Creating a more inclusive environment for underrepresented groups through allyship

A Model of the Impact of Social Identity Threat

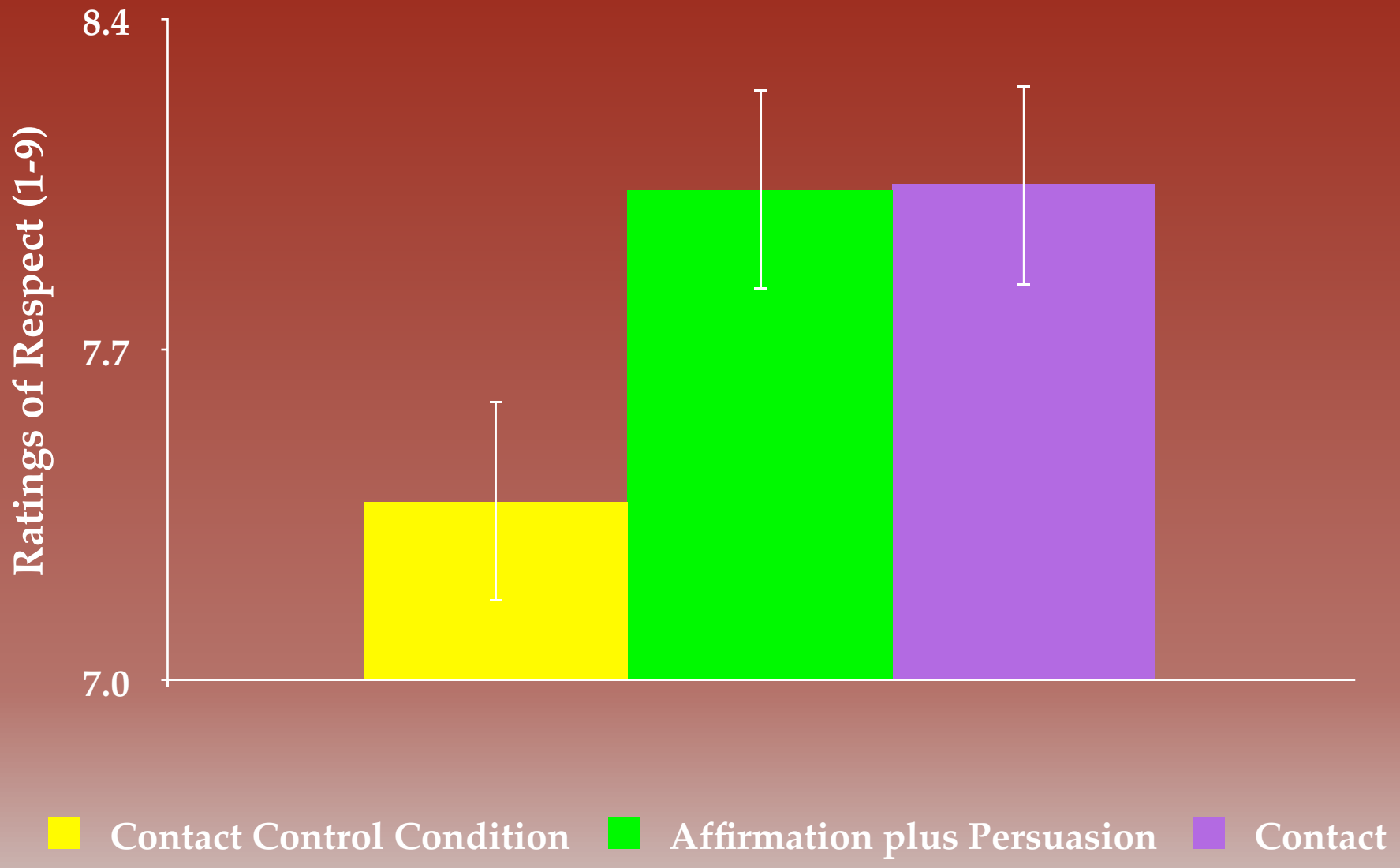
Intervention Designed to Increase Male Engineers Respect for Their Female Peers

- Participants - 151 male first year engineering students at the University of Waterloo
- Four Conditions:
  - An intervention that includes self-affirmation and a persuasive appeal for latent ability, plus three sessions in the term that modelled respect toward female colleagues
  - A control condition that just had the persuasive appeal
  - A contact condition that enhanced belonging between men and women and that had three jigsaw exercises

