anger-inducing, informative, increased learning, agreeableness, formed arguments against.

Hypothesis 1: Participants in the humorous conditions will display greater activism intentions than participants in the non-humorous conditions.

Hypothesis 2: Participants in the racial justice conditions will display greater activism intentions than the participants in the climate change conditions.

Hypothesis 3: Participants in the humorous and racial justice conditions will display greater activism intentions than participants in the other conditions.

Method

Participants

We recruited 97 participants to detect a large effect size (Cohen's d = 1.178) with an $\alpha = 0.05$ and 95% power. Participants were from Amazon's MTurk and undergraduate students remunerated with partial course credit. Participants were mostly White Americans (66%), followed by East Asian (13.4%), South Asian (6.2%), Black American or Latinx (4.1% each), Multiracial (3.1%), or other (3.1%). Participants were equally split between cisgender males and females (49.5% each) and one participant identified as transgender female (1%). Most participants identified as Democratic (48.5%), Independent (24.7%) or Republican (16.5%). The mean age of participants was 42.22 years old.

Procedure

First, participants provided consent and answered some demographic items. Next, participants watched four to six videos discussing the implications of climate change or racial

justice depicted in a humorous or non-humorous manner. After each video, participants rated the video they watched on the following nine domains: funny, urge to laugh, amusing, fear-inducing, anger-inducing, informative, learn something, agreeableness, thoughts of arguments against. Each of these characteristics was rated on a scale of 1: “not at all” to 7: “very much”. When participants finished watching the videos, they proceeded to an activism intention measure which asked them how likely they are to partake in five actions activities in the next few months regarding either climate change or racial justice (See Appendix B). This scale will range from 1: very unlikely to 7: very likely. We averaged these responses into an index (M = 3.63, SD = 1.73).

Results

We first assessed whether: (a) the humorous videos were rated to be significantly funnier, greater urge to laugh, and more amusing than the non-humorous videos, (b) the several videos within each condition were similarly rated with overlapping confidence intervals on the nine characteristics, (c) activism intentions varied by the presence of humor, (d) activism intentions varied by the topic, and (e) activism intentions varied by condition.

Comparison of Humorous and Non-Humorous Videos

To ensure the humorous stimuli were perceived to be positive in affect, we averaged responses of funny, urge to laugh, and amusing for the several videos within each condition. We created a new grouping variable that separated participants in the humorous conditions and non-humorous conditions. We compared ratings of funny, urge to laugh, and amusement between participants in the humorous or non-humorous conditions. Independent samples T-Tests revealed that the humorous videos were significantly funnier, $t(95) = 14.28$, $p < 0.01$, elicited a greater

urge to laugh, $t(95)=12.14$, $p<.01$, and were more amusing, $t(95)=11.92$, $p<.05$, than the non-humorous videos.

Comparison of Stimuli within each Condition

To ensure that the several videos within each condition were performing similarly to one another, we computed estimated marginal means for each of the nine ratings for all the videos within each condition. Any videos that failed to overlap in 95% confidence intervals within each rating were deemed as influential cases and removed from the experiment.

Activism Intentions

To examine how activism intentions may have shifted as a consequence of humor, topic, and an interaction of humor and topic, we performed a one-way Analysis of Variance (ANOVA) on each of the independent variables. Main effects indicate that the presence of humor ($M = 3.72$, $SD = 1.73$) was not significantly different from the absence of humor ($M = 3.6$, $SD = 1.86$) in eliciting activism intentions, [$F(1,95)= 0.11$, $p = 0.75$]. Next, results indicate that participants who viewed videos about Climate Change ($M = 4.04$, $SD = 1.82$) displayed greater activism intentions compared to participants who viewed videos about racial justice ($M = 3.23$, $SD = 1.79$), [$F(1,95) = 4.77$, $p < 0.05$]. Finally, activism intentions did not significantly vary by condition, [$F(3,93)= 1.91$, $p = 0.134$].

The results from this pilot test indicate a few points of discussion. First, the desired effects of humor were observed in the humorous conditions, therefore the stimuli were delivering the required affect. Second, some of the videos within each condition were over-performing or under-performing relative to the other videos. This unsteady fluctuation could be a confound and therefore further filtering of stimuli is needed. As a result of this, we identified videos to remove

by examining the overlap of confidence intervals and only retained videos that performed similarly to other videos within each condition based on each of the nine ratings. We removed several videos from each condition until three videos remained per condition that were similarly rated across the nine ratings. Next, we edited to lengths of the retained videos so that participants across conditions are viewing videos for a similar length of time.

Lastly, our hypotheses were not supported by the pilot data; activism intentions did not vary by the presence of humor or by the condition and the racial justice condition did not yield greater activism intentions than the climate change conditions. Therefore, we conducted more pilot testing using the refined stimuli according to the within-condition rating comparison.

Pilot Test 1B: Videos

In the second pilot testing, we again tested a 2 (Topic: Racial Justice or Climate Change) x 2 (humorous videos or non-humorous videos) between-groups design. Participants were randomly assigned to one condition and asked to watch 3 videos about their topic. The videos for this pilot test were selected based on videos finalized from pilot testing 1A.

Method

Participants

We recruited 184 participants based on a priori tests given 80% power and $\alpha = 0.05$. Participants were from Amazon's MTurk and were mostly White Americans (64.7%), followed by Black Americans (10.3%), Latinx (9.8%), East Asian (8.7%), South Asian (2.7%), or other (3.8%). Participants were mostly cisgender female (56%) or cisgender male (41.8%), followed by non-binary (1.1%) and transgender male or not listed (.5% each). Participants were mostly

Democratic (46.2%), Independent (28.8%), and Republican (22.3%). The mean age of participants was 31.95 years old.

Procedure

First, participants provided consent and answered some demographic items. Next, participants watched three videos discussing the implications of climate change or racial justice depicted in a humorous or non-humorous manner. The rest of the procedure was identical to that of pilot test 1A.

Results

Comparison of Humorous and Non-Humorous Videos

Similar to pilot testing 1A, we averaged responses of funny, urge to laugh, and amusing for the several videos within each condition. We created a new grouping variable that separated participants in the humorous conditions and non-humorous conditions. We compared ratings of funny, urge to laugh, and amusement between participants in the humorous or non-humorous conditions. Independent samples T-Tests revealed that the humorous videos were significantly funnier, $t(178) = 15.07$, $p < 0.01$, elicited a greater urge to laugh, $t(177) = 12.6$, $p < 0.01$, and were equally amusing, $t(178) = 11.61$, $p = 0.074$, compared to the non-humorous videos.

Comparison of Stimuli within each Condition

To ensure that the three videos within each condition continued to perform similarly to one another, we computed additional estimated marginal means for each of the nine ratings for all the videos within each condition. Any videos that failed to overlap in 95% confidence intervals within each rating were deemed as influential cases and removed from the experiment.

