DISGUST AS A PREDICTOR OF SHOOTER BIAS

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ABSTRACT

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Racial bias in shooting decisions has been a prominent issue in America for several decades. Several psychological and environmental factors correlate with bias in shooting decisions, but one factor that has not been explored is the trait of disgust. Disgust may explain some aspects of racial bias in shootings because it correlates with behaviors and cognitions related to the exclusion of outgroups. The purpose of the current study was to examine the relationship between trait disgust and racial bias in the decision to shoot. Participants completed the First-Person Shooter Task to measure their implicit racial bias in shooting decisions and then completed personality questionnaires to assess their disgust sensitivities and explicit racial biases. I predicted that participants higher in disgust sensitivity would show more racial bias in shooting decisions. I also explored the possibility that participant skin tone may impact racial bias in shooting decisions. Skin tone was not found to impact racial bias, but moral disgust was found to significantly predict racial bias in shooting decisions.

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CHAPTER 1

INTRODUCTION

Disgust as a Predictor of Shooter Bias

In America, there is a long history of police officers using deadly force against unarmed Black men, and the national attention devoted to this social issue has swelled in recent years. The Black Lives Matter movement began in 2013 after the shooting death of Trayvon Martin (Murray, 2018). Since then, there have been nationwide protests demanding justice and criminal justice reform (Murray, 2018). These protests and the shootings received considerable attention on social media websites and in the news media (McLaughlin, 2015). The increasing pressure on police departments to respond to the problem has resulted in some changes in policing, such as an increase in the use of police body cameras (Demetrius, 2014). Despite all the media attention and attempts to implement strategies to reduce bias in policing, unarmed Black men are still disproportionately shot and killed by police. Since 2013, Blacks have made up 13% of the U.S. population, but have accounted for 26% of the people killed by police (Khazan, 2018). Black men also make up 50% of the prison population (National Association for the Advancement of Colored People, 2018). In addition, police officers are also more likely to use non-fatal force against Blacks (Bui & Cox, 2016).

The racial disparity in police shootings may stem from racial stereotypes. Research has shown that Black men are stereotyped as more threatening than White men,

more aggressive than White men, and more felonious than White men (Duncan, 1976; Wilson, Hugenberg, & Rule, 2017). Correll, Park, Judd, and Wittenbrink (2002) found that in a first-person shooting game designed to simulate the experience of police officers, knowledge of stereotypes about Blacks correlates with a racial bias in the mistaken shooting of unarmed targets. In that study, individual differences in personality such as conservative political views, racism, authoritarianism, and participant race were not correlated with the shooter bias.

Shooting Bias Research

A common argument against the Black Lives Matter movement is that police officers are not racists and any disparities in police shootings are not due to the race of the victims (Smith, 2018). This may be true in a certain sense. Although the days of overt racism may be waning, less explicit forms of racism, often called modern racism, are still prevalent (Wan & Kaplan, 2017). Modern racism often reveals itself in more subtle racial biases. Modern racism includes implicit biases, where someone may strongly reject overt prejudicial attitudes or beliefs, yet their thoughts and behaviors may still be shaped by unconscious attributions toward members of certain groups (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio, Jackson, Dunton, & Williams, 1995; Fridell, 2017). These unconscious attributions are influenced by stereotypes. The most relevant stereotype about Blacks to the current study is that black equals bad. This stereotype is that Black people, especially Black men, are criminal, aggressive, dangerous, and morally suspect (Alter, Stone, Granot, & Balcetis, 2016; Welch, 2007; Quillian & Pager, 2001).

Implicit bias occurs as people automatically sort others into categories at the basic level “us” or “them” by utilizing unconscious heuristics such as stereotypes (Fridell, 2017; Greenwald, McGhee, Schwartz, 1998; Wilson, Lindsey, & Schooler, 2000). This sorting happens automatically and outside of conscious awareness; anyone with knowledge of stereotypes will likely show biases on sorting tasks such as the Implicit Association Test (IAT) or on reaction time tasks such as the Weapon Identification Task (WIT) or the First Person Shooter Task (FPST; Dovidio et al., 1997; Fridell, 2017; Greenwald et al., 1998; Wilson et al., 2000).

The IAT is used to measure implicit attitudes by having participants sort positive and negative words into different categories (Greenwald et al., 1998). For example, participants may be asked to sort positive and negative words into separate groups containing either pictures of flowers or pictures of insects. Because people tend to more automatically associate flowers with positive rather than negative thoughts, they are quicker to sort positive words into the flower category than into the insect category. This difference in reaction times, how long it takes the participant to sort the words, is then examined to determine if there is a bias toward certain pairings. When used to measure implicit racial bias, IAT studies have shown that people tend to automatically associate Black faces with negative words rather than positive words (Fridell, 2017). This reflects an implicit association between being Black and being bad.

There is other evidence of implicit biases toward viewing Black people as aggressive. Eberhardt, Goff, Purdie, and Davies (2004) found that priming participants

with Black faces increased their ability to identify ambiguous pictures of crime-related objects. The WIT is a similar task where participants see Black and White faces and have to identify an object as either a gun or a tool. Participants are quicker to identify a gun correctly after seeing a Black face (Payne, 2001). They are also more likely to incorrectly label a tool as a gun after seeing a Black face (Payne, 2001). This result is also found when participants are primed with pictures of Black boys under the age of 5 (Todd, Thiem, & Neil, 2016). Duncan (1976) found a similar bias when he had participants watch a video of either a Black or White man pushing another man. The push was ambiguous and not overtly aggressive, yet participants perceived the Black men who pushed to be more aggressive and violent than the White men who pushed. This Black-aggressive association again extends to young Black boys, who are perceived to be larger, stronger, and more formidable than young White boys, despite actually being similar in size (Wilson et al., 2017). These studies point to a strong association between Black men and boys and perceptions of aggression, violence, and crime. It may be these very associations that are automatically triggered in the decision to shoot, giving rise to racial biases in shootings (Correll et al., 2002).

Correll et al (2002) created the FPST in order to study the decision to shoot. The FPST is different from other implicit bias tasks in that it shows the participant images of Black and White men actually holding either a gun or a non-weapon object. The participant then has to quickly decide if they should shoot or not shoot. If the target person is holding a gun, the participants are faster to shoot if the target person is Black. If

the target person is not holding a gun, the participants are slower to not shoot if the target person is Black, and are more likely to mistakenly shoot a Black target person. In the Correll (2002) study, no connection was found between explicit measures of racial prejudice and the shooting bias. The only measure that was correlated with shooting bias was knowledge of stereotypes about Blacks; the participants showed greater shooter bias if they had knowledge of the Black-aggressive and Black-crime stereotypes. It is important to note that the samples used for these studies, were mostly racially White or White and Black only.

Other psychological factors increase the shooting bias in the FPST. Cognitive and physiological factors such as fatigue, how much working memory capacity the participant has, experience with the game, and distractions are related to shooting bias in the FPST (Correll, Hudson, Guillermo, & Ma, 2014; Kleider, Parrott, & King, 2010; Ma et al., 2013).

