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How Race and Gender Moderate the Effect of Facial Trait Inferences on Leadership Perception

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Abstract

Research on first impressions suggests that facial trait inferences guide judgments in many domains, including perceptions of leadership ability. This study explored the extent to which race and gender moderate such inferences on the perception of leadership. A total of 179 participants rated facial stimuli on one of three traits: leadership ability, dominance, and warmth. It was hypothesized that perceived warmth would benefit Black male targets more than White and Asian male targets, and perceived dominance would benefit male White and Asian male targets more than Black male targets. No strong hypotheses were specified for female targets, as research on the preferred facial traits of female leaders is limited and inconclusive. Different traits resulted in different judgements based on the race and gender of the target. For instance, warmth positively predicted leadership for all male targets, but was strongest for Black and weakest for White targets, whereas dominance positively predicted leadership ratings for Black and Asian men, but not White men. Surprisingly, facial dominance was more helpful for perceptions of female than male leadership.

MONTCLAIR STATE UNIVERSITY

How Race and Gender Moderate the Effect of Facial Trait Inferences on Leadership Perception

by

Calista Wong

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

For the Degree of

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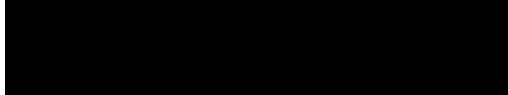
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HOW RACE AND GENDER MODERATE THE EFFECT OF FACIAL TRAIT INFERENCES
ON LEADERSHIP PERCEPTION

A THESIS

Submitted in partial fulfillment of the requirements

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Montclair State University

Montclair, NJ

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How Race and Gender Moderate the Effect of Facial Trait Inferences on Leadership Perception

People form first impressions based on numerous factors. Stereotypes about salient social categories such as race and gender form much of the basis of first impressions, but so do perceptions of facial appearance and traits associated with those perceptions (Todorov et al., 2015, van Vugt and Grabo, 2015). Not only is the speed and ease in which one can form such impressions on another rather astounding, the age in which such attributions can develop suggests a general consensus in impressions based on facial appearance. Those as young as 3 years of age are capable of attributing personality traits on the basis of a first impression, which according to Todorov et al. (2015), is consistent with what would typically be found in an adult. Given how first impressions can shape one's perception of another, and how those perceptions can guide their behavior towards them, it is of no surprise that such perceptions have social significance.

Research has made it clear that social attributions are constructed from various sources of information, whether it be universal (e.g., masculinity/femininity) or culturally specific (e.g., facial attractiveness), in addition to interpersonal beliefs held by the individual perceiver. For example, smiling faces tend to be perceived as more friendly (Karmali, 2019, Krumbhuber et al., 2007), while angry faces tend to be perceived as more dominant (Salerno et al., 2019). Using information specific to the context at hand, a person can make an attribution that will serve to guide their behavior and/or decision(s), depending on the situation. While functional, the formation and application of such attributions can evolve into a matter of great consequence when used to gauge traits such as trustworthiness, competence, and integrity to name a few.

In other work, Riggio and Riggio (2010) further discuss the impact of appearance-based trait inferences and their implications for real world decision making, particularly regarding political leader appeal and selection. Drawing upon evolutionary arguments, they posit that immediate judgments are rooted in the desire for survival, where snap judgments are typically made in order to assess threat and whether the situation requires appropriate action to remove oneself from it. While such adaptive responses function as intended in more primitive scenarios, its effectiveness in those that require more complex, rational judgements is questionable at best, yet they persist regardless. Immediate impression attributions can lead to equally immediate judgments, and while not absolute, such judgements may not always be in the favor of the perceived. This is especially the case in perceptions of competency in various social domains/contexts, from leadership perception to sentencing decisions, where the culmination of one's negative perceptions of another can lead to less than ideal, or outright dire consequences. An abundance of research has found that such patterns are salient in numerous contexts (Gaither, 2018; Okonofua and Eberhardt, 2015; Remedios and Snyder, 2019; Salerno et al., 2019), particularly that of leadership perception (Fasoli and Hegarty, 2010; Festekjian et al., 2014; Wilson et al., 2017), where the appearances of leaders serve as determinants for whether others believe them to be suitable. Specifically, the prominent traits of dominance and warmth have been found to be closely associated with the formation of leadership perceptions, with dominance often being the preferred trait based on prototypical idealizations of leaders, as opposed to warmth (Fasoli and Hegarty, 2010; Karmali, 2009).

The relationship between first impressions and leadership perception has been highlighted in research discussing the impact of facial inferences. Referred to as “goodness of fit”, Collins and Zebrowitz (1995) suggest that a person's appearance contributes to occupational

outcomes, and that the expectations of a person's performance is, to some degree, linked to whether people perceive them to be suitable for a particular position. In other words, prototypicality. Although these authors focused primarily on attractiveness as influential in impacting occupations and outcomes, their work was conceptually similar to other work investigating the impact of dominance and warmth on leadership perception (e.g., Wilson et al., 2017). Re and Rule (2017) expand on this, hypothesizing that those with exceptional facial traits that align with their respective groups are perceived to be better leaders, and are thus more likely to be chosen and succeed in that role. Essentially, those that have prototypical facial traits to that of their respective groups will be deemed more fit to lead that group. Aligned with their hypothesis, the results found that prototypicality was indeed a determining factor in regard to leadership selection and perceived performance, where law executives appeared more socially skilled, and mafia/organized crime members appeared more powerful. Though said, suitability is context dependent, as despite the close association between dominance and perceived ideal leadership efficacy, some studies suggest that this is not the rule. For instance, Re and Rule's (2017) conclusions regarding the facilitation of perceived effective leadership were not limited to the aforementioned traits of social skill and power, as even targets that were manipulated to exhibit unique, strong facial traits pertaining to a specific domain were perceived to be effective leaders of that domain. Of note, those high in femininity were deemed effective leader candidates for specific groups where femininity was valued, despite femininity, associated with warmth, being an atypical trait within conversations regarding prototypical leadership perception. This suggests that the perception and subsequent selection of effective leadership is highly dependent on context, contingent upon both facial traits as well as the needs of those looking to a leader

(van Vugt and Grabo, 2015) and not necessarily due to facial traits, such as dominance or warmth, alone.