Time Line

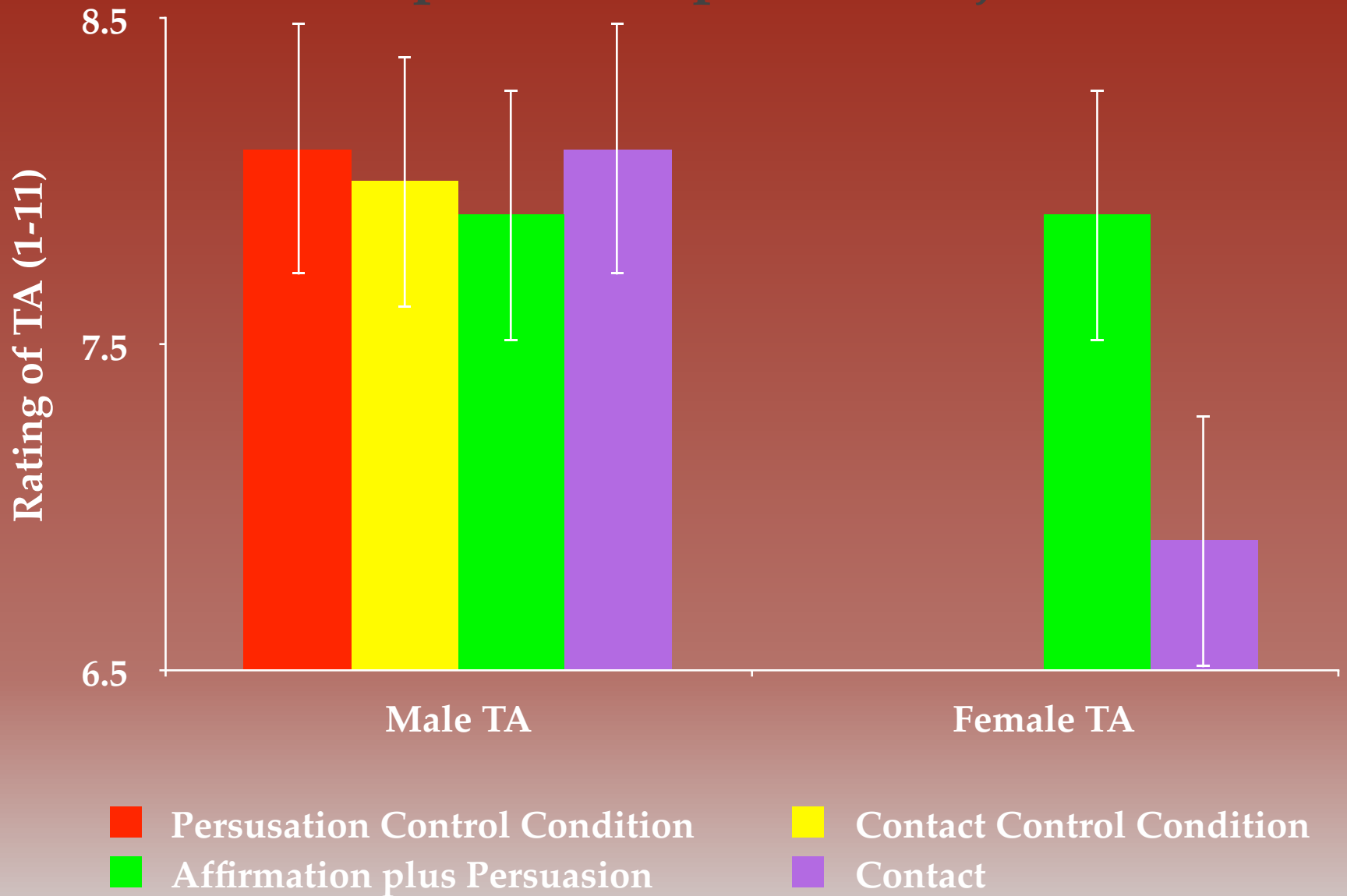
	Session 1	Session 2	Session 3	Session 4
Affirmation + Persuasion	Affirmation Persuasion ♀ & ♂ TAs	Build Bridge ♀ & ♂ TA Model Respect	Build Tower ♀ & ♂ TA Model Respect	RAs collect DVs
Persuasion Control	Persuasion Only ♂ TAs	nothing	nothing	RAs collect DVs
Contact	Collect Back-ground Info ♀ & ♂ TA	Belonging Jigsaw Task ♀ & ♂ TA Model Respect	Jigsaw Task ♀ & ♂ TA Model Respect	RAs collect DVs
Contact Control	Collect Back-ground Info ♂ TAs	Belonging Control Task ♂ TAs	Control Task ♂ TAs	RAs collect DVs