Increasing the cues for Black stereotypes also increases shooter bias. Kahn and Davies (2017) hypothesized that stereotypically Black clothing, such as hoodies, which are also stereotypically associated with crime, would increase shooter bias. Kahn and Davies found that when Black and White target persons in the game were dressed in hoodies, shooter bias towards Black targets was increased. Kahn and Davies also found that when they labeled the backgrounds in the game as either Beverly Hills or the stereotypically Black neighborhood, South Central, shooter bias increased for Black targets that appeared on the background of South Central. However, it is important to

note that shooting bias has also been found when using Black targets that appear to be high in socioeconomic status (Moore-Berg, Karpinski, & Plant, 2017). Priming participants with crime stories featuring a Black suspect also increased shooter bias (Correll, Park, Judd, & Wittenbrink, 2007). This research further supports the theory that the stereotypical associations people have of Blacks increases racial bias in shootings.

There is evidence that emotions play a role in shooter biases. Happiness increases the misidentification non-threatening objects as threatening and vice versa (Baumann & DeSteno, 2010). Happiness also increases shooter bias when race of the target is included as a variable (Unkelbach, Forgas, & Denson, 2008). This finding is consistent with the theory that positive moods cause people to rely more on heuristics and stereotypes (Park & Banaji, 2000). Anger correlates with increased misidentification of non-threatening objects as threatening too, but there is no such link for other negative emotions such as sadness and disgust (Baumann & DeSteno, 2010; Wormwood, Neumann, Barrett, & Quigley, 2017). Disgust has been studied as a primed state in these tasks, but was not found to be a predictor of bias in the FPST (Baumann & DeSteno, 2010). The emotion of disgust functions as a signal of threat in the environment and has a strong relationship with prejudice (Ackerman, Hill, & Murray, 2018). While state disgust does not appear to be associated with shooter bias, overall sensitivity to disgust has not been studied in this context.

At its core, the FPST is a game in which participants sort Black and White men into two categories, threat or not a threat. People use their stereotypic knowledge of

Blacks as aggressive, violent, and criminal, to make these automatic decisions. Having a strong sensitivity to disgust may exacerbate the use of these stereotypes in the decision to shoot because disgust encourages a stronger reliance on stereotypes and creates more distance between the ingroup and the outgroup (Ackerman et al., 2009).

Disgust

The emotion of disgust is known to serve as a cue for disease threats (Ackerman et al., 2018; Oaten, Stevenson, & Case, 2009). Disgust sensitivity and concern about disease varies on a continuum. People respond with disgust to a wide variety of stimuli such as bodily fluids, spoiled food, moral transgressions, and even members of outgroups (Tybur, Lieberman, & Griskevicius, 2009). People who are higher in disgust sensitivity and disease concern show more aversion toward and avoidance of outgroup members (Ackerman et al., 2018).

People higher in disease concern and disgust sensitivity report greater differences in the classification of ingroup and outgroup members and are more likely to classify ambiguous targets as threatening (Ackerman et al., 2009; Makhanova, Miller, & Maner, 2015; Reid et al., 2012). People with high disease concern tend to distance themselves from outgroups more than people with lower disease concern (Vartanian, Trewartha, & Vanman, 2016). This distancing of outgroups could influence stereotyping and prejudicial concerns.

Disgust sensitivities correlate with prejudicial attitudes towards people who are obese, sexual minorities, and of a different race or ethnicity (Hodson & Costello, 2007;

Taylor, 2007; Terrizzi Jr, Shook, & Ventis, 2010; Vartanian et al., 2016). People who are high in perceived vulnerability to disease are more ethnocentric, reporting a stronger preference for their ingroup than people who are low in perceived vulnerability to disease (Navarrete & Fessler, 2006). When participants are primed with disgust, they rate outgroups more negatively and perceive them as more threatening (Hodson et al., 2013). Some researchers have found that disgust also predicts discriminatory practices, with people judging disgust-eliciting groups more harshly than others and using more discriminatory language towards outgroups (Masicampo, Barth, & Ambady, 2014; Taylor, 2007).

Disgust increases dehumanization of outgroup members. Dehumanization is the link between prejudicial attitudes and actual acts of discrimination (Goff, Eberhardt, Williams, & Jackson, 2008; Harris & Fiske, 2011). Buckles and Trapnell (2013) found that participants primed with disgust held stronger associations between an arbitrary outgroup and animals than the control group. When people are dehumanized, it is likely that they will face more discriminatory acts and policy (Goff et al., 2008). Disgust can be elicited by perceived moral contamination when an outgroup promotes values that do not align with the ingroup (Cottrell & Neuberg, 2005). In general, researchers have found that people with high disgust sensitivity are more likely to punish others for moral violations (Case, Oaten, & Stevenson, 2012; Eskine, Kacinik, & Prinz, 2011; Jones & Fitness, 2008; Schnall, Haidt, Clore, & Jordan, 2008). Chapman and Anderson (2013) suggest that the connection between disgust and morality could lead people to view

disgust-eliciting outgroups as morally suspect. There is evidence that Blacks are seen as morally suspect. In experimental situations, Blacks are convicted more often and given stricter punishments than Whites who committed similar offenses (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2007; Welch, 2007). Blacks have been dehumanized in American culture since slavery, and it still persists today (Goff et al., 2008; Hall, Hall, & Perry, 2016; Smiley & Fakunle, 2016). The aforementioned associations between crime and Black men dehumanizes them and makes them more morally suspect, increasing the acceptance of using lethal force against them (Hall et al., 2016).

Disgust sensitivity towards racial and ethnic outgroups, is correlated with the dehumanization of racial outgroups and prejudicial attitudes and behaviors (Hodson, Kteily, & Hoffarth, 2014). Intergroup disgust, more than core disgust, predicts prejudice towards racial or ethnic minorities (Hodson et al., 2014). Intergroup disgust is significantly correlated with prejudice, both explicit and implicit, against Blacks (Hodson et al., 2016; Liu, Lin, Xu, Zhang, & Luo, 2015).

Disgust has not been widely studied as a factor in implicit bias towards Blacks. Research in this area has mainly focused on aggression (Baumann & DeSteno, 2010; Wormwood et al., 2017). The emotions of anger and disgust have different behavioral outcomes. Disgust is strongly correlated with the behavioral inhibition system, which promotes avoidance, whereas anger functions to promote approaching in the form of aggression (Molho, Tybur, Güler, Balliet, & Hofmann, 2017; Olatunji, Haidt, McKay, & David, 2008; Pond Jr et al., 2012). The relationship between anger and disgust may be

more complicated than that. Participants respond to different types of moral violations with either disgust or aggression (Molho et al., 2017). Further, there is a sex difference in sensitivity to disgust, with women experiencing higher levels of trait disgust sensitivity (Tybur, Bryan, Liberman, Hooper, & Merriman, 2011), and displays of aggression, with women displaying more social aggression and men showing more physical aggression (Underwood, 2004). This suggests a relationship between disgust sensitivity and types of aggression displayed. Recent research has explored how anger, contempt, and disgust interact. The combination of emotions correlate with increased prejudice and aggression (Matsumoto, Hwang, & Frank, 2016, 2017). The behaviors of aggression and disgust may not be exact polar opposites, but instead may have interactions that need to be further explored. Because of the complicated disgust-aggression relationship, disgust should be considered as a potential predictor in shooter bias.