Further discussing prototypicality and suitability, Fasoli and Hegarty (2020) conducted research examining how employment discrimination may be a result of vocal cues indicating sexual orientation. This work tested aspects of role congruity theory, in which an individual who possesses traits inconsistent to the typical traits of a particular job role would be considered a poor fit for the position, subsequently affecting their likelihood of success in that role. However, the results of the study conflicted with role congruity theory and instead aligned with the notion that the perception of leadership is inherently gendered. They found that targets identified as the most “effective” leaders were dominant, masculine men. In this case, women who sounded lesbian (lower pitched voices) and men who sounded gay (sibilant /s/) were at risk of sounding more incompetent, thus rated as less suitable for the position of a leader. Given that discrimination towards the vocal cues of non-prototypical individuals were consistently mediated by attributions of competence, this result supports status belief theory more so than role congruity theory, where people perceptions (in this case, hiring decisions) were predicted more strongly not by physiological fit, but by culturally conceived perceptions of high status, of which include stereotypes consistent with that of perceptions of effective leadership: competence, assertiveness, and masculinity. Furthermore, these findings highlight the degree to which prejudice and/or discrimination emerges as a result of social ambiguity: the more ambiguous, the less cues people will use to socially categorize. Sexual orientation is, by default, an ambiguous social category, leading to more surface level perceptions of the individual.

Findings obtained by Karmali (2019) also demonstrate the effects of perceived leader prototypicality on leadership effectiveness, examining the effects of race and expansive poses on

professional and interpersonal evaluations. Where expansive poses signify dominance, constrictive poses signify submissiveness. The study found that while expansive poses increased perceptions of dominance for both White and Black targets, increased perceptions of aggression were exclusive to Black targets. Additionally, perceived dominance from expansiveness was associated with greater leadership competence for White, but not Black targets. Essentially, White targets benefited significantly more from expansive poses, being deemed more dominant, thus more competent leaders. Despite perceived dominance being elicited for Black targets as well, this did not equally translate to leadership competence, as aforementioned perceptions of aggression from dominance shifted Black targets away from the prototypical idealization of a leader, resulting in poorer perceptions of leadership overall.

As previously mentioned, although earlier research may have suggested a more straightforward relationship between dominance and perceptions of high leadership ability, more recent work has begun to show that such associations may be more nuanced, establishing how these traits may alter perceptions depending on the identity of the target. For instance, in a study on the relationship between race and leadership selection, Livingston and Pearce (2009) found that race moderates the relationship between facial appearance and some important leadership outcomes. Common perceptions of Black people, especially Black men, see them as aggressive, dominant, and threatening (Livingston and Pearce, 2009; Okonofua, 2015), which may naturally lead one to envision them as effective leaders per the typical leader prototype. However, existing literature has established that such traits only appear to benefit their White counterparts, who are seen as more prototypical leaders (Karmali, 2019; Rosette et al., 2008; Wilson et al., 2017). Black men, who are commonly stereotyped as threatening (Okonofua, 2015), are also not typically envisioned as leaders (Rosette et al., 2008). However, Livingston and Pearce (2009)

posited that Black men may benefit from traits signifying facial warmth (specifically, baby-facedness), which is not typically associated with leadership perceptions among White men. They hypothesized that baby-facedness might act as a “disarming mechanism” named in the literature refers to the idea of the aforementioned “baby-face”, of which has been previously studied to be perceived as more innocent, warm, and trustworthy (Zebrowitz, 1997). Collins and Zebrowitz’s (1995) study on the implications of appearance on occupational outcomes discussed the effects of perceived baby-facedness in a military setting, where baby-faced individuals in the military were unexpectedly more likely to be honored for their achievements and earn an award, producing a contrasting effect whereby feats of heroism and/or bravery may have appeared to be more salient simply because such behavior did not fit the perception of baby-faced individuals, thus warranting recognition. Though said, baby-facedness in literature is often deemed a feature of the weak and incompetent, acting as a liability for those who seek to move upward in roles of responsibility and leadership. This is especially the case when the character of the perceived is ambiguous and uncertain, harkening back to the significance of first impressions and interpersonal beliefs influencing perceptions and subsequent behaviors/attitudes, where a person can be considered unfit for the role of a leader simply because of a disparity between the warmth the perceived exudes and the dominance the perceiver expects. In an attempt to examine both these social phenomena, Livingston and Pearce’s (2009) hypothesis proposed a counteracting effect, where the success of Black CEOs is in direct relation to the fact that they possess a disarming mechanism (e.g., baby-facedness) which mitigates negative stereotypes. Black CEOs had the tendency to be more baby-faced (a trait closely linked with warmth) than White CEOs, and that greater perceived baby-facedness predicted higher salary and generally higher prestige for Black but not White CEOs. The findings of the study suggested that baby-facedness

neutralized the typical Black stereotype of negativity and hostility, serving as the disarming mechanism that attenuated perceptions of threat, turning assumed perceptions of inaptitude into perceptions of competency.

On the other hand, the opposite can be suggested for White CEOs, whose career success was predicted from having less of a baby-face. Examinations of intersectional identities have further reinforced this notion, as seen in Wilson et. al (2017) where easily perceived identities (e.g., race) and ambiguous identities (e.g., sexuality) interact and impact impressions of leadership in ways that single identities/minorities may not. In this case, gay Black men were judged more positively than straight Black men as leaders, with the gay stereotype of perceived femininity eliciting the counteracting trait of warmth that mitigates harsh, hypermasculine stereotypes associated with Black men in a similar fashion to the counteraction seen in Livingston and Pearce's (2009) work. In spite of the stigmas potentially carried by each identity on its own, the findings here suggest that their intersecting nature could inadvertently lead to more positive, optimal outcomes. One important contribution of the work of Wilson et al. (2017), in addition to Livingston and Pearce (2009), is that they showed that the "face of a leader" may look quite different depending upon the social identity categories (and associated stereotypes) of that leader. The typical preference for dominant-looking leaders may not hold for groups that are generally stereotyped to be threatening. Specifically, Wilson et al. (2017) found that the relationship between facial dominance and leadership perceptions was actually negative for Black targets, in contrast to for White targets. Additionally, although warmth predicted leadership positively for each group, the warmth-leadership relationship was much stronger for Black targets (mean sensitivity correlation = .72) than White targets (mean sensitivity correlation = .38), Cohen's *d* of difference = 2.04. The proposed work will expand upon the existing

literature by examining whether leadership perception of additional groups is similarly moderated by social category membership for Asian targets as well as for women (White, Black, and Asian).

A large majority of research looking into leadership perception utilizes White and/or Black male targets, with minorities being in the, aptly named, minority. This is particularly the case in regard to Asian men. Within the limited literature where Asian men are among the perceived targets, they are often considered to be less effective leaders when compared to Black male targets, and especially compared to White male targets (Festekjian et al., 2014). Simply put, Asian leaders are less likely to be perceived as effective leaders given the disparity between perceptions of them as leaders versus the perception of prototypical leaders (i.e.. White, male, dominant).