Results -
Men's Respect for Women in Their Group



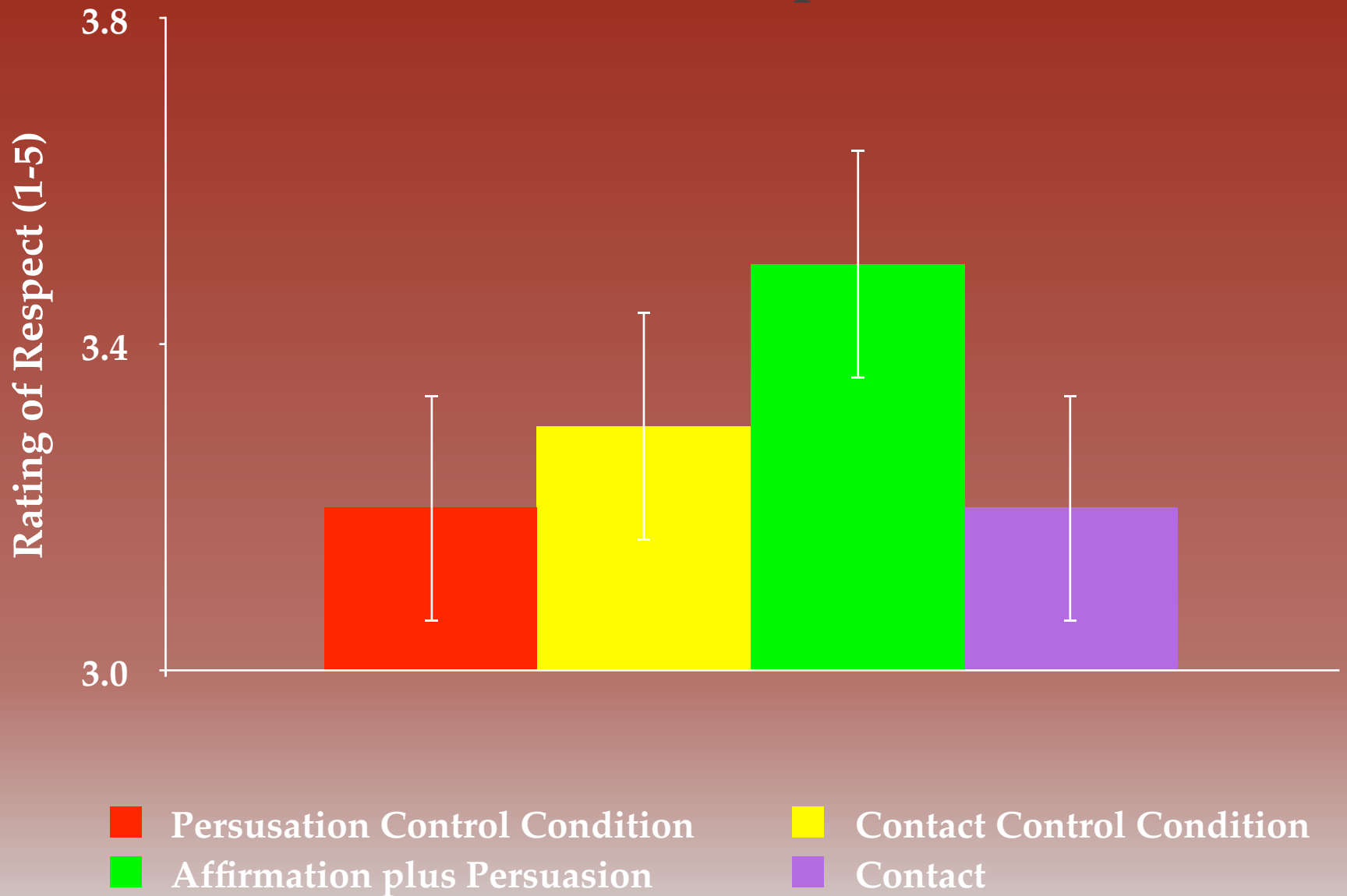
Results

How Much Did Men Want Their TA to Supervise Capstone Project



Results

Female RA's Report of How Much Men Treated Her with Respect



Initial research exploring ally interventions

- Ally interventions
- Who acts an ally?
- Why do we need ally interventions?
- Focused initially on Black women
  - Multiple stigmatized identities

Diversity Initiatives in STEM

- Often have the goals:
  - *Increase underrepresented minorities in STEM* **Men**
  - *Increase women in STEM* **White Women**

- Examine the effectiveness of role model interventions for Black women

Role models

- Female scientist role models increase women's identification with and sense belonging in STEM (Stout, Dasgupta, Hunsinger, & McManus, 2011)
- Women must feel similar to and relate to the role model (Asgari, Dasgupta, & Stout, 2014)
- Role model in STEM research has often focused on women generally (Stout et al., 2011; Asgari et al., 2014)
  - Black women may not easily relate to or identify with a White woman role model

Intersectional identities

- Ethnic-prominence perspective
  - Black women are more likely to anticipate and attribute experiences of discrimination to their ethnic group than their gender (Levin, Sinclair, Veniegas & Taylor, 2002)
  - *Black female and Black male scientists > White female scientist*

Intersectional identities

- Double Jeopardy perspective
  - Women of color face compounding challenges as a result of their dual stigmatized identities (Beale, 1970; King, 1975; Klonoff, Landrine, & Scott, 1995)
  - *Black female scientist> Black male and White female scientist*

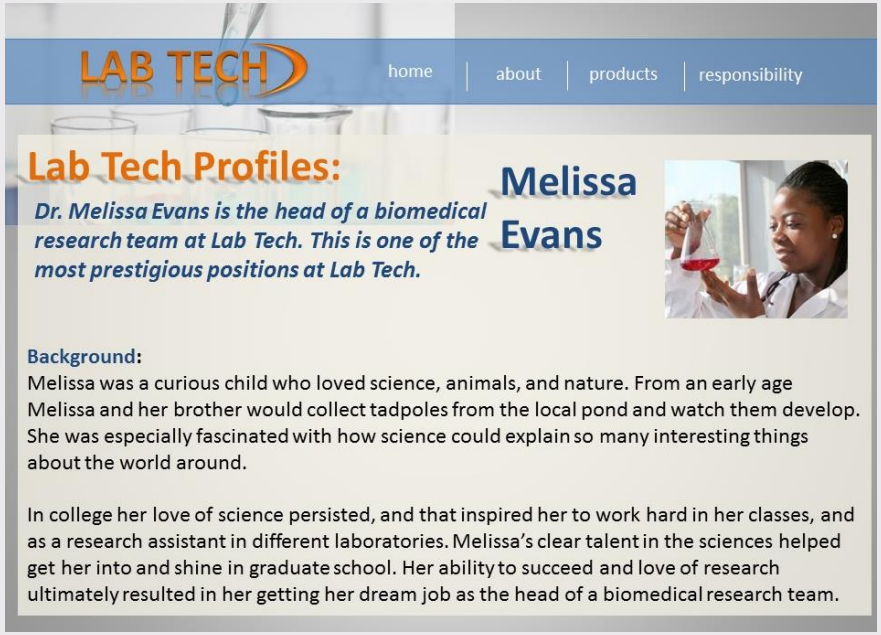
Study 1

- 393 Black women from the general population using Amazon's Mechanical Turk Website