Results indicate that all videos' ratings were within 95% confidence intervals of the other videos per condition.

Activism Intentions

Next, we examined how activism intentions may have shifted across the dependent variables by performing one-way ANOVAs. Tests of Between-Subjects Effects indicated that the presence of humor (M = 3.38, SD = 1.76) was not significantly different from the absence of humor (M =2.99, SD =1.76) in eliciting activism intentions, [$F(1,179) = 2.09$, p =0.149]. Next, results indicated that participants who viewed videos about Climate Change (M = 3.36, SD = 1.65) did not display greater activism intentions compared to participants who viewed videos about racial justice (M = 3.00, SD = 1.77), [$F(1,179) = 1.82$, p = 0.179]. Finally, activism intentions did not significantly vary by condition, [$F(3,177) = 1.99$, p = 0.12].

The results of the pilot testing do not provide evidence for increased activism intentions in response to the presence of humor, topic, and a combination of humor and topic. The reasons for this may be accounted for during future iterations of this experiment. The pilot testing assessed activism intention rather than a direct form of activism, which may provide improved results towards greater activism rates due to inherent action rather than passive intent. Furthermore, satirical humor has been found to be most effective in young adult populations because they are more likely to trust satirical news programs (Pew Research Center, 2016). Due to constraints of online survey platforms and time, we were unable to access exclusively young adult populations on MTurk. Therefore, our future experiment will rely on other survey platforms with a greater allowance for time and examine direct activist actions.

Pilot Testing 2A: Petitions

For the second pilot test, we tested more stimuli to assess how participants would respond to several petitions. This pilot test also provided us with a baseline measure of the number of petitions participants may sign with no prior video stimuli. Participants were presented with ten climate change and ten racial justice petitions and told they may sign any petitions they choose to. For this pilot test, we used an exploratory research approach; we did not have any prior hypotheses about how participants would interact with petitions.

Method

Participants provided consent and answered some demographic items. Next, they were given a set of instructions informing them that they will see descriptions and links to several real, not fabricated for research purposes, petitions, and they may choose to sign as many as they would like. They were also told that the number of petitions they would sign would not impact their compensation; signing petitions is completely optional and researchers will not have access to petition records so interactions with petitions is an action that is independent of the survey. Once thoroughly informed, participants saw a list of twenty petitions in randomized order. Ten petitions advocated for climate change policy and ten petitions advocated for racial justice. Participants were also asked if they have seen or signed any of the petitions prior to this survey and asked to self-report any petitions they signed during this survey if they feel comfortable revealing that information. We also collected Qualtrics embedded data on whether the participant clicked on the external link presented to them bringing them to the petition's page. Finally, participants were asked to explain why they did or did not sign any petitions they did followed by a debriefing form thanking them for participating.

Participants

We recruited 60 participants to detect a large effect size (Cohen's d = 1.178) with an α = 0.05 and 95% power. Participants were from Amazon's MTurk and were mostly White Americans (58.3%), East Asian (16.7%), Black Americans or Multiracial (8.3% each), Latinx (5%), Middle Eastern or South Asian (1.7% each). Participants were mostly cisgender female (56.7%), cisgender male (41.7%), and transgender female (1.7%). Participants were mostly Democratic (61.7%), Republican (16.7%), or Independent (15%). The mean age of participants was 40.95 years old.

Results

We assessed (a) self-reported number of petitions signed, (b) embedded data on the petitions that were clicked on, and (c) open-ended responses regarding why the participant chose to sign or not sign any petitions.

Self-reported number of petitions signed

Participants had the choice of revealing what petitions they signed during the survey. Out of the 60 participants, 40 felt comfortable divulging this information. Here, 27 participants reported signing at least one racial justice petition and 29 participants reported signing at least one climate change petition. Computing an average score for the self-reported number of petitions signed, participants signed 4.13 racial justice petitions and 3.15 climate change petitions. Paired samples T-test comparing these means indicate participants reported signing more racial justice petitions than climate change petitions $t(39)=2.21$, $p < 0.05$.

Click Counts

We were also able to track if a participant clicked on the external link to visit the petition page. Out of 60 participants, we found that 36 participants clicked on at least one racial justice petition and eight participants clicked on all ten racial justice petitions. Thirty-eight participants clicked on at least one climate change petition and five participants clicked on nine climate change petitions. Computing an average score for petitions that were clicked on, each participant clicked on an average of 3.4 racial justice petitions and 2.4 climate change petitions. Paired samples T-test comparing these means indicate participants were more likely to click on racial justice petitions than climate change petitions, $t(59)=3.21$, $p < 0.01$.

Open-ended responses

We were also curious about participants' reasons for why they did or did not sign any of the displayed petitions. This feedback varied greatly between participants: some participants were swayed by the issues presented and motivated to sign, others did not believe petitions were an adequate form of activism to incite true change, while many participants found the causes presented to be neither important nor real. Some participants also reported not knowing enough information about the causes and therefore did not feel compelled to sign. Nonetheless, the discourses presented were to be expected and can be accounted for during future studies.

Considering the results of this pilot test, we determined that racial justice appears to incite greater interaction from participants with no prior stimuli. The baseline value for self-reported petitions signed will be derived from the averages computed above: 4.13 for racial justice petitions and 3.15 for climate change petitions. The baseline value for petitions clicked on will also be derived from the averages computed above: 3.4 for racial justice petitions and 2.4 for climate change petitions.

Appendix B

Activism Intention Scale- Climate Change/Racial Justice

(Adapted from Iyer, Schmader, & Lickel, 2007)

NOTE: Bracketed information was varied across the climate change and racial justice version of the scale. All responses range from a 1 (very unlikely) to 7 (very likely) Likert-type scale.

Please indicate how likely you are to engage in the following activities over the next 12 months:

1) Contact government officials to urge them to take action to reduce [climate change/ racial injustice]
2) Participate in a rally or protest in support of action to reduce [climate change/ racial injustice]
3) Sign a petition in support of taking action to reduce [climate change/ racial injustice]
4) Join or volunteer with an organization working to [reduce climate change/ racial injustice]
5) Donate money to an organization working to [reduce climate change/ racial injustice]

Appendix C: Experiment 1 Results Split by Participant Race

White Participants

Participants

There were 166 participants who identified as non-Hispanic White. The mean age of this sample was 28 years old, and the median age was 29 years old. The sample consisted of mostly cisgender females (47%), followed by cisgender males (46.4%), transgender (2%), non-binary (3%), and individuals whose gender identities were not listed (1%). Participants were mostly politically affiliated with Democrats (55.4%), followed by Independent (21.1%), Republican (13.3%), and none/other (10%).