From the perspective of a theoretical framework, Festekjian et al. (2014) used leadership categorization theory as a means for explaining how social attributions result in evaluations of people, where targets are evaluated against a specific schema (what the perceiver expects the perceived to be like) built upon existing knowledge of the role relevant to the social context and are deemed fit for the role should they fit the schema. Using this, it was concluded that Asian targets activated the competent leader prototype of intelligence and dedication, while the comparison group of White targets activated the agentic leader prototype of masculinity, tyranny, and dynamism. While both may have been perceived as leaders, results made it clear that these perceptions were very different from each other, and that Asian targets were ultimately perceived as less than ideal leaders. This partially aligns with the literature examining dominance and warmth among Asian targets, where Asian targets typically exude more warmth than dominance

as a result of stereotypes depicting them as meek, passive, and far from the ideal dominant leader.

In a similar fashion to the counteracting perceptions as seen in Livingston and Pearce (2009) and Wilson et al. (2017), however, angry East Asian negotiators in particular were found to be more effective than their White and Hispanic counterparts, due to the stereotype of East Asians being emotionally inexpressive, thus being perceived as genuinely threatening, therefore dominant (Salerno and Peter-Hagene, 2015). While such findings do provide some insight into how the traits of dominance and warmth can shape perceptions of leadership relative to the social category to which one belongs, expanding upon the present research by including Asian targets would be beneficial for a more comprehensive understanding of the matter. As such, further examining how perceptions of these traits influence subsequent perceptions of leadership, with the inclusion of underrepresented social groups (e.g., Asians), would serve to form a clearer image as to how they may be moderated by identity.

Research pertaining to women and the perceptions of them in roles of leadership remain sparse, as more often than not, those in leadership positions tend to be men. Leadership tends to be associated with masculinity, and such associations are generally found to be based on the prototypical White male standard. Conclusions made in terms of dominance and warmth in female leaders have the tendency to align with that of Black leaders, regardless of gender, where perceptions of warmth result in more positive ratings, “fitting” the stereotype of women as generally more nurturing and caring, with femininity being positively predictive of perceived leadership. On the contrary, perceptions of dominance elicited more negative ratings, as such traits can be perceived as a violation of a female’s behavior and demeanor (Radhakrishnan and Romain, 2022), a stark contrast to their male counterparts who evoke competence and

confidence when dominant. However, not all studies examining this provide similar findings, raising more questions than answers. For example, the study conducted by Radhakrishnan and Romain (2022) used stereotype research among women of different races to examine the degree to which prototypical dominance in leadership would serve to conform to or act in violation of those stereotypes, and whether it would elicit positive or negative perceptions of leadership as a result. As opposed to all female targets being in violation of stereotypes as one might expect, some actually benefited from such stereotypically contrasting behavior (e.g., dominant East Asian women were favorably rated on task leadership, whereas the opposite was true for South Asian women). Thus, the idea that dominance equates to negative perceptions in female leadership is not universally applicable, and conflicts with prior findings that observe these patterns. Though such information does contribute to research on female leadership perceptions, the lack of consistency and sufficiency prevents any definitive conclusions regarding women and perceptions of leadership from being made. Thus, extending research beyond the male majority necessitates the inclusion of women in studies.

The present research aims to expand upon recent literature regarding the extent to which dominance and warmth ratings are related to leadership perceptions, seeking to examine how these perceptions can be influenced by race and gender. It is hypothesized that in terms of leadership perception, for male targets, perceived dominance will benefit White and Asian targets more than Black targets, and perceived warmth will benefit Black targets more than White and Asian targets. Given the limited literature and variance in conclusions regarding female leadership perception, a definitive hypothesis will not be specified for these targets. The present study will aim to further inform the literature on how the perceptions of the aforementioned traits will influence perceptions of women as leaders.

Method

Participants

Participants were recruited from the Montclair State University psychology subject pool via Sona, and the study was conducted entirely online using Qualtrics. Participants were recruited to rate facial stimuli on 1 of 3 traits: leadership ability, dominance, and warmth. Rating type was manipulated between-subjects in order to keep the rating task to a manageable length. The first 30 participants were asked to rate each face on leadership. One of these participants did not complete the task, leaving 29 participants (24 female, 5 male; 14 White, 5 Black, 6 Hispanic, 2 Asian, 2 Multiracial; $M^{age} = 19.48$, $SD = 1.48$) in the final sample. These ratings were aggregated at the target level, such that a mean leadership rating was computed for each target. Based on previous work (e.g., Wilson et al., 2017), this sample was sufficient to achieve a high level of interrater reliability. After the leadership data had already been analyzed, due to technical error, additional ratings of leadership past the targeted sample size of 30 were collected, but not used for analysis.

For dominance and warmth, analyses were performed at the perceiver level. The target sample was 100 participants for each trait, but there was not enough time in the semester to reach this target. Instead, 75 participants completed warmth ratings, and 80 participants completed dominance ratings. Any participant who provided the same response for every trial in any given condition was removed from analyses, as their responses could not be used to calculate sensitivity correlations. After this exclusion, the final sample was 70 for warmth (52 female, 16 male, 2 non-binary; $M^{age} = 19.43$, $SD = 2.05$; 26 White, 9 Black, 20 Hispanic, 4 Asian, 6 Multiracial, 5 Other.) and 79 for dominance (55 female, 23 male, 2 non-binary; $M^{age} = 20.42$, $SD = 4.90$; 26 White, 9 Black, 27 Hispanic, 4 Asian, 2 Multiracial, 3 Other).

Materials

Stimuli consisted of 30 color, neutral expression faces from each target group: White Male, White Female, Black Male, Black Female, Asian Male, Asian Female, for a total of 180 faces. All were from the Chicago Face Database (CFD). Stimuli were tested and selected such that, for each target gender, they do not significantly differ on attractiveness between each race. All original stimuli from the CFD were resized to 450 pixels \times 316 pixels.

Procedure

Faces were displayed in 1 of 6 blocks, separated by target race and ethnicity. Blocks and the stimuli within the blocks were displayed in random order. Each participant was shown each face, with 15 faces being displayed per page. This display method was used so that participants did not have to click through to load a new face for each individual trial. Response requirements were set to request, but not force, a response if any ratings were left unanswered. Under each face, the participant saw a rating scale pertaining to each trait ranging from 1 to 7, 1 being the lowest value, and 7 being the highest value (e.g., 1 = Not at all dominant, 4 = Average dominance, 7 = Very dominant). Participants rated each face on the selected trait at their own pace.