Imagine how you would feel working at this company

Study 1

- 4 conditions
  - No profile
  - Black woman profile
  - Black man profile
  - White woman profile
- Profiles were identical
- Only things that differed:
  - The name - Melissa or Mark Evans
  - The picture



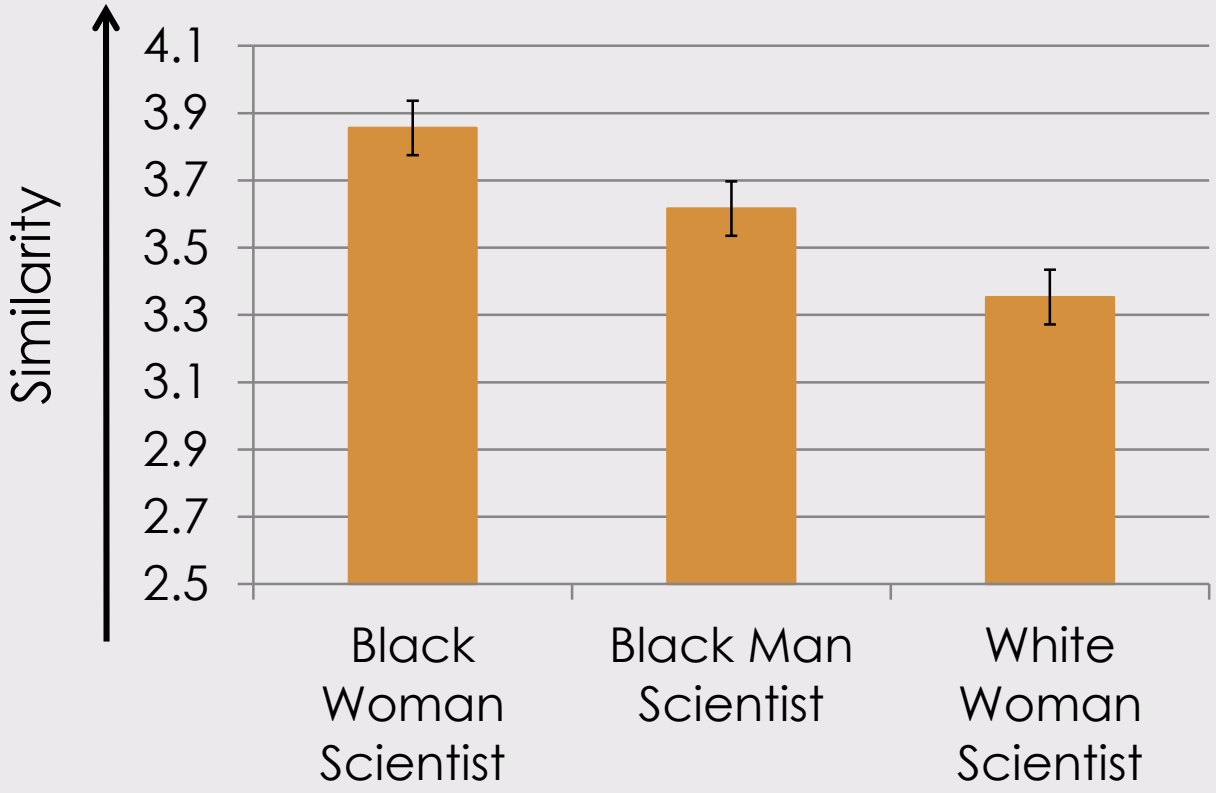
Study 1: Measures

- Perceived similarity to scientist
  - E.g., "This person is similar to me" (1-*strong disagree* to 5-*strongly agree*)
  - 4 items, a=.87
- Predicted Trust and Comfort (Purdie-Vaughn et al., 2008)
  - E.g., "I think would be treated fairly by colleagues" (1-*strong disagree* to 5-*strongly agree*)
  - 4 items, a=.86

Study 1: Measures

- Stigma Consciousness (Pinel, 1999)
  - E.g., "When interacting with people, I feel like they interpret all of my behaviors in terms of my race and gender" (1-*strong disagree* to 5-*strongly agree*)
  - 5 items, a=.78