In summary, the emotion of disgust has been found to predict prejudicial attitudes and discrimination towards disgust-eliciting groups. While the majority of disgust research has focused on groups such as sexual minorities and people who are obese, there is a connection between disgust sensitivity, prejudicial attitudes, and discrimination towards Blacks (Hodson et al., 2013; Liu et al., 2015). Disgust causes people to rely more heavily on stereotypes and heuristics when sorting people into categories which often leads to prejudicial treatment of outgroups (Vartanian et al., 2016).

The Current Study

The current study explored the understudied relationship between trait disgust sensitivity and bias against Blacks in the FPST. I believe this is the first study to use trait disgust as a predictor of shooter bias. The results of this study could lead to a new line of investigation into variables that cause shooter bias to occur, and further contribute to the literature on disgust and cognition. My first hypothesis was that I would replicate the results from the original Correll et al. (2002) study showing that there is a shooter bias toward Blacks, and that participant skin tone would moderate shooter bias, with lighter skinned participants showing more shooter bias. My second hypothesis was that higher levels of intergroup disgust sensitivity would significantly predict shooting bias toward Blacks. I used scores on the Modern Racism Scale and Motivation to Control Prejudiced Reactions Scale as control variables. My third hypothesis was that high pathogen, sexual, and moral disgust would predict shooter bias. In addition, an exploratory hypothesis was made that the moral disgust would account for more of the variability in shooter bias scores than the pathogen disgust or sexual disgust. I used scores on the Behavioral Inhibition Scale and Motivation to Control Prejudiced Reactions Scale as control variables.

CHAPTER II

METHODOLOGY

Participants

Participants were recruited from Texas Woman's University's (TWU) psychology research participation pool via the online SONA system. Participants received course credit for participating in the study. The only restriction was that participants had to be at least 18 years old. We gathered valid data from 200 participants; this number was calculated following the statistical power guidelines for regressions from Miles and Shelvin (2001). We excluded the data from an additional 16 participants because of errors in data collection or because the participants failed to follow directions. The final analyses included 181 female and 19 male participants. The average age of participants was 20.58 (*SD* = 4.47). The ethnicity of the sample was 26.5% Hispanic, 24.5% White, 16.5% Asian, 16% African American, 11% more than one ethnicity, 3.5% African, 1.5% Arab, and .5% Native American. Participants indicated their skin tone using a skin tone chart (Smith & Terrizzi, 2019). Fifty percent of participants chose a fair to light skin tone, 26% a medium skin tone, and 24% a deep to deep-dark skin tone. The sample mostly (55.5%) identified as Democrats, 15% identified as Republican, 4.5% Libertarian, 11% Independent, and 14% did not identify with any of the listed parties. On a scale of 0-100, the average favorability rating for liberals was 65.29 (*SD* = 20.16) and the average rating

for conservatives was 44.07 (*SD* = 24.05). Lastly, participants were asked how many hours of news they read or watch weekly (*M* = 4.05; *SD* = 8.13), how many hours they play videogames weekly (*M* = 2.07; *SD* = 3.67), and if they had recently been sick (37% had). This sample is extremely unique to the research topic; it is mostly female and very racially diverse.

Materials

Modern racism scale. Participants' explicit racial attitudes toward Blacks were assessed using the Modern Racism Scale (MRS; McConahay, Hardee, & Batts, 1981). The MRS is a valid six-item self-report inventory with an internal reliability of .81. All six items on the scale are scored on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate more racist attitudes towards Blacks (see Appendix A).

Behavioral inhibition system scale. The Behavioral Inhibition System Scale measures sensitivity to the behavioral inhibition system (BIS; Carver & White, 1994). The BIS is a valid seven-item self-report inventory with an internal reliability of .74. All seven items on the scale are scored on a four-point scale ranging from 1 *(very true for me*) to 4 (*very false for me*). Items are reverse scored so that higher scores indicate more sensitivity to the behavioral inhibition system (see Appendix B).

Three domain disgust scale. Pathogen, sexual, and moral disgust sensitivities were measured using the Three Domain Disgust Scale (TDDS; Tybur et al., 2009). The scale contains 21 items measured on a seven-point scale ranging from 0 (*not at all disgusting*) to 6 (*extremely disgusting*). The scale is a valid measure of disgust, and the three subscales are reliable measures. The pathogen subscale has an internal reliability of .83, the sexual subscale has an internal reliability of .86, and the moral subscale has an internal reliability of .89. Higher scores indicate more disgust sensitivity (see Appendix C).

Intergroup disgust sensitivity scale. Participants completed the eight-item Intergroup Disgust Sensitivity Scale (ITG-DS; Hodson et al., 2013). ITG-DS is a valid measure of the tendency to experience disgust toward ethnic outgroups. The internal reliability is .75. All eight items on the scale are scored on a seven-point scale ranging from 1 *(strongly disagree*) to 7 (*strongly agree*). Higher scores indicate greater intergroup disgust sensitivity (see Appendix D).

Motivation to control prejudiced reactions scale. The Motivation to Control Prejudiced Reactions Scale (MCPRS; Dunton & Fazio, 1997) is a 17-item scale that measures factors that contribute to controlling immediate negative reactions towards African Americans. The internal reliability is .81. The items are scored on a seven-point scale ranging from 1 *(strongly disagree*) to 7 (*strongly agree*). Higher scores indicate a stronger need to control prejudice (see Appendix E).

Perceived dangerousness measure. Participants were asked about their personal beliefs on how dangerous, aggressive, and violent Blacks and Whites are. The questions were adapted from a similar measure in the Correll et al., (2002) study. Participants were simply asked, on a scale of 0-100 how dangerous, how aggressive, and how violent Blacks are. The same questions were repeated asking about Whites. The responses were averaged together to create two average dangerousness ratings (see Appendix F).

First person shooter task. Implicit racial attitudes towards Blacks were measured using the First Person Shooter Task (FPST; Correll et al., 2002; see Appendix G). The FPST is a measure of bias towards Blacks based on Black aggression and crime stereotypes (Fridell, 2017). The FPST is a videogame that was designed to measure racial bias in the decision to shoot by simulating the experience of police officers. Participants play the role of an officer and they have to decide to shoot or not shoot a target person (White or Black male). The participants see a series of backgrounds such as a train station or a park. The last background presented is then shown again with the target image imposed over it. To the participants, it seems as though the target has appeared suddenly out of nowhere. Each target person is carrying either a gun or a non-weapon object such as a cell phone. Participants play the game by deciding quickly if they should shoot or not shoot by pushing a corresponding button on a computer keyboard. Participants receive feedback after each response and are rewarded with points for correct responses (shooting an armed target or not shooting an unarmed target) or penalized for errors (shooting an unarmed target or not shooting an armed target) or responses that are too slow.

Disparities in the shooting of White versus Black targets are considered an indication of implicit racial bias (Correll et al., 2002).

Procedure

Participants completed the study in groups of four in a private computer lab. Each participant had a privacy screen between them and the other participants. Upon arriving at the lab, the participants completed the informed consent form and then answered demographic questions. They were then given instructions on the FPST. The participants were instructed to pretend that they were a security officer and if they saw a person with a gun to press the "1" button to shoot, and if they saw a person without a gun they were to press the "9" button to not shoot. They were instructed to make the decisions as quickly as they could. Following this task, the participants completed the other questionnaires previously listed. The order of the questionnaires was randomized to avoid order effects. Upon completing the questionnaires, participants were debriefed and the researcher answered questions.