Results

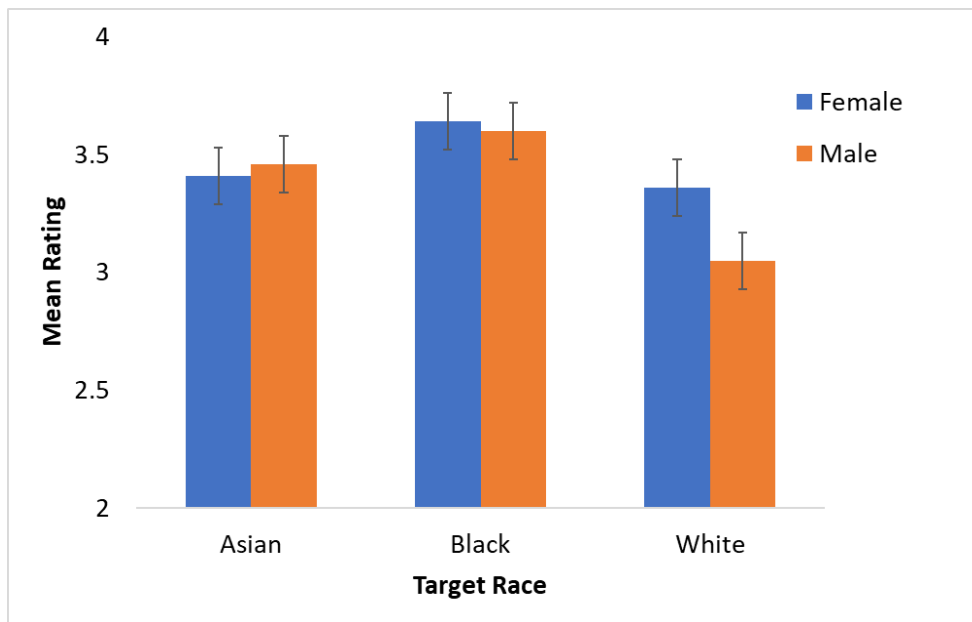
Leadership Ratings

Leadership ratings were aggregated at the target level from the 29 participants who rated this trait. Analyses were performed in JASP. The mean leadership rating was calculated for each target, and sufficient interrater reliability was achieved, Cronbach's $\alpha = .86$. However, before using these target ratings in sensitivity correlation analyses with warmth and dominance, I first conducted preliminary perceiver-level mean analyses of the leadership ratings. These ratings

were subjected to a 3 (Target Race) \times 2 (Target Gender) repeated-measures ANOVA. This analysis revealed a significant main effect of target race, $F(2, 56) = 17.56, p < .001, \eta^{2\text{partial}} = .204$. As can be seen in Figure 1, White targets ($M = 3.20, SE = .12$) were judged as worse leaders than both Black ($M = 3.62, SE = .12; t(28) = 5.91, p < .001, \text{Cohen's } d = 0.62$) and Asian ($M = 3.43, SE = .12; t(28) = 3.25, p = .004, \text{Cohen's } d = 0.34$) targets. There was also a significant main effect of target gender $F(1, 28) = 5.63, p = .025, \eta^{2\text{partial}} = .02$. This can also be seen in Figure 1, where female targets ($M = 3.47, SE = .11$) were judged as better leaders than male targets ($M = 3.37, SE = .11; t(86) = 2.37, p = .025, \text{Cohen's } d = 0.15$). These two main effects were qualified by a significant interaction, $F(2, 56) = 3.529, p = .036, \eta^{2\text{partial}} = .04$. This interaction was driven primarily by the fact that White male targets were judged as worse leaders than targets from any other group, all $ps < .001$.

Figure 1

Leadership Ratings by Race and Gender



Warmth and Dominance: Sensitivity Correlations

In order to test the primary hypotheses regarding the direction and magnitude of the correlation of dominance and warmth with leadership ability, sensitivity correlations were calculated. These used the participant as the unit of analysis to achieve a higher level of statistical power that would otherwise not be possible with the target as the unit of analysis. First, participants' warmth or dominance ratings for each target were correlated with those targets' mean leadership ratings. These Pearson correlations were then transformed to Fisher's z scores. These z scores were then subjected to the focal inferential analyses. Sensitivity correlations (warmth-leadership and dominance-leadership) were subjected to separate 3 (Target Race) \times 2 (Target Gender) repeated measures ANOVAs with target race as the IV. Follow-up t -tests were used to analyze for pairwise differences. All analyses were performed in JASP. In accordance with the hypotheses, I expected to see that the warmth-leadership sensitivity correlation would be more strongly positive for Black male targets than White or Asian male targets, and that the dominance-leadership sensitivity correlation would be more strongly positive for White and Asian targets than for Black targets. I had no strong hypotheses for female targets.

Warmth Ratings

Before the calculation of sensitivity correlations, preliminary analyses were conducted of mean ratings in a 3 (Target Race) \times 2 (Target Gender) repeated-measures ANOVA. Here, there were main effects of both race, $F(2, 138) = 41.89, p = .011, \eta^{2\text{partial}} = .38$, and of gender, $F(1, 69) = 13.16, p < .001, \eta^{2\text{partial}} = .16$. These were qualified by an interaction between race and gender, $F(2, 138) = 3.09, p = .049, \eta^{2\text{partial}} = .04$. As seen in Figure 2, Black male targets ($M = 3.20, SE = .11$) were judged to be warmer than both White ($M = 2.66, SE = .11$) and Asian ($M = 2.95, SE = .11$) male targets, and Asian targets were judged to be warmer than White targets, all $ps < .001$.

Female targets ($M = 3.02$, $SE = .11$) were judged to be warmer than male targets ($M = 2.86$, $SE = .11$), $p < .001$. The interaction was driven by the fact the gender difference was larger for Black and White targets than Asian targets.

For the primary analysis, sensitivity correlations were calculated between perceiver level warmth ratings and leadership means. In no condition was the Shapiro-Wilk test for non-normality significant, $ps > .05$. A 3 (Target Race) \times 2 (Target Gender) repeated-measures ANOVA yielded a significant and large main effect of target race, $F(1.70, 117.349) = 145.60$, $p < .001$, $\eta^{2\text{partial}} = .68^1$. Warmth was more strongly predictive of leadership judgments for Black targets ($M = 0.42$, $SE = .02$) than Asian targets ($M = 0.29$, $SE = .02$), $t(69) = -4.77$, $p < .001$, Cohen's $d = 0.60$, and much more strongly predictive of leadership judgments for Black targets than White targets ($M = -0.02$, $SE = .02$), $t(69) = 16.58$, $p < .001$, Cohen's $d = 2.06$. The warmth-sensitivity correlation was also substantially higher for Asian targets than White targets, Cohen's $d = 1.47$. For White targets, in fact, the warmth-leadership sensitivity correlation did not differ from 0, $t(69) = -1.01$, $p = .31$. This analysis found that warmth positively related to leadership among all target groups except White female targets ($M = -0.15$, $SE = .03$). A significant main effect of gender was also found, $F(1, 69) = 19.47$, $p < .001$, $\eta^{2\text{partial}} = .22$. Here, warmth was positively correlated with leadership for both female ($M = 0.19$, $SE = .02$) and male ($M = 0.27$, $SE = .02$) targets, but this relationship was stronger for male targets. These main effects were qualified by a significant interaction, $F(2, 138) = 34.86$, $p < .001$, $\eta^{2\text{partial}} = .22$. Warmth-leadership sensitivity correlations were strongest for Black male targets, ($M = 0.45$, $SE = .03$) among the other groups of Black female ($M = 0.39$, $SE = .03$), Asian female ($M = 0.33$, $SE = .03$), Asian male ($M = 0.25$, $SE = .03$) and White male ($M = 0.11$, $SE = .03$) targets. For all of those

¹ Greenhouse-Geisser corrections were employed because the assumption of sphericity was violated.

groups, the relationship was positive, with one-sample comparisons against 0 significant and strong, $ps < .001$, Cohen's $ds > 0.68$. For White female targets ($M = -.15$, $SE = .03$), the relationship between warmth and leadership judgments was actually negative, $p < .001$, Cohen's $d = -0.84$.