Study 1 Results: Perceived similarity

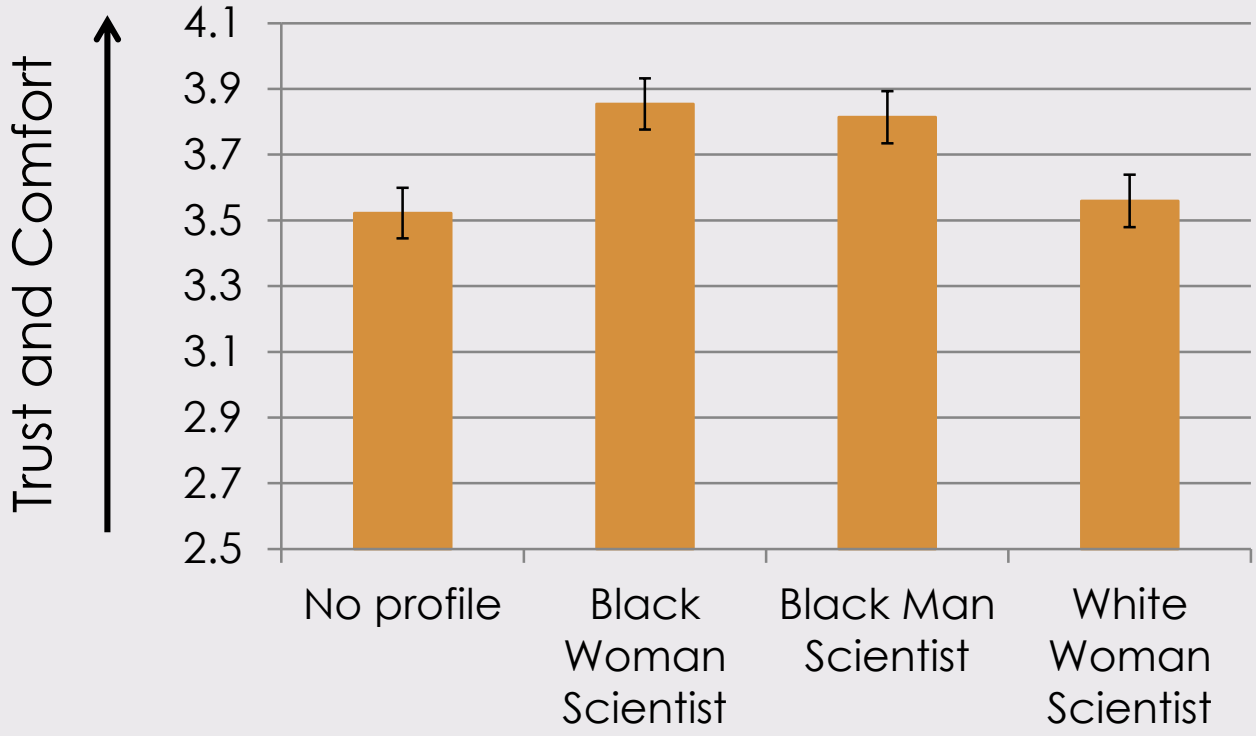


Black woman vs. white woman : d=.32, p<.001

Black man vs. white woman: d=.31, p=.063

$F(2,288)=9.61$, $p<.001$, $\eta_p^2=.063$

Study 1 Results: Trust and comfort



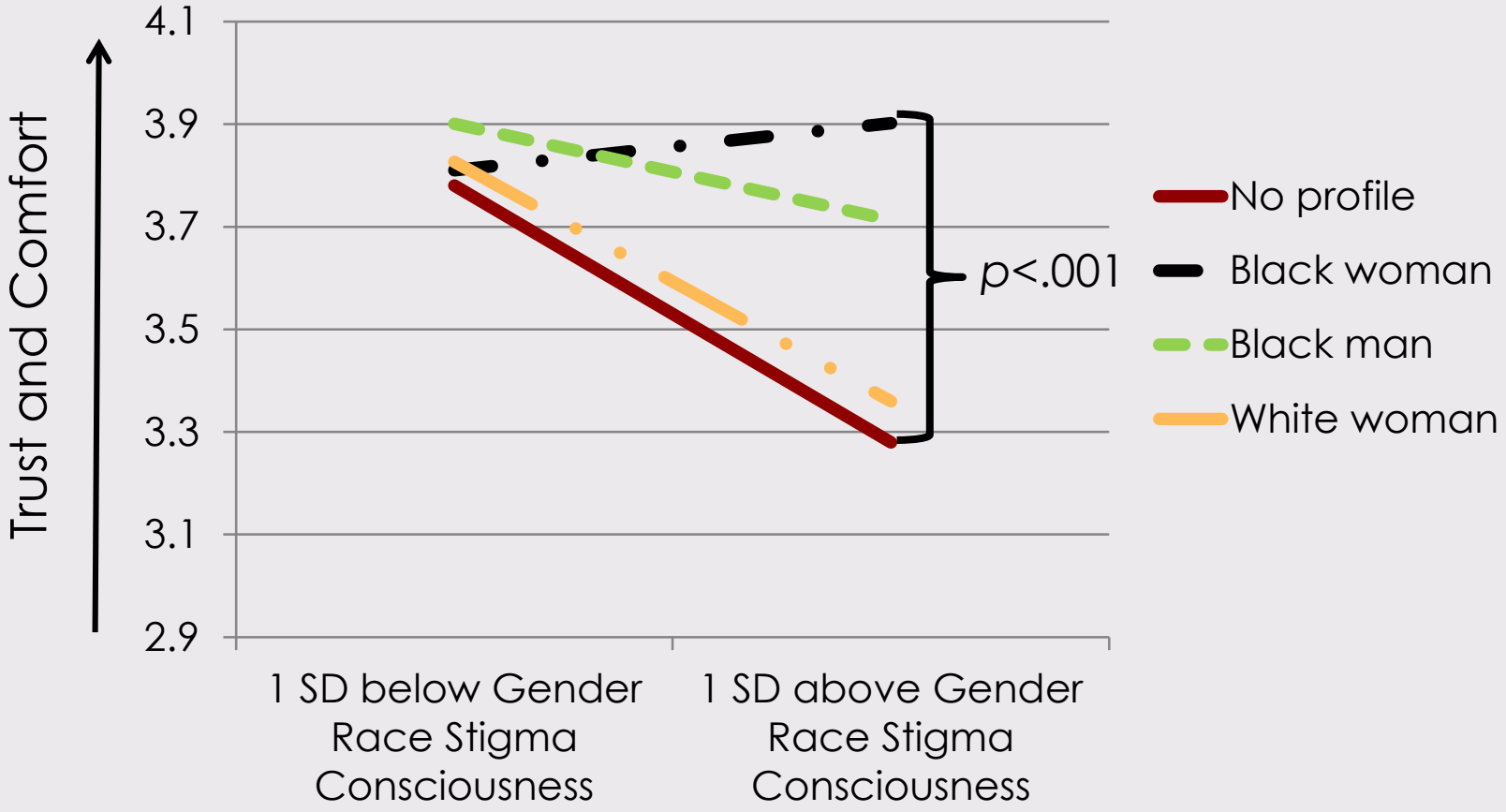
Black women vs. no profile : d=.41, p=.014