CHAPTER III

RESULTS

Descriptive statistics for the control and predictor variables can be seen in Table 1. Additionally, Table 2 displays the correlations between all of the variables used. The means for the perceived dangerousness variables revealed an unexpected finding. Participants rated Whites as more aggressive, violent, and dangerous than Blacks. A paired samples t-test was run, and there was a significant difference between the means ($t(165) = 6.82$, $p < .001$, $d = .53$). This is a novel finding; all of the previous research on stereotypes has found that participants find Blacks to be more aggressive, violent, and dangerous than Whites.

Table 1

Means and Standard Deviations for Control and Predictor Variables

	Mean	Std. Deviation	Cronbach's Alpha
BIS	22.26	3.38	.70
MRS	12.56	2.39	.00
MCPRS	73.53	11.88	.61
ITGDS	15.45	6.81	.40
Pathogen Disgust	35.63	7.43	.76
Sexual Disgust	33.11	9.07	.82
Moral Disgust	35.49	7.35	.80
Dangerousness of Whites	102.64	82.97	.60
Dangerousness of Blacks	63.20	52.84	.89

Table 2. *Correlation Coefficients for Personality Variables and Reaction Time Averages*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BIS	1	-.01	.21**	.06	-.09	.10	.08	.19**	.09	.04	.06	.03	.04
2. MRS		1	.01	.22**	.06	0	.07	.05	-.08	.12	.05	.10	.12
3. MCPRS			1	-.04	-.13	-.16*	.01	.09	.27**	.05	.03	-.03	.02
4. ITGDS				1	.07	.30**	.28**	.12	0	.02	-.07	.02	-.04
5. Dangerousness of Whites					1	.43**	.10	.01	.02	-.04	-.02	.04	-.07
6. Dangerousness of Blacks						1	.13	.04	-.03	0	.06	.07	-.04
7. Pathogen Disgust							1	.42**	.42**	.16*	.11	.17*	.08
8. Sexual Disgust								1	.37**	.05	-.02	.02	0
9. Moral Disgust									1	.07	.12	.09	.02
10. Unarmed White Targets										1	.80**	.80**	.84**
11. Armed White Targets											1	.73**	.89**
12. Unarmed Black Targets												1	.78**
13. Armed Black Targets													1

* $p < .05$

** $p < .01$

In order to determine if this study replicated the results from Correll et al. (2002), I followed their data analysis procedures for the reaction time data. On average, participants got 99.9% of the FPST trials correct, therefore, I only analyzed data from correct responses. I then created within subject reaction time averages and then log transforming those. In order to normalize the positively skewed distribution, I capped the data so that any reaction times longer than 1000ms were set to a maximum of 1000ms. I then used the log transformed averages to run a 2x2 ANOVA (see Appendix J for full result output). The factors were target ethnicity (Black or White) and object type (weapon or no weapon). While there was a significant main effect for target ethnicity ($F(1,199) = 6.31$, $p = .01$) and object type ($F(1,199) = 138.76$, $p < .01$), the findings from the current study did not replicate the interaction ($F(1,199) = 2.69$, $p = .10$), found in Correll et al. (2002). The means in Table 3 show that my sample made quicker decisions when the target held a gun rather than a non-weapon object, but in a departure from the original Correll study, my sample made faster decisions when the target was White rather than when the target was Black.

Table 2

Means and Standard Deviations for Reaction Times in Milliseconds

	White Targets	Black Targets
Unarmed Targets	772.54 (139.80)	790.02 (137.85)
Armed Targets	719.21 (157.92)	724.06 (162.63)

Standard deviations in parentheses

I also tested whether the current study replicated the Correll et al. (2002) results of a 3-way ANOVA (See Appendix K for full result output) with participant ethnicity as a between subjects variable. Only White (n = 49) and Black (n = 32) participants were included in this analysis. As in Correll et al. (2002), object type was still significant across all participants ($F(1,79) = 57.45$, $p < .01$). Target ethnicity was not significant ($F(1,79) = 2.39$, $p = .13$), and neither was the interaction between the three variables, ($F(1,79) = 0.19$, $p = .67$), meaning that any group differences did not depend on participant ethnicity. To test the hypothesis that participant skin tone would be a significant between subjects variable, I sorted all participants into either light (n = 100) or dark (n = 100) skin tone groups. This variable was then used in the same 3-way ANOVA (See Appendix L for full result output). There was a significant main effect for object type ($F(1,198) = 139.54$, $p < .01$) and a significant main effect for target ethnicity ($F(1,198) = 6.31$, $p = .01$). There was not a skin tone interaction effect ($F(1,198) = 0.0$, $p = .99$). All participants responded faster to armed targets and White targets, regardless of their skin tone.

In order to test the remaining hypotheses, difference scores were created to assess shooter bias for each participant. The resulting means are displayed in Table 4. Higher scores indicate faster responses toward unarmed White targets than unarmed Black targets, and faster responses to armed Black targets than armed White targets (Correll et al., 2002).

Table 3

Means and Standard Deviations for Difference Score Variables in Milliseconds

	Mean	Std. Deviation
Armed Targets	-4.85	85.59
Unarmed Targets	17.48	87.73

To further explore the novel finding of Whites being perceived as more dangerous than Blacks, I created a difference score, subtracting the dangerousness rating for Blacks from the dangerousness rating for Whites. I then used this difference score as predictor variable for the shooter bias difference scores. Not all participants completed the dangerousness measure, therefore the analyses include data from 165 participants. The first regression used armed target difference scores as the dependent variable. The model was not significant ($R^2 = .001$, $F(1,165) = .20$, $p = .65$). The dangerousness difference score was also not a significant predictor, $t(164) = -.45$, $p = .65$, $\beta = -.04$. The second regression used unarmed target difference scores as the dependent variable. The model was not significant ($R^2 = .001$, $F(1,165) = .14$, $p = .71$). The dangerousness difference score was also not a significant predictor, $t(164) = .37$, $p = .71$, $\beta = .03$. These results indicate that while participants rated Whites as more dangerous than Blacks, this does not predict the magnitude of bias in the FPST.

To test the hypothesis that intergroup disgust sensitivity would predict shooter bias, I conducted a hierarchal regression using the unarmed target difference score as the dependent variable. Scores on the MRS and MCPRS were entered as control variables in

block 1. Intergroup disgust sensitivity scores were entered as the independent variable in block 2. The analysis revealed that neither the covariate model (R^2 = .02, F(2,199) = 1.78, p = .17) nor the predictor model (R^2 = .02, F(3,199) = 1.19, p = .31) predicted bias in the unarmed target difference scores. The same regression was run using the armed target difference scores as the dependent variable. Again, neither the covariate model (R^2 = .01, F(2,199) = 1.40, p = .25) nor the predictor model (R^2 = .02, F(3,199) = 0.99, p = .40) predicted bias in the armed target difference scores.