Figure 2

Mean Warmth Ratings by Race and Gender

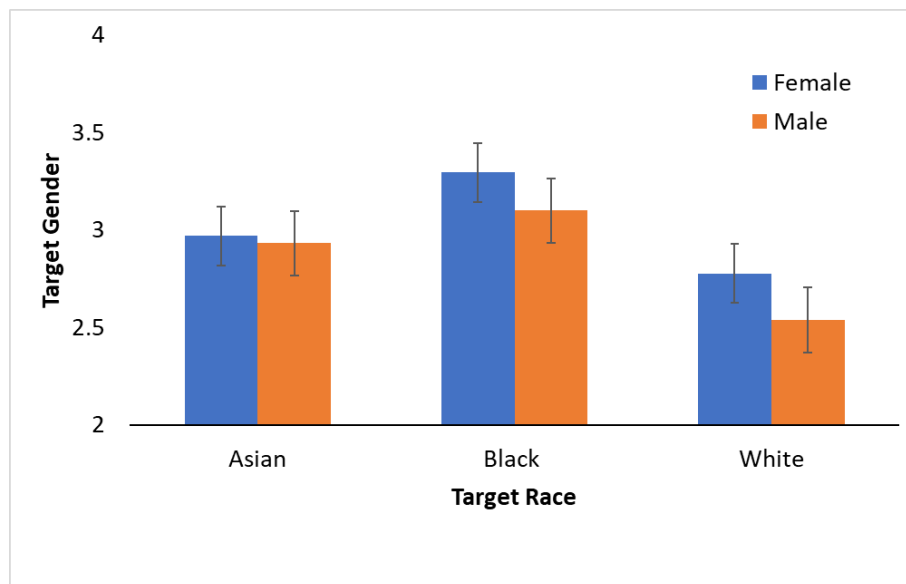
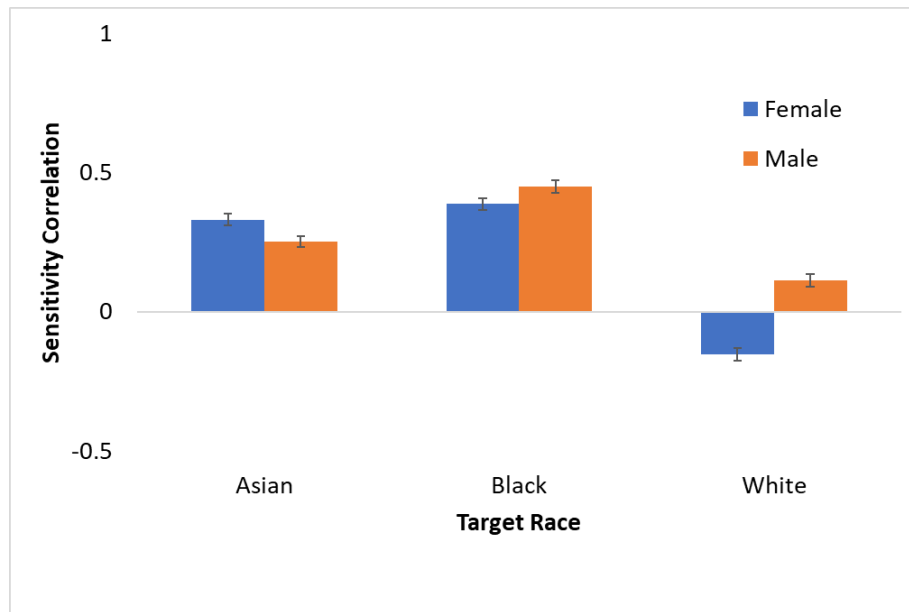


Figure 3*Warmth-Leadership Sensitivity Correlations by Race and Gender*

Note. Error bars represent +/-1 within-subjects standard error

Dominance Ratings

Similar to warmth ratings, preliminary analyses of mean ratings in a 3 (Target Race) \times 2 (Target Gender) repeated measures ANOVA were conducted prior to sensitivity correlation calculations. Here, there was a main effect of race, $F(2, 156) = 15.88, p < .001, \eta^{2\text{partial}} = .17$, but not a main effect of gender $F(1, 78) = 2.51, p = .987, \eta^{2\text{partial}} = .3.22$, nor a significant interaction, $F(2, 156) = 1.58, p = .209, \eta^{2\text{partial}} = .02$. As seen in Figure 4, mean dominance ratings found that Black targets ($M = 3.52, SE = .10$) were judged to be the most dominant compared to White ($M = 3.41, SE = .10$) and Asian ($M = 3.22, SE = .10$) targets, and Asian targets were judged to be more dominant than White targets, all $ps < .001$, with the exception of Black and White target groups, which were marginally significant from each other, $p = .05$. Female targets ($M = 3.38, SE = .10$) were judged no more dominant than male targets ($M = 3.38, SE = .10$).

Sensitivity correlations were once again calculated, now between the perceiver level dominance ratings and leadership means. Again, in no condition was the Shapiro-Wilk test for non-normality significant, $ps > .05$. Sensitivity correlations were subjected to a 3 (Target Race) \times 2 (Target Gender) repeated measures ANOVA. First, a main effect of target race, $F(2, 156) = 4.82, p = .009, \eta^2_{\text{partial}} = .06$ emerged. Leadership judgments based on dominance did not differ significantly between Asian targets ($M = 0.08, SE = .02$) and Black targets ($M = 0.05, SE = .02$), $t(78) = 1.01, p = .315$, Cohen's $d = .12$, neither did they differ significantly between Black and White targets ($M = -0.003, SE = .02$), $t(78) = 3.05, p = .086$, Cohen's $d = .24$. However, the dominance-sensitivity correlation was significantly higher for Asian targets than White targets, Cohen's $d = .36$. This analysis found that dominance was positively related to leadership among all groups, with the exception of White male targets ($M = -0.10, SE = .03$). A main effect of gender, $F(1, 78) = 43.36, p < .001, \eta^2_{\text{partial}} = .36$ was also observed. Dominance was positively correlated with leadership for female ($M = 0.10, SE = .02$) but not male ($M = -0.01, SE = .02$) targets. These main effects were qualified by a significant interaction, $F(2, 156) = 5.97, p = .003, \eta^2_{\text{partial}} = .07$. Dominance-leadership sensitivity correlations were strongest for Asian female targets ($M = 0.14, SE = .03$), among the other groups of White female ($M = 0.09, SE = .03$), Black female ($M = 0.08, SE = .03$), Black male ($M = 0.03, SE = .03$) and Asian male ($M = 0.03, SE = .03$) targets. For all groups, the relationship was positive, with one-sample comparisons against 0 significant for Asian female, $p < .001$, Cohen's $d = 0.56$, Black female, $p < .001$, Cohen's $d = 0.29$, and White female, $p < .001$, Cohen's $d = 0.60$, targets, and non-significant for Asian male, $p = .330$, Cohen's $d = 0.11$ and Black male, $p = .102$, Cohen's $d = 0.10$, targets. For White male targets ($M = -0.10, SE = .03$), the relationship between dominance and leadership was negative, $p < .001$, Cohen's $d = -0.53$.