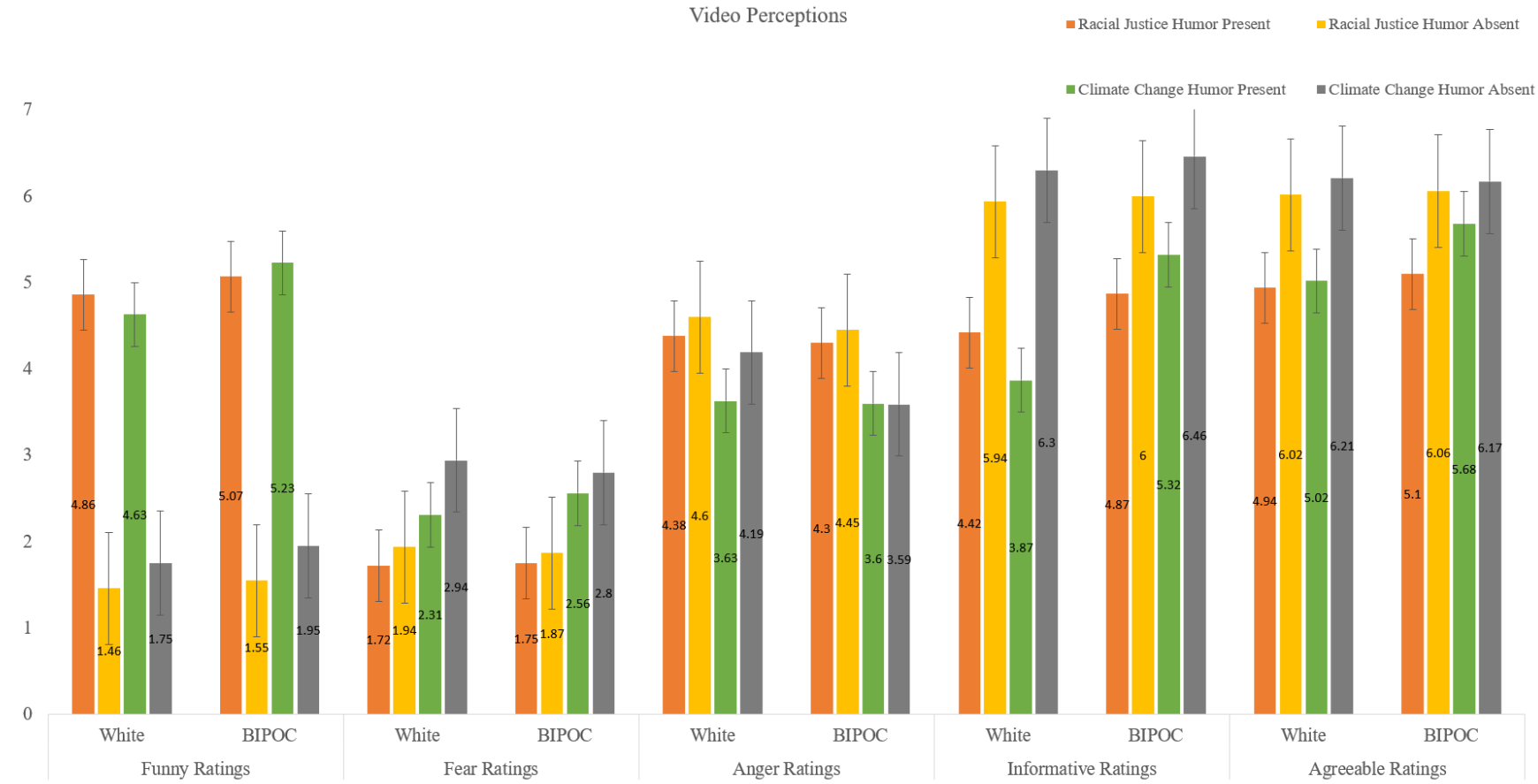
Video Perceptions

We were interested in how White participants perceived each video relative to the topic and presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the racial justice humorous condition were computed to a single score) and compared across conditions. See Figure 8.

Funny Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 162) = 311.91$, $p < 0.001$, $\eta_p^2 = 0.66$, observed power = 1.00] where humorous videos were rated to be more funny than non-humorous videos. There were no differences between topics [$F(1, 162) = 0.03$, $p = 0.87$, $\eta_p^2 = 0.00$, observed power = 0.05], and no interaction for humor and topic [$F(1, 162) = 2.06$, $p = 0.15$, $\eta_p^2 = 0.01$, observed power = 0.30] for funny ratings of the video.

Figure 8

Video Perceptions Experiment 1 White and BIPOC participants



Fear Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated differences between presence/absence of humor [$F(1, 162) = 3.59$, $p = 0.06$, $\eta_p^2 = 0.02$, observed power = 0.47] where non-humorous videos elicited greater fear ratings compared to humorous videos. There were also significant differences between topics [$F(1, 162) = 12.85$, $p < 0.01$, $\eta_p^2 = 0.08$, observed power = 0.95] where videos about climate change elicited greater fear ratings compared to videos about racial justice. There was no interaction for humor and topic [$F(1, 162) = 0.89$, $p = 0.35$, $\eta_p^2 = 0.01$, observed power = 0.16] for ratings of fear experienced during the video.

Anger Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated no differences between presence/absence of humor [$F(1, 162) = 2.50$, $p = 0.12$, $\eta_p^2 = 0.02$, observed power = 0.35], significant differences between topics [$F(1, 162) = 5.49$, $p = 0.02$, $\eta_p^2 = 0.03$, observed power = 0.90] where videos about racial justice elicited greater anger compared to videos about climate change. There was no interaction for humor and topic [$F(1, 280) = 0.12$, $p = 0.73$, $\eta_p^2 = 0.00$, observed power = 0.11] for ratings of anger experienced during the video.

Informative Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 162) = 100.99$, $p < 0.001$, $\eta_p^2 = 0.38$, observed power = 1.00] where non-humorous videos were more informative than humorous videos. There were no significant differences between topics [$F(1, 162) = 0.22$, $p = 0.64$, $\eta_p^2 = 0.00$, observed power = 0.08], and a significant interaction for humor and topic [$F(1, 162) = 5.41$, $p = 0.02$, $\eta_p^2 = 0.03$, observed power = 0.64] for ratings of informativeness of the video.

Agreeable Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 162) = 40.72$, $p < 0.001$, $\eta_p^2 = 0.20$, observed power = 1.00] where non-humorous videos were more agreeable than humorous videos. There were no significant differences between topics [$F(1, 162) = 0.55$, $p = 0.46$, $\eta_p^2 = 0.00$, observed power = 0.11], and no interaction for humor and topic [$F(1, 162) = 0.08$, $p = 0.78$, $\eta_p^2 = 0.00$, observed power = 0.06] for ratings of agreeability with the video's points.