A regression was used to test the hypothesis that the TDDS would predict shooter bias. Scores on the BIS were entered as a control variable in Block 1. Scores on the three subscales of the TDD scale were entered in Block 2. In the first regression, the unarmed target difference score was entered as the dependent variable. Neither the covariate model, R^2 = 0, F(1,199) = 0.002, p = .96, nor the predictor model, R^2 = 0, F(4,199) = 0.38, p =.83 significantly predicted bias in the difference score. In the second regression, armed target difference scores were entered as the dependent variable. The predictor model significantly predicted bias in the armed target difference scores, R^2 = .04, F(4,199) = 2.37, p =.05, accounting for 4.6% of the variability. The regression also supported the hypothesis that moral disgust (β = .23) would be a stronger predictor, t(196) = 2.92, p < .01. These results provide partial support for my hypothesis that trait disgust would predict shooter bias, but it only predicted bias towards armed targets not unarmed targets. Additionally, moral disgust only predicted bias towards armed targets, not unarmed targets. In order to examine the directionality of these results, separate

regressions were run for both Black armed target reaction times and White armed target reaction times. Reaction times for Black armed targets were not significantly predicted by the TDDS, R^2 = .01, F(4,199) = 0.55, p =.68, or the moral subscale, β = -.004, t(196) = -0.04, p =.96. Reaction times for White armed targets were not significantly predicted by the TDDS, R^2 = .03, F(4,199) = 1.62, p =.09, or the moral subscale, β = .12, t(196) = 1.50, p =.14.

CHAPTER IV

DISCUSSION

The current study examined the unstudied relationship between shooter bias and disgust sensitivities. The results did not support all of the hypotheses, but did yield some interesting findings. First, my study did not replicate the original Correll et al. (2002) findings, meaning that there was not a racial bias towards African Americans in shooting decisions in the sample. In fact, the results indicate that participants more quickly shot White targets than Black targets. Additionally, when asked about their personal beliefs, participants rated Whites as more aggressive, violent, and dangerous than Blacks.

One explanation for these results could be the recent public interest in mass shootings and domestic terrorism events that are believed by some to be disproportionately perpetrated by White men (Ford, 2015). This correlation could have led to negative views of White men, as aggressive or violent.

Another explanation could be that participants do not hold an implicit bias that Whites are more criminal, aggressive, or dangerous than Blacks, but were very conscious of racial stereotypes and biases. Due to this awareness, participants slowed down when a Black target was on the screen in order to make the correct decision. Slowing down when faced with these split-second decisions is a popular strategy in police bias training (Luscombe, 2019). Future research is needed to further explore why participants displayed a bias towards White targets.

This departure from the original study could also be due to sample differences. One of the strengths of this study was the unique diversity of the sample. For instance, the current study had a sample that was largely female and racially diverse. In previous studies on similar topics, these demographics have been in the minority. The fact that a more diverse sample did not replicate the original results, even when only analyzing the White participants, is very important to further explore. The results suggest that minorities do not show a shooter bias towards Blacks in the FPST. It further suggests that White participants in a very diverse college campus do not show bias towards Blacks in the FPST. It could be that racial minorities and people attending a racially diverse college may have more awareness about racial issues and may be more conscious about avoiding racist or biased behaviors. Future research could examine these possibilities by including measures of stereotypes about both Whites and Blacks, as well as measures of awareness of racial issues.

The lack of bias towards African Americans could also potentially be due to a decrease in implicit racial biases. In a longitudinal study, Charlesworth and Banaji (2019) found that implicit biases related to race and skin tone have steadily decreased over time. One study found that implicit and explicit biases decreased during and after the Black Lives Matter (2009-2016) movement (Sawyer & Gampa, 2018). The results from the current study may support these findings, but more research would need to be done to assess participants' level of awareness of Black Lives Matter and racial issues in general.

It is possible that these factors could have contributed to the decline in implicit bias in the FPST.

We did not find support for the hypothesis that participant skin tone would moderate shooter bias. This finding supports the idea that implicit bias in shooting decisions is influenced by cultural stereotypes, not ethnic or skin tone differences (Correll et al., 2002). Future research could include a measure of strength of ethnic identity. It could be that White participants who identify more strongly with their ethnicity show more bias in the FPST. Goren (2012) can find support for this theory in a study where strong White identity predicted negative intergroup attitudes.

Partial support was found for the last hypothesis. The TDDS did not predict bias in unarmed target difference scores but it did significantly predict bias in the armed target difference scores. This means that participants who had higher disgust sensitivities had more bias in their reaction times toward armed targets. Specifically, the higher someone was in disgust sensitivity, the more likely they were to shoot armed Black targets faster than armed White targets. Additionally, I found that moral disgust was the only significant subscale. This indicates that participants with higher sensitivity to moral disgust were more likely to shoot armed Black targets faster than armed White targets. The decomposed analysis revealed that as sensitivity to moral disgust increased the reaction times towards Black armed targets got faster and the reaction times towards White armed targets got slower, though these correlations were not significant.

Studies have found that people find acts of violence to be morally disgusting (Ivan, 2015). An explanation for these results could be that participants sensitive to moral disgust, found the act of shooting targets in a computer game to be uncomfortable. Therefore, the more sensitive they were to moral disgust the slower they were to react to the White targets.

More research needs to be done to determine if there is a correlation between moral disgust and a difference in reaction times based on target ethnicity. Studies could be done to determine if moral disgust influences decisions in the use of non-lethal force such as handcuffing or stop and frisks.

With the aid of additional resources, future studies could use a more diverse population to see if there are gender differences in the relationship between disgust sensitivity and shooter bias. Future studies could also further examine the role disgust plays in shooter bias. Disgust could be used as a priming measure instead of as a personality trait. Future studies could also begin examining if disgust plays a role in other policing bias situations, such as the use of non-lethal force.

In conclusion, the present study is important because it begins an investigation into the relationship between disgust and shooter bias. If moral disgust is a factor in shooting decisions, it should be included in discussions on reducing bias. This study and others like it are useful in the design of bias reduction programs. These types of programs can be used to train police officers to make them aware of their biases and inform them

about how their biases impact their decisions. This is incredibly important for reducing shooting bias as well as bias in non-lethal use of force.

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Appendix A

Modern Racism Scale (McConahay et al., 1981)

All 6 items on the modern racism subscale are scored on a 6-point scale ranging from 1, *strongly disagree*, to 5, *strongly agree*.

1. It is easy to understand the anger of black people in America. (reverse scored)
2. Blacks have more influence upon school desegregation plans than they ought to have.
3. The streets are not safe these days without a policeman around.
4. Blacks are getting too demanding in their push for equal rights.
5. Over the past few years blacks have gotten more economically than they deserve.
6. Over the past few years the government and news media have shown more respect to blacks than they deserve.

Appendix B

BIS Scale (Carver & White, 1994)

For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being "consistent" in your responses. Choose from the following four response options:

1 = very true for me

2 = somewhat true for me

3 = somewhat false for me

4 = very false for me

1. Even if something bad is about to happen to me, I rarely experience fear or nervousness.
2. Criticism or scolding hurts me quite a bit (reverse scored).
3. I feel pretty worried or upset when I think or know somebody is angry at me (reverse scored).
4. If I think something unpleasant is going to happen I usually get pretty "worked up" (reverse scored).
5. I feel worried when I think I have done poorly at something important (reverse scored)
6. I have very few fears compared to my friends.
7. I worry about making mistakes (reverse scored).