Figure 4

Mean Dominance Ratings by Race and Gender

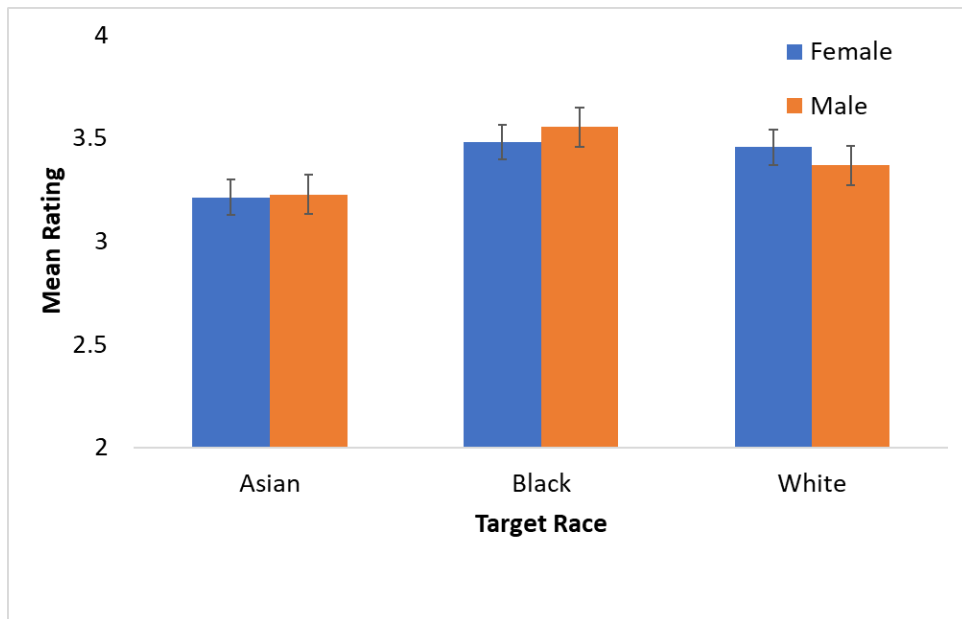
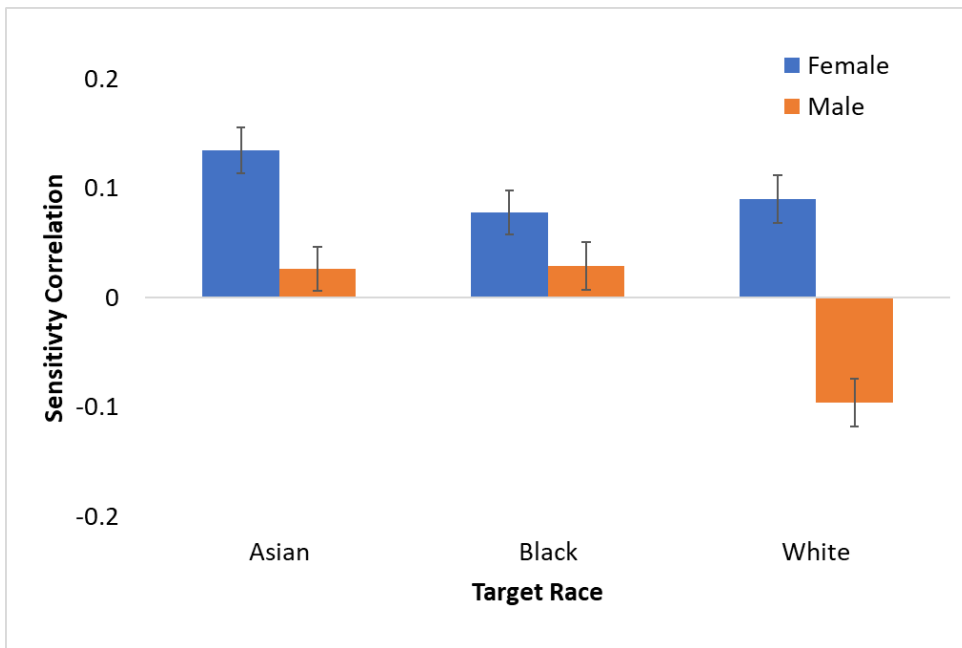


Figure 5

Dominance-Leadership Sensitivity Correlations by Race and Gender



Note. Error bars represent +/-1 within-subjects standard error

Discussion

This study aimed to examine potential race and gender differences in the relationship between facial trait inferences and judgments of leadership ability. Based on existing literature highlighting how this relationship is moderated by race (Livingston and Pearce, 2009; Wilson et al., 2017), it was hypothesized that facial appearances of warmth were expected to benefit Black male targets more than White and Asian male targets, and facial appearances of dominance were expected to benefit White and Asian male targets more than Black targets. Regarding the warmth-leadership correlations, the results of the study supported the hypothesis, where perceived warmth benefitted the leadership perception of Black male targets more compared to White or Asian male targets, with White targets benefitting the least across these male groups. These results contribute to the notion highlighted in prior literature, where the extent to which perceived warmth is considered a desirable trait is influenced by the individual's race (Livingston and Pearce, 2009). While warmth positively correlated with and predicted ratings of leadership across all male groups, these correlations were much stronger for Black and Asian male targets when compared to White male targets.

Somewhat interestingly, on average, Black male targets were perceived as the warmest among male groups. This contradicts the general conclusions of stereotype literature, where in comparison to White men, Black men are often perceived to be more aggressive, dominant, and threatening, which are traits that are prototypically suitable for the role of a leader, but do not act in their favor by virtue of their race (Livingston and Pearce, 2009; Wilson et al., 2017). An atypical result such as this may possibly be explained by differences in participant demographic, where older studies with primarily White participants may naturally have results that gravitate towards White faces as ideal leaders, whereas participants pooled from diverse communities,

such as Montclair State University, subsequently diversifies the result. Regardless, such patterns suggest that while people may value warmth as a trait in a leader, the extent to which it is perceived to be valued in a position of leadership is largely influenced by the social category of the face being perceived. For Black male targets, the strong relationship between facial warmth and leadership judgments confirms previous work (Wilson et al., 2017) and harkens back to the related literature on baby-facedness (Livingston & Pearce, 2009). Once again here, facial warmth seems to act as a disarming mechanism that can attenuate harsh perceptions.