Humor, Topic, Activism

We examined a 2 (Topic: racial justice or climate change) × 2 (Humor: present or absent) × 2 (Petition: racial justice and climate change) mixed-model ANOVA with repeated measures on the petition factor to explore an interaction between humor, topic, and engagement with petitions. We predicted that humorous content about racial inequality or climate change will yield higher engagement with relevant petitions in White participants. Contrary to this prediction, there was no significant three-way interaction between these variables. Alternatively, we explored the hypothesized relationships with separate 2 (Topic) × 2 (Humor) ANOVAs for each petition type exploring clicks and reported signing.

Humor and Racial Justice Petitions Clicking Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor ($p = 0.66$) and no differences between topics racial justice and climate change ($p = 0.56$) in the clicking behavior for racial justice petitions. However, descriptive patterns suggest an interaction between topic and humor for clicking behavior on racial justice petitions, [$F(1, 162) = 3.10$, $p = 0.09$, $\eta_p^2 = 0.02$, observed power = 0.42]. Simple effects tests revealed that the presence

of humor in content describing racial inequality was associated with higher clicking behavior (M = 0.73, SD = 1.07), $t(80) = 1.56$, $p = 0.06$ compared to the absence of humor (M = 0.4, SD = 0.836) but this difference was not true for humor present vs absent in the climate change topic. Consistent with our prediction, the presence of humor in videos about race significantly increased clicking behavior for racial justice petitions but not climate change petitions. However, the presence or absence of humor about climate change did not affect clicking on racial justice petitions.

Humor and Climate Change Petitions Clicking Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor ($p = 0.84$) and no differences between topics racial justice and climate change ($p = 0.44$) in the clicking behavior for climate change petitions. There was also no interaction between topic and humor for clicking behavior for climate change petitions ($p = 0.27$). Contrary to our prediction, the presence of humor, compared to the absence of humor, did not impact clicking behavior for climate change petitions.

Humor and Racial Justice Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between the presence or absence of humor ($p = 0.43$) and no differences between topics racial justice and climate change ($p = 0.66$) in the self-reported signing behavior for racial justice petitions. Descriptive patterns suggest an interaction between topic and humor for self-reported signing behavior on racial justice petitions, [$F(1, 162) = 3.42$, $p = 0.07$, $\eta_p^2 = 0.02$], observed power = 0.45. Simple effects tests revealed that the presence of humor in content describing racial inequality was associated with higher self-reported signing behavior (M = 0.62, SD = 0.98), $t(80) = 2.12$, $p = 0.02$

compared to the absence of humor (M = 0.27, SD = 0.5). Consistent with our prediction, the presence of humor significantly increased self-reported signing behavior for racial justice petitions.

Humor and Climate Change Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor (p = 0.87). There were no significant differences between topics racial justice and climate change self-reported signing behavior for climate change petitions (p = 0.07). There is also no interaction between topic and humor for self-reported signing behavior for climate change petitions (p = 0.29). Contrary to our prediction, the presence of humor, compared to the absence of humor, did not impact self-reported signing behavior for climate change petitions.

Increased Activism Behavior for Racial Justice Petitions

We also predicted that the effect of humorous stimuli on activism behaviors could be larger in the race conditions compared to climate change conditions. Considering the significant simple effects above for humorous condition for self-reported signing behavior and clicking behavior, in the racial justice conditions, the results support our prediction. There was no evidence that humorous conditions promoted activism behaviors in the climate change conditions.

BIPOC (Black, Indigenous, People of Color) Participants

Participants

There were 118 participants who identified as BIPOC. The mean age of this sample was 29 years old, and the median age was 29 years old. The sample consisted of mostly cisgender

males (65%), followed by cisgender females (32%), non-binary (1.7%), and individuals whose gender identities were not listed (1%). Participants were mostly politically affiliated with Democrats (63%), followed by Republican (18%), Independent (13%), and none/other (7%).

Video Perceptions

We were interested in how BIPOC participants perceived each video relative to the topic and presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the racial justice humorous condition were computed to a single score) and compared across conditions. See Figure 8.

Funny Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 114) = 243$, $p < 0.001$, $\eta_p^2 = 0.68$, observed power = 1.00] where humorous videos were rated more funny than non-humorous videos. There were no differences between topics [$F(1, 114) = 1.60$, $p = 0.21$, $\eta_p^2 = 0.01$, observed power = 0.24], and no interaction for humor and topic [$F(1, 114) = 0.31$, $p = 0.58$, $\eta_p^2 = 0.00$, observed power = 0.09] for funny ratings of the video.

Fear Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated no differences between presence/absence of humor [$F(1, 114) = 0.54$, $p = 0.46$, $\eta_p^2 = 0.01$, observed power = 0.11], significant differences between topics [$F(1, 114) = 22.38$, $p = 0.001$, $\eta_p^2 = 0.10$, observed power = 0.94] where videos about climate change elicited greater fear ratings compared to videos about racial justice. There was no interaction for humor and topic [$F(1, 114) = 0.06$, $p = 0.91$, $\eta_p^2 = 0.00$, observed power = 0.06] for ratings of fear experienced during the video.

Anger Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated no differences between presence/absence of humor [$F(1, 114) = 0.01$, $p = 0.92$, $\eta_p^2 = 0.00$, observed power = 0.05], significant differences between topics [$F(1, 114) = 5.52$, $p = 0.02$, $\eta_p^2 = 0.64$, observed power = 0.90] where videos about racial justice elicited greater ratings of anger compared to videos about climate change. There was no interaction for humor and topic [$F(1, 114) = 0.13$, $p = 0.72$, $\eta_p^2 = 0.00$, observed power = 0.06] for ratings of anger experienced during the video.

Informative Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 114) = 23.29$, $p < 0.001$, $\eta_p^2 = 0.17$, observed power = 0.10] where non-humorous videos were rated to be more informative than humorous videos. There were also differences between topics [$F(1, 114) = 3.75$, $p = 0.06$, $\eta_p^2 = 0.03$, observed power = 0.48] where videos about climate change were rated to be more informative than videos about racial justice. There was no significant interaction for humor and topic [$F(1, 114) = 0.00$, $p = 0.97$, $\eta_p^2 = 0.00$, observed power = 0.05] for ratings of informativeness of the video.

Agreeable Ratings. A 2 (Humor: present or absent) x 2 (Topic: racial justice or climate change) ANOVA indicated significant differences between presence/absence of humor [$F(1, 114) = 9.50$, $p = 0.003$, $\eta_p^2 = 0.08$, observed power = 0.86] where non-humorous videos were rated to be more agreeable than humorous videos. There were no significant differences between topics [$F(1, 114) = 2.05$, $p = 0.16$, $\eta_p^2 = 0.02$, observed power = 0.30], and no interaction for humor and topic [$F(1, 114) = 0.89$, $p = 0.35$, $\eta_p^2 = 0.01$, observed power = 0.16] for ratings of agreeability with the video's points.