Appendix C

Three Domain Disgust Scale (Tybur et al., 2009)

The following items describe a variety of concepts. Please rate how *disgusting* you find the concepts described in the items, where 0 means that you do not find the concept disgusting at all, and 6 means that you find the concept extremely disgusting.

1. Shoplifting a candy bar from a convenience store
2. Hearing two strangers having sex
3. Stepping on dog poop
4. Stealing from a neighbor
5. Performing oral sex
6. Sitting next to someone who has red sores on their arm
7. A student cheating to get good grades
8. Watching a pornographic video
9. Shaking hands with a stranger who has sweaty palms
10. Deceiving a friend
11. Finding out that someone you don't like has sexual fantasies about you
12. Seeing some mold on old leftovers in your refrigerator
13. Forging someone's signature on a legal document
14. Bringing someone you just met back to your room to have sex
15. Standing close to a person who has body odor
16. Cutting to the front of a line to purchase the last few tickets to a show
17. A stranger of the opposite sex intentionally rubbing your thigh in an elevator

18. Seeing a cockroach run across the floor

19. Intentionally lying during a business transaction

20. Having anal sex with someone of the opposite sex

21. Accidentally touching a person’s bloody cut.

Appendix D

Intergroup Disgust Sensitivity (Hodson et al., 2013)

Respond to the following items on a scale of 1 to 7, 1 being strongly disagree and 7 being strongly agree.

1. I feel disgusted when people from other ethnic groups invade my personal space.
2. After shaking hands with someone from another ethnic group, even if their hands were clean, I would want to wash my hands.
3. After interacting with another ethnic group, I typically desire more contact with my own ethnic group to "undo" any ill effects from intergroup contact.
4. It would be repulsive to swim in a chlorinated swimming pool if most of the people in the pool belonged to another ethnic group.
5. I would ask for hotel bed sheets to be changed if the previous occupant belonged to another social group.
6. When socializing with members of a stigmatized group, one can easily become tainted by their stigma.
7. It would not bother me to have an intimate sexual relationship with someone from another racial group. (reverse scored)
8. I would not feel disgusted if I ate food prepared by another ethnic group with their hands (reverse scored)

Appendix E

Motivation to Control Prejudiced Reactions Scale (Dunton & Fazio, 1997)

All 17 items are scored on a 7 point scale ranging from 1, *strongly disagree*, to 7, *strongly agree*.

1. In today's society it is important that one not be perceived as prejudiced in any manner.
2. I always express my thoughts and feelings, regardless of how controversial they might be. (R)
3. I get angry with myself when I have a thought or feeling that might be considered prejudiced.
4. If I were participating in a class discussion and a Black student expressed an opinion with which I disagreed, I would be hesitant to express my own viewpoint.
5. Going through life worrying about whether you might offend someone is just more trouble than it's worth. (R)
6. It's important to me that other people think I'm not prejudiced.
7. I feel it's important to behave according to society's standards.
8. I'm careful not to offend my friends, but I don't worry about offending people I don't know or don't like. (R)
9. I think it is important to speak one's mind rather than to worry about offending someone. (R)
10. It's never acceptable to express one's prejudices.

11. I feel guilty when I have a negative thought or feeling about a Black person.
12. When speaking to a Black person, it's important to me that he/she not think I'm prejudiced.
13. It bothers me a great deal when I think I've offended someone, so I'm always careful to consider other people's feelings.
14. If I have a prejudiced thought or feeling, I keep it to myself.
15. I would never tell jokes that might offend others.
16. I'm not afraid to tell others what I think, even when I know they disagree with me. (R)
17. If someone who made me uncomfortable sat next to me on a bus, I would not hesitate to move to another seat. (R)

Note: R = reverse scored

Appendix F

Perceived Dangerousness Measure (Correll et al., 2002)

All 4 items are on a scale of 0, *not at all*, to 100, *very much*.

1. According to your own personal beliefs, how dangerous do you think Blacks are?
2. According to your own personal beliefs, how aggressive do you think Blacks are?
3. According to your own personal beliefs, how violent do you think Blacks are?
4. According to your own personal beliefs, how dangerous do you think Whites are?
5. According to your own personal beliefs, how aggressive do you think Whites are?
6. According to your own personal beliefs, how violent do you think Whites are?

Appendix G

First Person Shooter Task Instructions (Correll et al., 2002)

Videogame Instructions

In this videogame your task is to shoot any person holding a gun (the bad guys) by pressing the “1” key. If a person is holding something other than a gun he is a good guy, and you should press the “9” key.

You will have less than a second to make each decision.

Appendix H

Demographics

Year(s) at TWU: ____

Ethnicity: (Check all that apply)

___African
___African-American
___Arab/Arab-American
___Asian/Asian-American
___Caribbean
___Hispanic/Hispanic-American
___Native-American
___Pacific Islander
___White/Caucasian
___Other _____.

Gender: (circle one) 1) Male 2) Female

Please indicate your age: _____

What political party best represents your beliefs?

___Democrat ___ Republican ___Libertarian ___Independent ___Other

What is your religious affiliation (check one):

___ Christian – Protestant
___ Christian – Catholic
___ Hindu
___ Buddhist
___ Not religious
___ Muslim
___ Jewish
___ Atheist
___ Agnostic
___ Other – Please list: _____

What is your college rank?

_____ Freshman

_____ Sophomore

_____ Junior

_____ Senior

How would you characterize your hometown? (check one)

_____ rural (unincorporated)

_____ small town (village or town)

_____ suburban (metropolitan area of a large city)

_____ small city (population < 30,000)

_____ medium-sized city (population 30,000 – 100,000)

_____ large city (population > 100,000)

How would you rate LIBERALS on a feeling thermometer on a scale from 0 to 100 where 0 means cold or unfavorable and 100 means warm or favorable?

How would you rate CONSERVATIVES on a feeling thermometer on a scale from 0 to 100 where 0 means cold or unfavorable and 100 means warm or favorable?