The results concerning Asian male targets coincide with prior conclusions comparing their leadership suitability (Festekjian et al., 2014) - while warmth positively predicted leadership ratings in Asian male targets, said ratings were not the strongest among groups. This suggests that while Asian male leaders may benefit from perceptions of warmth, they do not do so as much as Black male leaders. Additionally, unlike Black men who benefit from the counteracting effect of warmth, the stereotype of Asian men being meek and passive is more likely to be magnified by warmth, which could push them further from the perception of being a prototypical leader. Although this did not occur in the present work, it is important to confirm these findings with different stimuli across different contexts.

Compared to male groups, female targets across all groups were perceived as warmer on average. They followed the same pattern as the male groups with Black women being perceived as the warmest, followed by Asian and White. This result partially contradicts the findings of prior research, as while higher warmth averages across female groups lends itself to the idea that women are typically seen as more warm and nurturing by default (Radhakrishnan and Romain, 2022), Black women in particular being perceived as the warmest is inconsistent with existing research on Black stereotyping (Radhakrishnan and Romain, 2022), of which may be explained

by the aforementioned diversified participant pool. These higher warmth ratings could also have occurred because of socially desirable responding, in addition to participants merely rating targets' facial appearance, and thus would not have felt justified applying any negative stereotypes.

Regarding sensitivity correlations, warmth positively predicted leadership ratings for Black and Asian women. Surprisingly, however, warmth negatively predicted leadership ratings for White women. Despite the expectation that warmth and femininity would be positively predictive for female leaders, the results here indicate that it is perhaps not consistent across race. Given the tendency for women to be stereotyped as nurturing and warm (Salerno and Peter-Hagene, 2019; Wilson et al., 2017), this result may be akin to how warmth magnifies the Asian male stereotype of submissiveness, where the warmer a woman, who is expected to be warm, is perceived to be, the less likely she is to be perceived as an effective leader.

The results of the dominance-leadership correlations did not support the hypothesis that perceived dominance would benefit White and Asian male targets more than Black male targets. Dominance-leadership correlations were not only weak across all male groups, but they negatively predicted leadership ratings for White male targets, in stark contradiction with prior literature where dominance serves as an preferred trait for the prototypical male leader (Mueller and Mazur, 1996; Olivola et al., 2014). In other words, dominance was not a strong predictor of leadership judgments. For Black male targets, high mean dominance ratings and low dominance-leadership correlations were consistent with that of prior research, as Black men are typically perceived as more dominant than their White (and in this case, Asian) counterparts, and dominance amplifies the typical Black stereotype of threat and aggression (Livingston and Pearce, 2009; Okonofua, 2015), leading to the perception of them as unfit leaders. For Asian

male targets, low dominance mean ratings and weak dominance-leadership correlations supports the idea that Asian men are not only seen as the least dominant among the present groups, but also that dominance is not a trait valued in Asian male leaders (Festekjian et al., 2014). This comes in spite of prior findings where dominance counteracted the typical perception of Asian men as meek and submissive, with dominant East Asian men being positively rated as leaders (Salerno and Peter-Hagene, 2015). While dominance may be positively predictive of leadership in both Black and Asian men, such correlations are too weak to conclude that perceived dominance makes for a perceived good leader in both these groups.

By far the most perplexing result is that of White men. Although mean ratings were expectedly lower than Black men and marginally higher than Asian men, the strong negative dominance-leadership correlations suggest that dominance does not necessarily always benefit White male leadership as prototypicality in the literature would dictate (Karmali, 2019; Livingston and Pearce, 2009). Such atypical patterns may potentially be guided by varying definitions of dominance, where interpretations of the term and how it is applied to facial judgments may differ between perceivers. An effect of social desirability may also be at play here, as participants may have caught on to the idea that target race and gender were salient IVs as they progressed through the study, adjusting their responses accordingly (i.e. not wanting to perpetuate the idea that the dominant White male leader is desirable, thus responding in a way that reflects that).

On the other hand, dominance was a much stronger predictor of leadership ratings for female targets compared to male, the strongest among them being Asian female targets. Another unexpected pattern, this suggests that the stereotype that women are, by default, seen as warmer and nurturing is not definite, and that dominance is perhaps valued in a female leader in specific

circumstances (Re and Rule, 2017). For Asian women, this harkens back to the conflicting literature on perceived female traits and leadership, but specifically Radhakrishnan & Romain (2022)'s work, where dominant East Asian women were positively rated on task leadership, being perceived not as a violation of gender roles, but as stereotypically contrasting in a favorable manner, functioning similarly to how baby-facedness tempers the threatening stereotype in Black men and positively predicts Black male leadership (Livingston and Pearce, 2009; Zebrowitz, 1997). This idea of identity and its ability to mitigate negative stereotypes may also extend to Black women, notably supporting the implication raised by Wilson et al. (2017) regarding how Black women may more likely be perceived as better leaders than their male counterparts by virtue of simply being a woman, as femininity tempers typical perceptions of threat and aggression even when perceived as dominant (Radhakrishnan and Romain, 2022; Re and Rule, 2017).

Like their male counterparts, dominance being positively predictive of leadership ratings for White female targets came as an unexpected result, as it is counter to the literature where warmth is often expected to be more positively correlated with female leadership perceptions, with dominance resulting in more negative evaluations of leadership. However, the role of femininity may continue to be at play here, albeit in a different manner. Despite its associations with perceived warmth, and warmth being deemed undesirable in a leader, the context to which the perception is made may have significant influence on how women are judged as leaders, whereas Re and Rule (2017) suggest, femininity is a valued trait in leadership, but favored only among those looking for feminine leaders in the first place.

Limitations

The present study is subject to several limitations. Notably, participation was limited to students at Montclair State University. The extent to which the results might generalize to an older non-college student population is unclear. It would be important to replicate this work with other populations. For example, it would be useful to actually recruit participants who make decisions regarding leadership selection (e.g., people who may actually have a hand in hiring business leaders; voters; etc).

The three traits of leadership, warmth and dominance were not specified in the survey. In other words, participant responses could be guided by vastly varying definitions of each trait, which may have been part of the reason for the atypical results obtained. Future studies may want to consider more narrowly defining each trait for more conclusive results.