Humor, Topic, Activism

We examined a 2 (Topic: racial justice or climate change) × 2 (Humor: present or absent) × 2 (Petition: racial justice and climate change) mixed-model ANOVA with repeated measures on the petition factor to explore an interaction between humor, topic, and engagement with petitions for BIPOC participants. We predicted that humorous content about racial inequality or climate change will yield higher engagement with relevant petitions. Contrary to this prediction, there was no significant three-way interaction between these variables. Alternatively, we explored the hypothesized relationships with separate 2 (Topic) × 2 (Humor) ANOVAs for each petition type exploring clicks and reported signing.

Humor and Racial Justice Petitions Clicking Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor ($p = 0.46$) and a significant difference between topics racial justice and climate change ($p = 0.05$) in the clicking behavior for racial justice petitions. However, there was no interaction between topic and humor for clicking behavior on racial justice petitions, [$F(1, 114) = 0.47$, $p = 0.49$, $\eta_p^2 = 0.00$, observed power = 0.10].

Humor and Climate Change Petitions Clicking Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor ($p = 0.63$) and no differences between topics racial justice and climate change ($p = 0.49$) in the clicking behavior for climate change petitions. There was also no interaction between topic and humor for clicking behavior for climate change petitions ($p = 0.93$). Contrary to our prediction, the presence of humor, compared to the absence of humor, did not impact clicking behavior for climate change petitions.

Humor and Racial Justice Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between the presence or absence of humor (p = 1.000) and no differences between topics racial justice and climate change (p = 0.26) in the self-reported signing behavior for racial justice petitions. There was also no interaction between topic and humor for clicking behavior on racial justice petitions *(*p = 0.45).

Humor and Climate Change Petitions Self-Reported Signing Behavior

A 2 (topic) x 2 (humor) ANOVA yielded no differences between presence or absence of humor (p = 0.24). There were no significant differences between topics racial justice and climate change self-reported signing behavior for climate change petitions *(*p = 0.48). There is also no interaction between topic and humor for self-reported signing behavior for climate change petitions (p = 0.94). Contrary to our prediction, the presence of humor, compared to the absence of humor, did not impact self-reported signing behavior for climate change petitions.

Increased Activism Behavior for Racial Justice Petitions

We also predicted that the effect of humorous stimuli on activism behaviors could be larger in the race conditions compared to climate change conditions. Considering the significant simple effects above for humorous condition for self-reported signing behavior and clicking behavior, in the racial justice conditions, the results support our prediction. There was no evidence that humorous conditions promoted activism behaviors in the climate change conditions.

Appendix D: Experiment 2 Results Split by Participant Race

White Participants

Participants

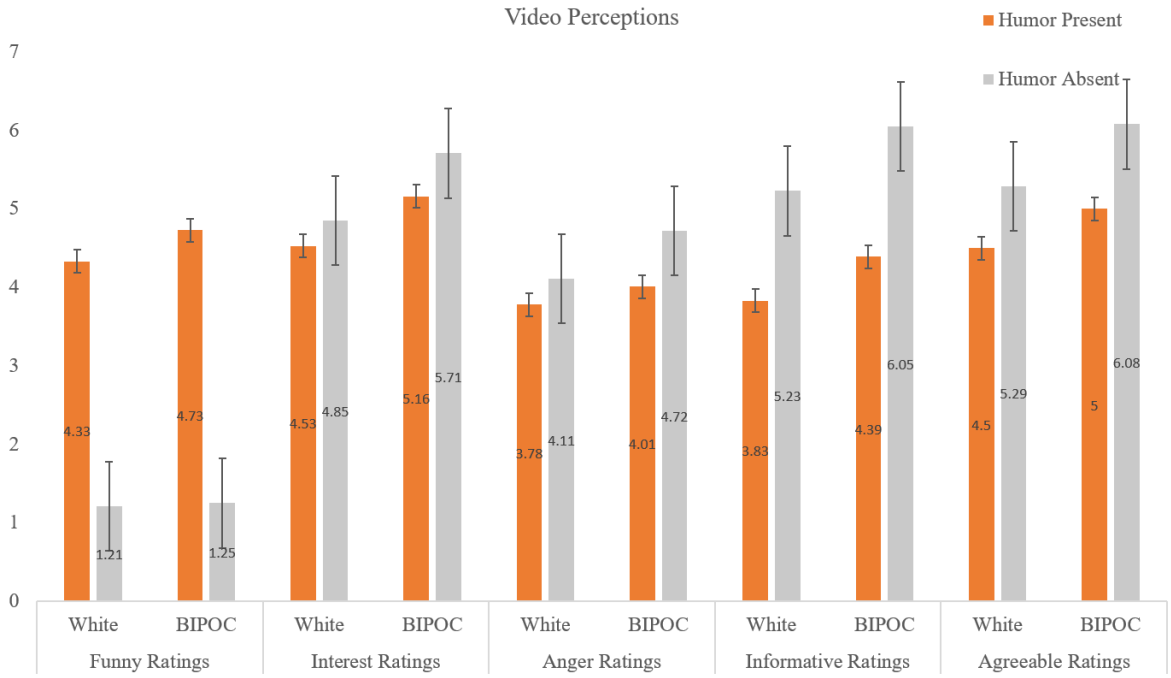
There were 161 participants who identified as non-Hispanic White. The mean age of this sample was 30 years old, and the median age was 31 years old. The sample consisted of mostly cisgender males (52%), followed by cisgender females (43%), transgender (1.2%), non-binary (2%), and individuals whose gender identities were not listed (2%). Participants were mostly politically affiliated with Democrats (52%), followed by Independent (25%), Republican (16%), and none/other (8%).

Video Perceptions

We were interested in how White participants perceived each video relative to presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the humorous condition were computed to a single score) and compared across conditions. See Figure 9.

Figure 9

Experiment 2 Video Perceptions White and BIPOC Participants



Funny Ratings. An independent samples t-test indicated that humorous videos were significantly more funny than non-humorous videos $t(111) = -16.87$, $p < 0.001$.

Interest Ratings. An independent samples t-test indicated no differences between presence/absence of humor $t(159) = 1.22$, $p = 0.22$ for ratings of interest of the video.

Anger Ratings. An independent samples t-test indicated no significant differences between presence/absence of humor $t(159) = 1.16$, $p = 0.25$ for ratings of anger experienced during the video.

Informative Ratings. An independent samples t-test indicated that non-humorous videos were significantly more informative than humorous videos $t(159) = 5.07$, $p < 0.001$.

Agreeable Ratings. An independent samples t-test indicated that non-humorous videos were significantly more agreeable than humorous videos $t(159) = 2.83$, $p < 0.005$.