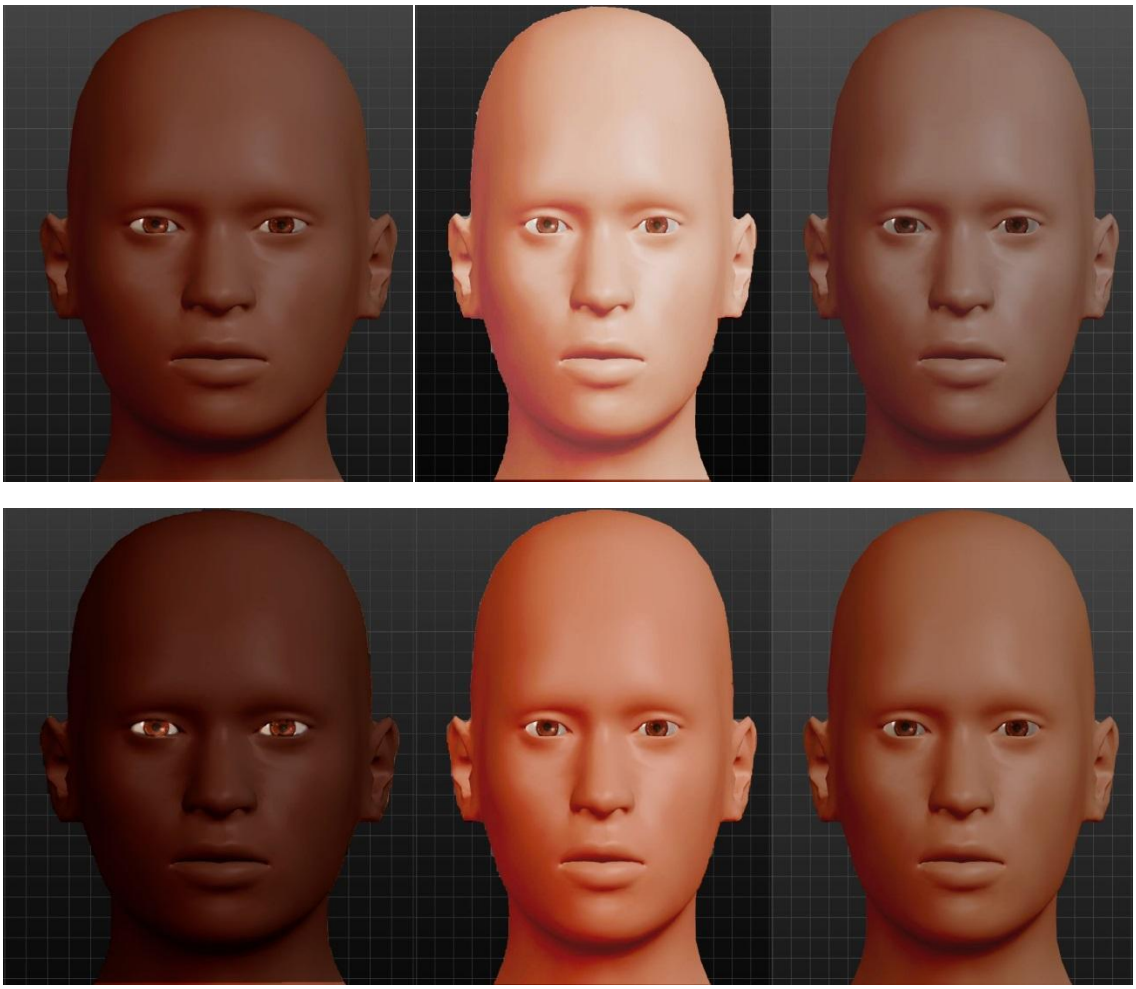
How many hours a week do you play videogames?

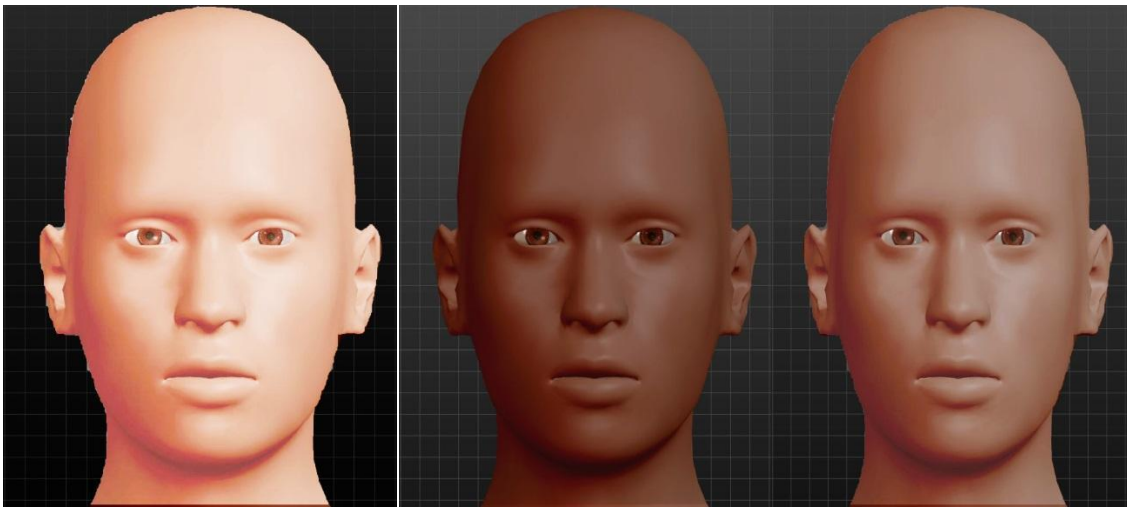
How many hours a week do you watch or read the news?

In the past month, have you been sick? Yes or No

On the basis of your own personal beliefs, rate on a scale of 0-100, where 0 means not at all and 100 means very much, African Americans and Whites on the following traits: aggressive, dangerous, violent.

Which skin tone most accurately matches your skin tone?





Appendix I

2-way ANOVA Results Output

Within-Subjects Factors

Measure: MEASURE_1

TargetEthnicity	ObjectType	Dependent Variable
White	No Weapon	LogAWN
	Weapon	LogAWW
Black	No Weapon	LogABN
	Weapon	LogABW

Descriptive Statistics

	Mean	Std. Deviation	N
LogAWN	2.8815	.07754	200
LogAWW	2.8476	.09134	200
LogABN	2.8917	.07538	200
LogABW	2.8499	.09478	200

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TargetEthnicity	Sphericity Assumed	.008	1	.008	6.308	.013
	Greenhouse-Geisser	.008	1.000	.008	6.308	.013
	Huynh-Feldt	.008	1.000	.008	6.308	.013
	Lower-bound	.008	1.000	.008	6.308	.013
Error(TargetEthnicity)	Sphericity Assumed	.242	199	.001		
	Greenhouse-Geisser	.242	199.000	.001		
	Huynh-Feldt	.242	199.000	.001		
	Lower-bound	.242	199.000	.001		
ObjectType	Sphericity Assumed	.286	1	.286	138.761	.000
	Greenhouse-Geisser	.286	1.000	.286	138.761	.000
	Huynh-Feldt	.286	1.000	.286	138.761	.000
	Lower-bound	.286	1.000	.286	138.761	.000
Error(ObjectType)	Sphericity Assumed	.411	199	.002		
	Greenhouse-Geisser	.411	199.000	.002		
	Huynh-Feldt	.411	199.000	.002		
	Lower-bound	.411	199.000	.002		
TargetEthnicity * ObjectType	Sphericity Assumed	.003	1	.003	2.686	.103
	Greenhouse-Geisser	.003	1.000	.003	2.686	.103
	Huynh-Feldt	.003	1.000	.003	2.686	.103
	Lower-bound	.003	1.000	.003	2.686	.103
Error (TargetEthnicity*ObjectType)	Sphericity Assumed	.229	199	.001		
	Greenhouse-Geisser	.229	199.000	.001		
	Huynh-Feldt	.229	199.000	.001		
	Lower-bound	.229	199.000	.001		

Appendix J

3 way ANOVA participant ethnicity Results Output

Within-Subjects Factors

Measure: MEASURE_1

TargetEthnicity	ObjectType	Dependent Variable
White	No Weapon	LogAWN
	Weapon	LogAWW
Black	No Weapon	LogABN
	Weapon	LogABW