Black man vs. no profile: d=.39, p=.045

White women vs. no profile: d=.05, p=.985

$F(2,389)=4.75$, $p=.003$, $\eta_p^2=.035$

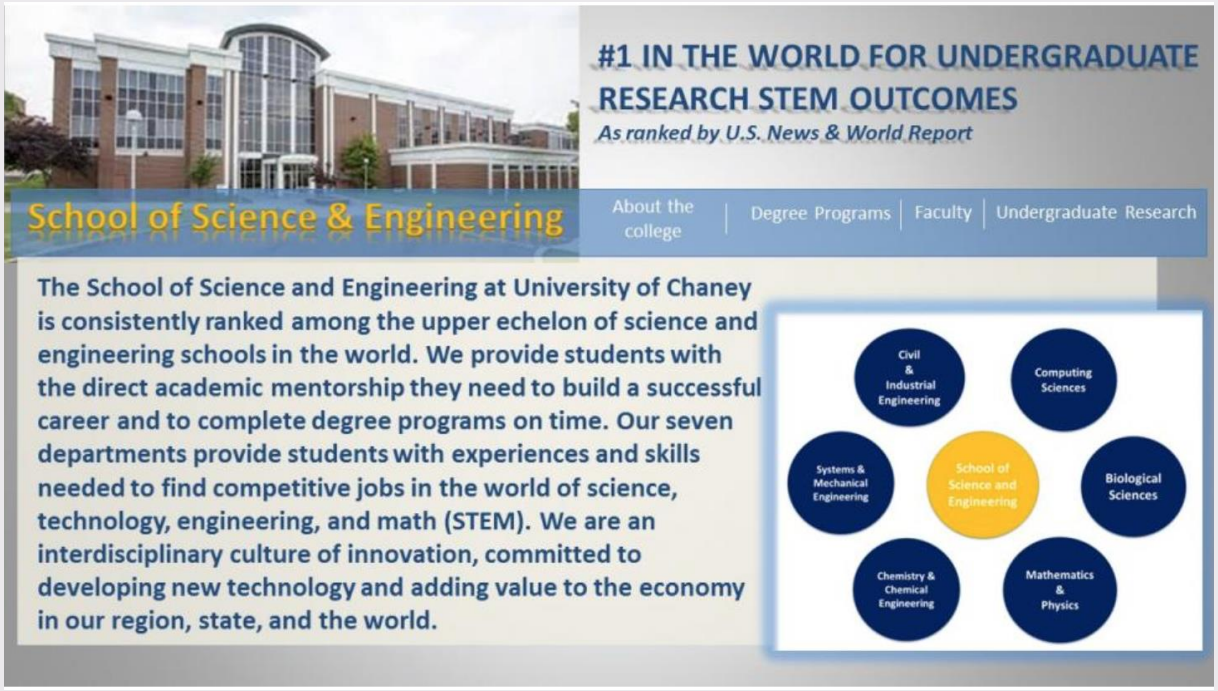
Study 1 Results: Moderation by stigma consciousness