Humor and Activism Replication

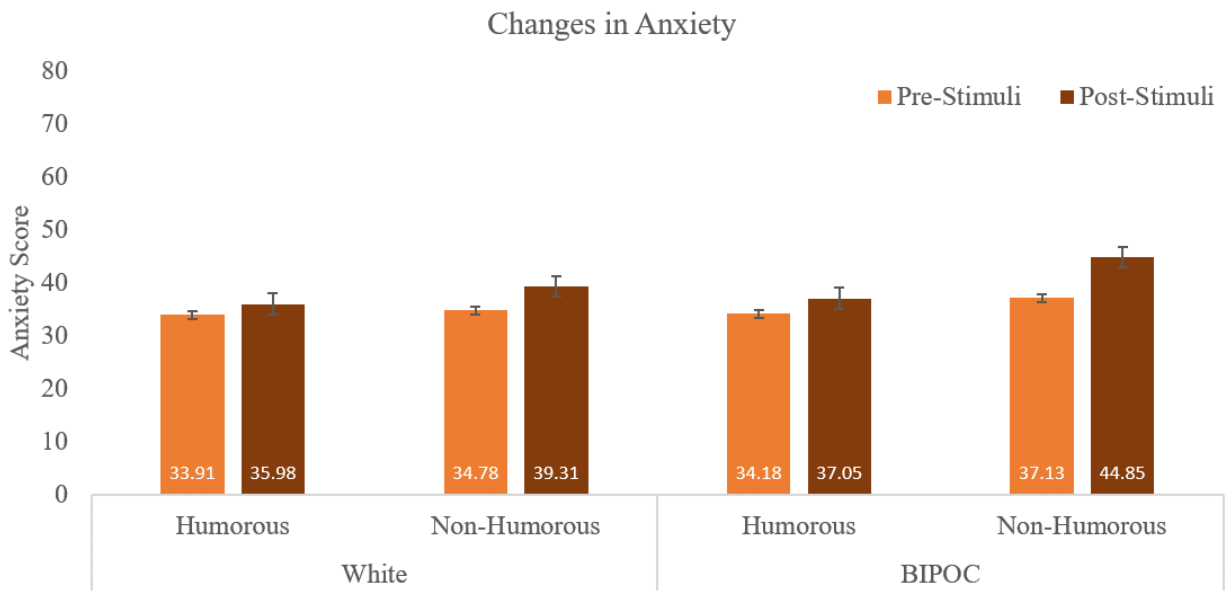
Simple effects tests from analyzing White participants in Experiment 1 revealed that the presence of humor in content describing racial inequality was associated with higher clicking behavior and self-reported signing behavior. Contrary to our hypothesis, we did not replicate these findings in Experiment 2. T-tests indicate that there were no differences between humorous content ($M = 0.25$, $SD = 0.75$) and non-humorous content ($M = 0.15$, $SD = 0.45$) conditions in self-reported signing behavior $t(132) = -0.99$, $p = 0.16$. There were also no differences between humorous content (M=0.40 SD= 0.86) and non-humorous content (M =0.31, $SD = 0.69$) condition in clicking behavior $t(159) = -0.67$, $p = 0.25$.

Changes in Anxiety

We predicted that videos with humor will decrease state anxiety more than videos without humor. Contrary to our prediction, we did not find evidence of decreased state anxiety in White participants in either condition. However, a (between subjects: humorous vs non humorous) x (repeated measures: pre-content anxiety measure and post-content anxiety measure) Mixed ANOVA with a Greenhouse-Geisser correction showed that state anxiety differed between time points (pre-content vs post-content) by condition (humorous vs non-humorous) [$F(1, 159) = 3.66$, $p = 0.06$]. Results indicate that participants who viewed humorous videos experienced a lower rise in state anxiety compared to those who viewed non-humorous videos who experienced a greater rise in state anxiety (see Figure 10).

Figure 10

Experiment 2 Changes in Anxiety White and BIPOC Participants



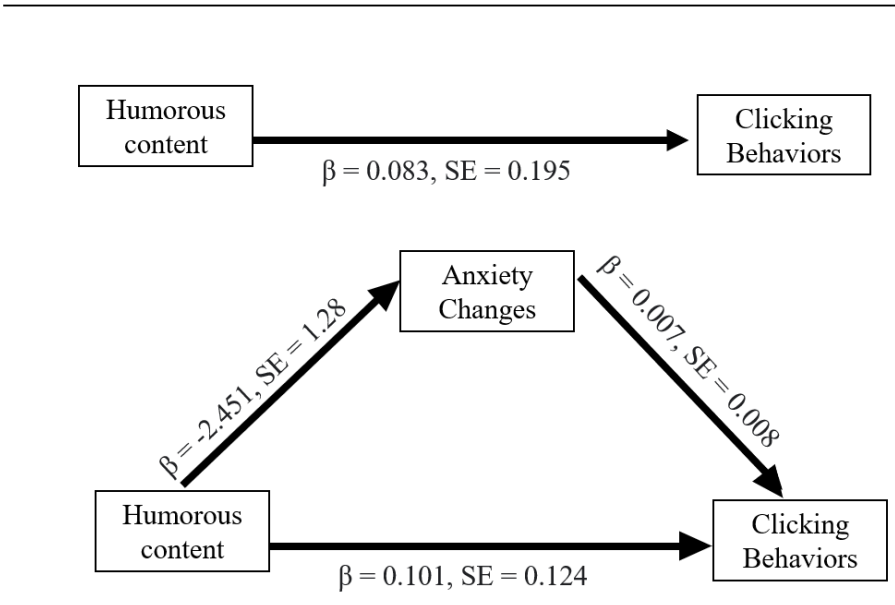
Mediational role of anxiety in humor and activism behaviors.

We also intended to explore whether changes in state anxiety explain the effects of humor on activism behaviors (self-reported signing behavior and clicking behavior of petitions) with mediational analyses. According to Hayes (2009), it is permissible to conduct simple mediational analyses despite no direct and significant path from the independent variable, humor, to the dependent variable, activism behaviors. We followed Uedufy (2022) and Stats-Moderation (2013) steps to running mediation analyses in SPSS.

Racial Justice Clicking Behaviors. In Step 1 of the mediation model, the regression of humor on clicking behaviors, ignoring the mediator, was non-significant, [b = 0.08, F(1,160) = 0.45, p = 0.50]. Step 2 showed that the regression of humor on the mediator, anxiety change, was nearly significant, [b = -2.45, F(1,160) = 3.66, p = 0.06]. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of clicking behaviors, [b = 0.10, F(1,160) = 0.70, p = 0.5]. See Figure 11.