Between-Subjects Factors

		N
Participant Ethnciity	Black	32
	White	49

Descriptive Statistics

	Participant Ethnicity	Mean	Std. Deviation	N
LogAWN	Black	2.8788	.09262	32
	White	2.8696	.06650	49
	Total	2.8733	.07745	81
LogAWW	Black	2.8378	.11040	32
	White	2.8465	.08163	49
	Total	2.8431	.09349	81
LogABN	Black	2.8950	.09412	32
	White	2.8793	.06118	49
	Total	2.8855	.07575	81
LogABW	Black	2.8427	.11309	32
	White	2.8385	.07889	49
	Total	2.8402	.09324	81

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TargetEthnicity	Sphericity Assumed	.002	1	.002	2.386	.126
	Greenhouse-Geisser	.002	1.000	.002	2.386	.126
	Huynh-Feldt	.002	1.000	.002	2.386	.126
	Lower-bound	.002	1.000	.002	2.386	.126
TargetEthnicity * ParticipantEthnicity	Sphericity Assumed	.002	1	.002	1.739	.191
	Greenhouse-Geisser	.002	1.000	.002	1.739	.191
	Huynh-Feldt	.002	1.000	.002	1.739	.191
	Lower-bound	.002	1.000	.002	1.739	.191
Error(TargetEthnicity)	Sphericity Assumed	.082	79	.001		
	Greenhouse-Geisser	.082	79.000	.001		
	Huynh-Feldt	.082	79.000	.001		
	Lower-bound	.082	79.000	.001		
ObjectType	Sphericity Assumed	.120	1	.120	57.451	.000
	Greenhouse-Geisser	.120	1.000	.120	57.451	.000
	Huynh-Feldt	.120	1.000	.120	57.451	.000
	Lower-bound	.120	1.000	.120	57.451	.000
ObjectType * ParticipantEthnicity	Sphericity Assumed	.004	1	.004	2.039	.157
	Greenhouse-Geisser	.004	1.000	.004	2.039	.157
	Huynh-Feldt	.004	1.000	.004	2.039	.157
	Lower-bound	.004	1.000	.004	2.039	.157
Error(ObjectType)	Sphericity Assumed	.164	79	.002		
	Greenhouse-Geisser	.164	79.000	.002		
	Huynh-Feldt	.164	79.000	.002		
	Lower-bound	.164	79.000	.002		
TargetEthnicity * ObjectType	Sphericity Assumed	.004	1	.004	3.687	.058
	Greenhouse-Geisser	.004	1.000	.004	3.687	.058
	Huynh-Feldt	.004	1.000	.004	3.687	.058
	Lower-bound	.004	1.000	.004	3.687	.058
TargetEthnicity * ObjectType * ParticipantEthnicity	Sphericity Assumed	.000	1	.000	.186	.668
	Greenhouse-Geisser	.000	1.000	.000	.186	.668
	Huynh-Feldt	.000	1.000	.000	.186	.668
	Lower-bound	.000	1.000	.000	.186	.668
Error (TargetEthnicity*ObjectType)	Sphericity Assumed	.086	79	.001		
	Greenhouse-Geisser	.086	79.000	.001		
	Huynh-Feldt	.086	79.000	.001		
	Lower-bound	.086	79.000	.001		

Appendix K

3-way ANOVA skin tone Results Output

Within-Subjects Factors

Measure: MEASURE_1

TargetEthnicity	ObjectType	Dependent Variable
White	No Weapon	LogAWN
	Weapon	LogAWW
Black	No Weapon	LogABN
	Weapon	LogABW

Between-Subjects Factors

		N
ParticipantSkintone	Dark Skin Tone	100
	Light Skin Tone	100

Descriptive Statistics

	ParticipantSkintone	Mean	Std. Deviation	N
LogAWN	Dark Skin Tone	2.8777	.08204	100
	Light Skin Tone	2.8854	.07299	100
	Total	2.8815	.07754	200
LogAWW	Dark Skin Tone	2.8392	.09463	100
	Light Skin Tone	2.8561	.08759	100
	Total	2.8476	.09134	200
LogABN	Dark Skin Tone	2.8905	.08143	100
	Light Skin Tone	2.8928	.06919	100
	Total	2.8917	.07538	200
LogABW	Dark Skin Tone	2.8441	.09802	100
	Light Skin Tone	2.8557	.09154	100
	Total	2.8499	.09478	200

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TargetEthnicity	Sphericity Assumed	.008	1	.008	6.313	.013	.031
	Greenhouse-Geisser	.008	1.000	.008	6.313	.013	.031
	Huynh-Feldt	.008	1.000	.008	6.313	.013	.031
	Lower-bound	.008	1.000	.008	6.313	.013	.031
TargetEthnicity * ParticipantSkintone	Sphericity Assumed	.001	1	.001	1.155	.284	.006
	Greenhouse-Geisser	.001	1.000	.001	1.155	.284	.006
	Huynh-Feldt	.001	1.000	.001	1.155	.284	.006
	Lower-bound	.001	1.000	.001	1.155	.284	.006
Error(TargetEthnicity)	Sphericity Assumed	.240	198	.001			
	Greenhouse-Geisser	.240	198.000	.001			
	Huynh-Feldt	.240	198.000	.001			
	Lower-bound	.240	198.000	.001			
ObjectType	Sphericity Assumed	.286	1	.286	139.544	.000	.413
	Greenhouse-Geisser	.286	1.000	.286	139.544	.000	.413
	Huynh-Feldt	.286	1.000	.286	139.544	.000	.413
	Lower-bound	.286	1.000	.286	139.544	.000	.413
ObjectType * ParticipantSkintone	Sphericity Assumed	.004	1	.004	2.122	.147	.011
	Greenhouse-Geisser	.004	1.000	.004	2.122	.147	.011
	Huynh-Feldt	.004	1.000	.004	2.122	.147	.011
	Lower-bound	.004	1.000	.004	2.122	.147	.011
Error(ObjectType)	Sphericity Assumed	.406	198	.002			
	Greenhouse-Geisser	.406	198.000	.002			
	Huynh-Feldt	.406	198.000	.002			
	Lower-bound	.406	198.000	.002			
TargetEthnicity * ObjectType	Sphericity Assumed	.003	1	.003	2.672	.104	.013
	Greenhouse-Geisser	.003	1.000	.003	2.672	.104	.013
	Huynh-Feldt	.003	1.000	.003	2.672	.104	.013
	Lower-bound	.003	1.000	.003	2.672	.104	.013
TargetEthnicity * ObjectType * ParticipantSkintone	Sphericity Assumed	4.223E-7	1	4.223E-7	.000	.985	.000
	Greenhouse-Geisser	4.223E-7	1.000	4.223E-7	.000	.985	.000
	Huynh-Feldt	4.223E-7	1.000	4.223E-7	.000	.985	.000
	Lower-bound	4.223E-7	1.000	4.223E-7	.000	.985	.000
Error (TargetEthnicity*ObjectType)	Sphericity Assumed	.229	198	.001			
	Greenhouse-Geisser	.229	198.000	.001			
	Huynh-Feldt	.229	198.000	.001			
	Lower-bound	.229	198.000	.001			