Study 2

- Replication of Study 1 with 362 Black female students

Imagine how you would feel at this school



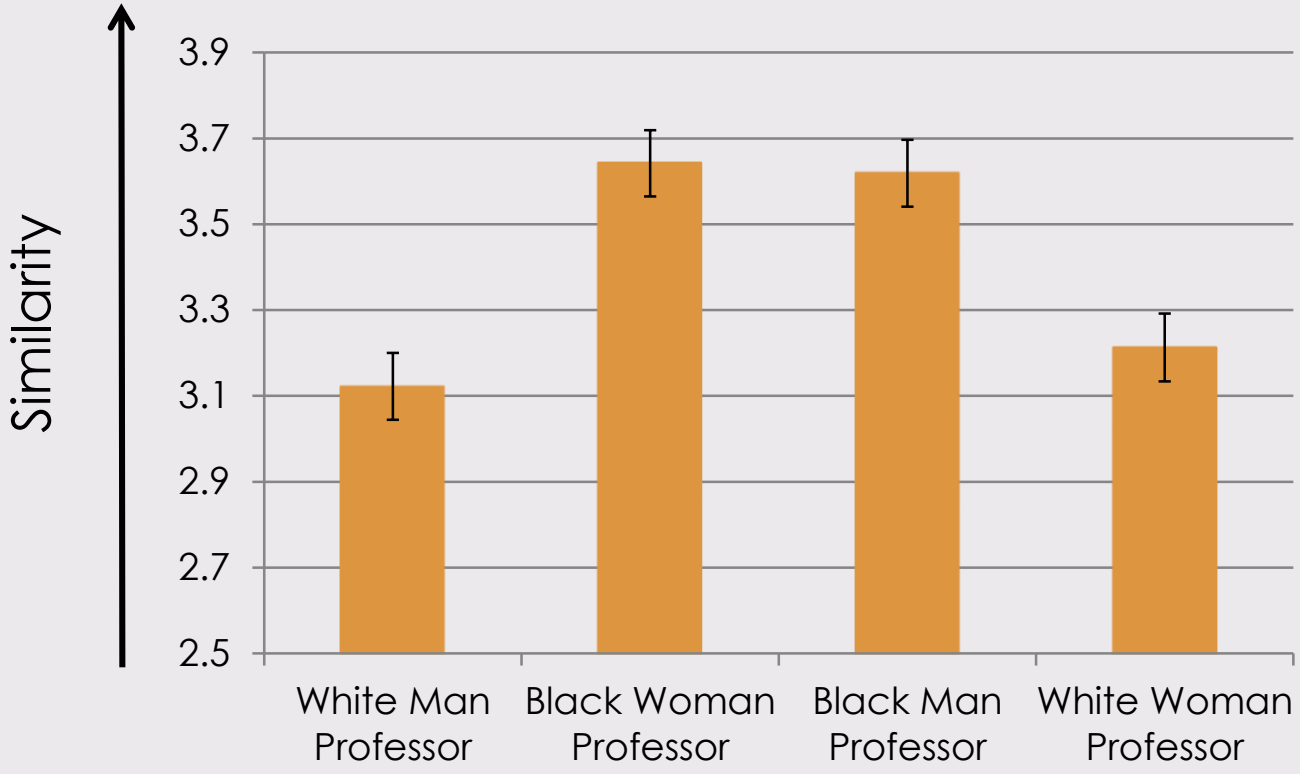
Study 2

- 4 conditions
  - White man profile
  - Black woman profile
  - Black man profile
  - White woman profile
- Profiles were identical

Study 2: Measures

- Perceived similarity to scientist
- Predicted Trust and Comfort
- Gender-Race Stigma Consciousness

Study 2 Results: Perceived Similarity



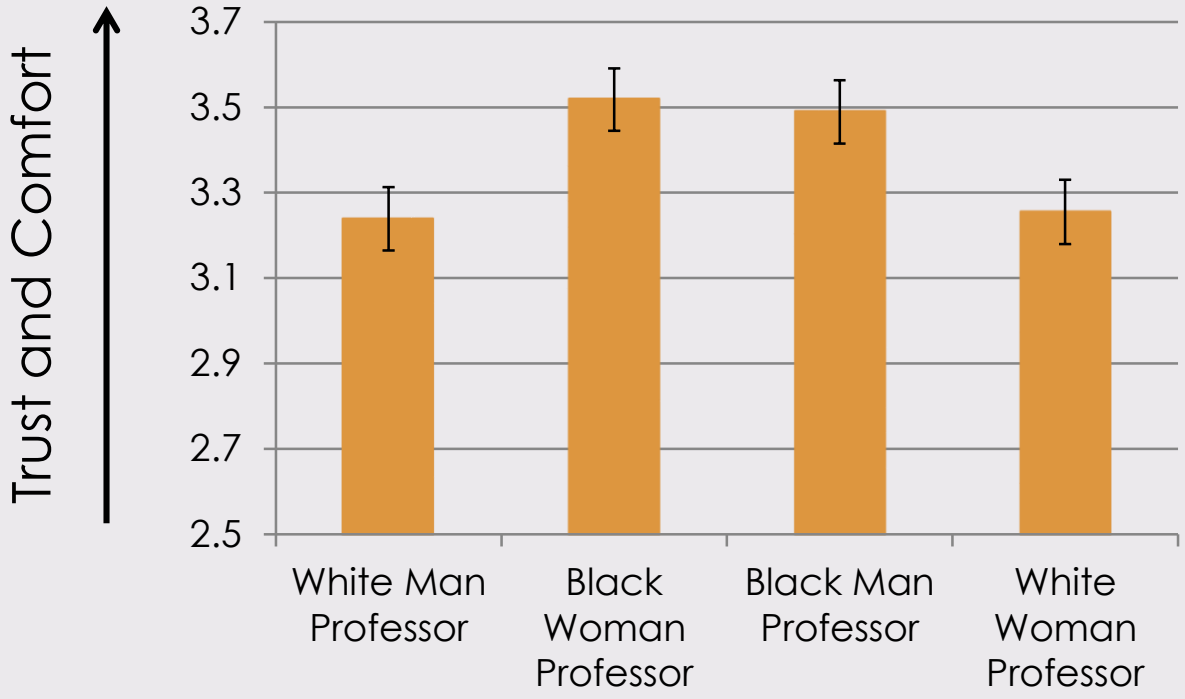
Black woman vs. White man: d=.70, p<.001