Figure 11

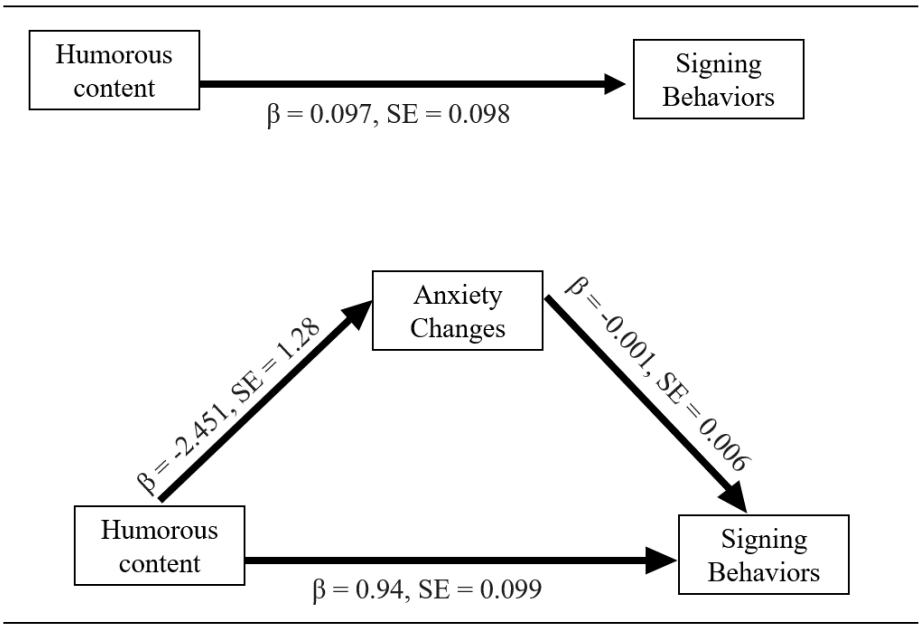
Clicking Behaviors Mediational Model White Participants



Racial Justice Signing Behaviors. In Step 1 of the mediation model, the regression of humor on signing behaviors, ignoring the mediator, was non-significant, [b = 0.10, F(1,160) = 0.98, p = 0.32]. Step 2 showed that the regression of humor on the mediator, anxiety change, was nearly significant, [b = -2.45, F(1,160) = 3.66, p = 0.06]. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of signing behaviors, [b = 0.09, F(1,160) = 0.51, p = 0.61]. See Figure 12.

Figure 12

Signing Behaviors Mediational Model White Participants



Likelihood of Sharing Relevant Petitions

Sixteen participants who viewed non-humorous content and 15 participants who viewed humorous content (total N = 31*)* indicated that they are likely to share the petitions they saw during the experiment on their social media accounts in an effort to bolster support from friends and family. We analyzed how exposure to humorous racial inequality content may impact

likelihood of racial justice petitions. An independent samples t-test indicated that there were no differences in likelihood to share by presence of humor (M =13.87, SD = 4.98) compared to absence of humor (M =13.38, SD = 5.11), $t(29) = -0.27$, $p = 0.4$.

Social Media Perceptions

We further investigated how humor may differently impact participants' concerns about posting content on social media with 3 questions about their reluctance, fear of negative perceptions, and anticipation of engaging in discussion with those who disagree. There were no significant differences by humor for reluctance, fear of negative perceptions or anticipation to engage in discussions with those who disagree.

Engagement with videos

We were also interested in understanding how engagement with videos may differently impact activism behaviors. An independent samples t-test indicated there were no differences in self-reported engagement in response to humorous (M = 5.45, SD = 1.55) or non-humorous content (M = 5.54, SD = 1.52), $t(159) = 0.33$, $p = 0.37$.

Racial Insensitivity Perceptions

Finally, we were interested in how presence of humor may differently impact racial insensitivity perceptions. An independent samples t-test indicated that participants who viewed humorous videos (M = 2.59, SD = 1.21) compared to non-humorous videos (M = 3.06, SD = 1.23) perceived those who laugh at racial jokes as less insensitive $t(159) = 2.37$, $p = 0.009$. Furthermore, participants who viewed humorous videos (M = 2.41, SD = 1.32) compared to non-humorous videos (M = 2.86, SD = 1.39) were less concerned about other people perceiving them as racially insensitive for laughing at racial jokes $t(159) = 2.13$, $p = 0.02$.

BIPOC Participants

Participants

There were 109 participants who identified as BIPOC. The mean age of this sample was 29 years old, and the median age was 29 years old. The sample consisted of mostly cisgender males (52%), followed by cisgender females (46%), transgender (1%), and individuals whose gender identities were not listed (1%). Participants were mostly politically affiliated with Democrats (61%), followed by Independent (27%), Republican (5%), and none (6%).

Video Perceptions

We were interested in how BIPOC participants perceived each video relative to presence/absence of humor. We averaged each rating score by condition (e.g., funny ratings for all three videos in the humorous condition were computed to a single score) and compared across conditions. See Figure 9.

Funny Ratings. An independent samples t-test indicated that humorous videos were significantly more funny than non-humorous videos $t(67) = -18.93$, $p < 0.001$.

Interest Ratings. An independent samples t-test indicated non-humorous videos were significantly more interesting than humorous videos $t(108) = 2.53$, $p = 0.007$.

Anger Ratings. An independent samples t-test indicated that non-humorous videos elicited significantly greater ratings of anger compared to humorous videos $t(108) = 2.24$, $p = 0.01$.

Informative Ratings. An independent samples t-test indicated non-humorous videos were significantly more informative than humorous videos $t(106) = 6.91$, $p < 0.001$.

Agreeable Ratings. An independent samples t-test indicated non-humorous videos were significantly more agreeable than humorous videos $t(108) = 4.81$, $p < 0.001$.

Humor and Activism Replication

Results on BIPOC participants in Experiment 1 revealed that the presence of humor in content describing racial inequality was not associated with higher clicking behavior and self-reported signing behavior. Similarly, we did not find differences between humorous content and non-humorous content in self-reported signing behavior or clicking behavior in Experiment 2.

Changes in Anxiety

We predicted that videos with humor will decrease state anxiety more than videos without humor. Contrary to hypothesis 2, we did not find evidence of decreased state anxiety in White participants in either condition. However, a (between subjects: humorous vs non humorous) x (repeated measures: pre-content anxiety measure and post-content anxiety measure) Mixed ANOVA with a Greenhouse-Geisser correction showed that state anxiety differed between time points (pre-content vs post-content) by condition (humorous vs non-humorous) [$F(1, 108) = 7.38$, $p = 0.008$]. Results indicate that participants who viewed humorous videos experienced a lower rise in state anxiety compared to those who viewed non-humorous videos who experienced a greater rise in state anxiety (see Figure 10).

Mediational role of anxiety in humor and activism behaviors.