Regarding stimuli, participants judged only neutral stimuli. In the context of leadership, this could be an incomplete representation of a scenario where one would actually judge someone's leadership ability. A leader or candidate for leadership would more often be pictured in a professional headshot in appropriate attire, and on occasion, smiling. Thus, perceptions made from the facial stimuli used in the study may not be optimally externally valid for the purpose of examining perceptions of leadership. Stimuli that are more indicative of leadership may need to be considered for potential future iterations of this study. It would also be useful to provide more context, rather than asking about leadership generically. A study that manipulates the domain of leadership could provide even greater detail about how such perceptions may be moderated by different combinations of target social identity, trait inferences, and the traits that are perceived to be necessary for leadership. Moreover, the manner in which faces were displayed could also be altered for future study, as differences may be observed should faces

have been displayed in a completely randomized order, as opposed to being shown by target race.

Conclusion

The present research has expanded upon recent literature regarding the extent to which dominance and warmth ratings are related to leadership perceptions, and examined how these perceptions can be influenced by race and gender. It was found that warmth was positively predictive of leadership ratings for all male groups, the strongest being Black men, as well as being positively predictive of leadership for Black and Asian, but not White, women. It was also found that dominance was positively predictive of leadership ratings, but weak, among Black and Asian male targets, and negatively predictive of leadership ratings among White male targets. For female targets, dominance was positively predictive of leadership ratings across all groups, the strongest being Asian women. Despite the fact that these results did not perfectly coincide with current leadership literature, it compels one to consider how traits, specifically those of warmth and dominance, may be interpreted differently among different populations and contexts, and how those differences may lead to subsequently varying perceptions of leadership.

References

- Collins, M. A. & Zebrowitz, L. A. (1995). The contributions of appearance to occupational outcomes in civilian and military settings. *Journal of Applied Social Psychology, 25*, 129-163.
- Fasoli, F. & Hegarty, P. (2020). A leader doesn't sound lesbian!: The impact of sexual orientation vocal cues on heterosexual persons' first impression and hiring decision. *Psychology of Women Quarterly, 44*(2), 234-255.
<https://doi.org/10.1177/0361684319891168>
- Festekjian, A., Tram, S., Murray, C. B., Sy, T. & Huynh H. P. (2014). I see me the way you see me: The influence of race on interpersonal and intrapersonal leadership perceptions. *Journal of Leadership & Organizational Studies, 21*(1), 102-119. DOI: 10.1177/1548051813486522
- Gaither, S. (2018). The multiplicity of belonging: Pushing identity research beyond binary thinking. *Self and Identity, 17*(4), 443-454. doi=10.1080/15298868.2017.1412343
- Karmali, F. (2019). Intergroup biases in person perception: The impact of race and expansive poses on perceived trait attributions and evaluations of professional and interpersonal success. [Doctoral dissertation, York University], YorkSpace Institutional Repository, <https://yorkspace.library.yorku.ca/xmlui/handle/10315/36720>
- Krumhuber, E., Manstead, A.S.R., Cosker, D., Marshall, D., Rosin, P.L., & Kappas, A. (2007). Facial dynamics as indicators of trustworthiness and cooperative behavior. *Emotion 7*:730–35
- Livingston, R. W. & Pearce, N. A. (2009). The teddy-bear effect: Does having a baby face benefit black chief executive officers? *Psychological Science, 20*(10), 1229-1236.

Mueller, U. & Mazur, A. (1996). Facial dominance of West Point cadets as a predictor of later military rank. *Social Forces*, 74(3), 823-850.

Okonofua, J. A. (2015). When bias and threat persistently interact: A holistic approach to understand the lingering effects of stereotypes. [Doctoral dissertation, Stanford University]. Stanford Digital Repository. <https://purl.stanford.edu/cx934bp3801>

Okonofua, J. A. & Eberhardt, J. L. (2015). Two strikes: Race and the disciplining of young students. *Psychological Science*, 26(5), 617-624. DOI: 10.1177/0956797615570365

Olivola, C. Y., Eubanks, D. L. & Lovelace, J. B. (2014). The many (distinctive) faces of leadership: Inferring leadership domain from facial appearance. *The Leadership Quarterly*, 25(5), 817-834. <https://doi.org/10.1016/j.leaqua.2014.06.002>

Radhakrishnan, P. & Romain, J. (2022). *Conforming yet countering: Navigating gender and racial stereotypes while becoming a leader*. Student Evaluations of Teaching. https://www.researchgate.net/publication/357849875_Conforming_Yet_Countering_Navigating_Gender_and_Racial_Stereotypes_While_Becoming_a_Leader

Re, D. E. & Rule, N. (2017). Distinctive facial cues predict leadership rank and selection. *Personality and Social Psychology Bulletin*. 43(9), 1311-1322. <https://doi.org/10.1177/0146167217712989>

Remedios, J. D. & Snyder, S. H. (2018). Intersectional oppression: Multiple stigmatized identities and perceptions of invisibility, discrimination and stereotyping. *Journal of Social Issues*, 74(2), 265-281. doi: 10.1111/josi.12268

Riggio, H. R. & Riggio, R. E. (2010). Appearance-based trait inferences and voting: Evolutionary roots and implications for leadership. *Journal of Nonverbal Behavior*, 34, 119-125. DOI:10.1007/s10919-009-0083-0

- Rosette, A. S., Leonardelli, G. J. & Phillips, K. W. (2008). The white standard: Racial bias in leader categorization. *Journal of Applied Psychology*, 93(4), 758-777.
<https://doi.org/10.1016/j.leaqua.2014.06.002>
- Salerno, J. M., & Peter-Hagene, L. C. (2015). One angry woman: Anger expression increases influence for men, but decreases influence for women, during group deliberation. *Law and Human Behavior*, 39, 581–592. doi:10.1037/lhb0000147
- Salerno, J. M., Peter-Hagene, L. C. & Jay, A. C. V. (2019). Women and African Americans are less influential when they express anger during group decision making. *Group Processes & Intergroup Relations*, 22(1), 57-79. DOI: 10.1177/1368430217702967
- Todorov, A., Olivola, C. Y., Dotsch, R. & Mende-Siedlecki, P. (2015). Social attributions from faces: Determinants, consequences, accuracy, and functional significance. *The Annual Review of Psychology*, 66, 519-545. 10.1146/annurev-psych-113011-143831
- van Vugt, M. & Grabo, A. E. (2015). The many faces of leadership: An evolutionary-psychology approach. *Current Directions in Psychological Science*, 1-6. DOI: 10.1177/0963721415601971
- Wilson, J. P., Remedios J. D. & Rule, N. O. (2017). Interactive effects of obvious and ambiguous social categories on perceptions of leadership: When double-minority status may be beneficial. *Personality and Social Psychology Bulletin*, 43(6), 888-900. DOI: 10.1177/0146167217702373
- Zebrowitz, L.A. (1997). *Reading faces: Window to the soul?* Boulder, CO: Westview Press.