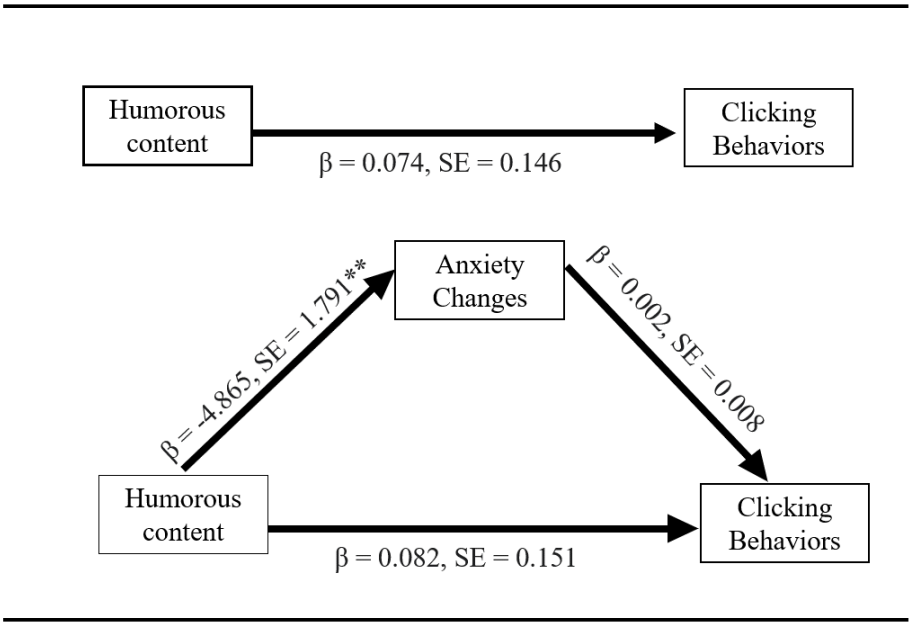
We also intended to explore whether changes in state anxiety explain the effects of humor on activism behaviors (self-reported signing behavior and clicking behavior of petitions) with mediational analyses. According to Hayes (2009), it is permissible to conduct simple mediational analyses despite no direct and significant path from the independent variable, humor, to the

dependent variable, activism behaviors. We followed Uedufy (2022) and Stats-Moderation (2013) steps to running mediation analyses in SPSS.

Racial Justice Clicking Behaviors. In Step 1 of the mediation model, the regression of humor on clicking behaviors, ignoring the mediator, was non-significant, [b = 0.11, F(1,109) = 0.60, p = 0.44]. Step 2 showed that the regression of humor on the mediator, anxiety change, was significant, [b = -4.87, F(1,109) = 7.38, p = 0.008]. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of clicking behaviors, [b = 0.08, F(1,109) = 0.15, p = 0.86]. See Figure 13.

Figure 13

Clicking Behaviors Mediational Model BIPOC Participants

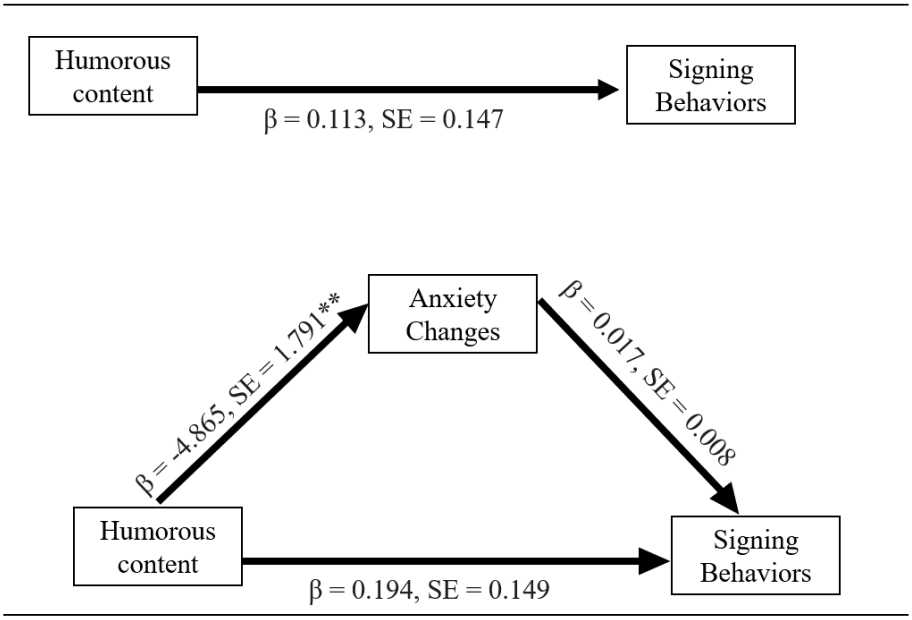


Racial Justice Signing Behaviors. In Step 1 of the mediation model, the regression of humor on signing behaviors, ignoring the mediator, was non-significant, [b = 0.11, F(1,109) = 0.60, p = 0.44]. Step 2 showed that the regression of humor on the mediator, anxiety change, was

significant, [b = -4.87, F(1,109) = 7.38, p = 0.008]. Step 3 revealed that controlling for the mediator (anxiety changes), humor was not a significant predictor of signing behaviors, [b = 0.19, F(1,109) = 2.62, p = 0.08]. See Figure 14.

Figure 14

Signing Behaviors Mediational Model BIPOC Participants



Likelihood of Sharing Relevant Petitions

Seventeen participants who viewed non-humorous content and 12 participants who viewed humorous content (total N = 29*)* indicated that they are likely to share the petitions they saw during the experiment on their social media accounts in an effort to bolster support from friends and family. We analyzed how exposure to humorous racial inequality content may impact likelihood of racial justice petitions. An independent samples t-test indicated that there were no differences in likelihood to share by presence of humor (M =16.42, SD = 3.32) compared to absence of humor (M =15.06, SD = 3.32), t(27) = -1.08, p = 0.15.

Social Media Perceptions

We further investigated how humor may differently impact participants' concerns about posting content on social media with 3 questions about their reluctance, fear of negative perceptions, and anticipation of engaging in discussion with those who disagree. Participants who viewed humorous content (M = 3.91, SD = 1.07) were significantly more reluctant than those who viewed non-humorous content (M = 3.26, SD = 1.43) to share petitions on social media accounts $t(98) = -2.70$, $p = 0.004$. There were no significant differences by humor for fear of negative perceptions or anticipation to engage in discussions with those who disagree.

Engagement with videos

We were also interested in understanding how engagement with videos may differently impact activism behaviors. An independent samples t-test indicated there were significant differences in self-reported engagement in response to humorous (M = 5.74, SD = 1.29) or non-humorous content (M = 6.14, SD = 0.98), $t(102) = 1.86$, $p = 0.03$.

Racial Insensitivity Perceptions

Finally, we were interested in how presence of humor may differently impact racial insensitivity perceptions. An independent samples t-test indicated that participants who viewed humorous videos (M = 2.43, SD = 1.07) compared to non-humorous videos (M = 3.33, SD = 1.26) perceived those who laugh at racial jokes as less insensitive $t(104) = 4.05$, $p < 0.00$. Furthermore, participants who viewed humorous videos (M = 2.04, SD = 1.22) compared to non-humorous videos (M = 2.98, SD = 1.45) were less concerned about other people perceiving them as racially insensitive for laughing at racial jokes $t(102) = 3.62$, $p < 0.01$.