Black man vs. White man: d=.73, p<.001

White woman vs. White man: d=.12, p=.846

$F(3,359)=12.02$, $p<.001$, $\eta_p^2=.091$

Study 2 Results: Trust and comfort



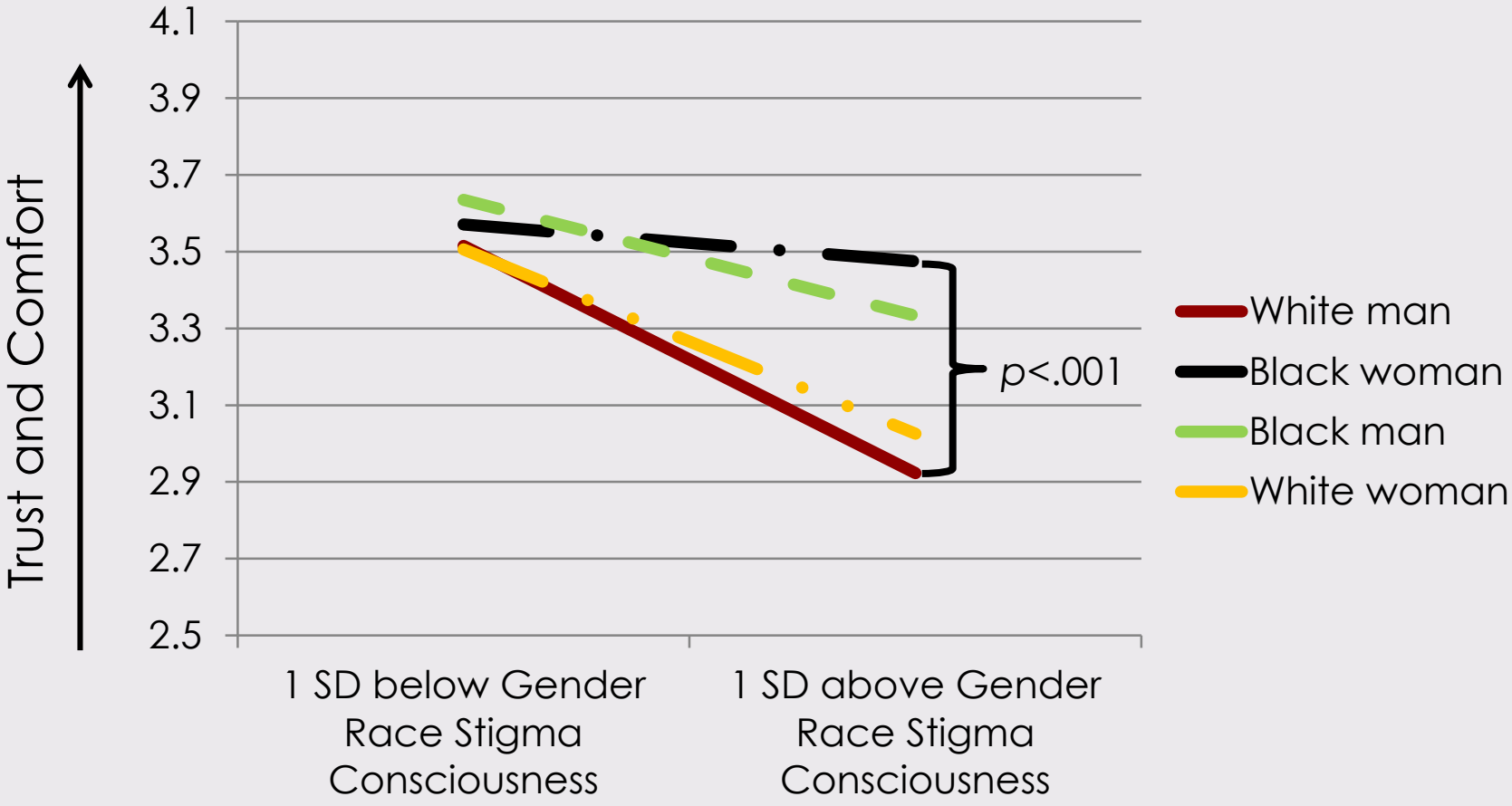
Black woman vs. White man: d=.42, p=.038

Black man vs. White man: d=.37, p=.083

White woman vs. White man: d=.02, p=.999

$F(2,389)=4.05$, $p=.008$, $\eta_p^2=.033$

Study 2 Results: Moderation by stigma consciousness



Study 1 and 2: Summary

- Website featuring a Black female scientist or a Black male scientist
  - ↑ trust and comfort in the STEM environment
  - In line with the ethnic prominence perspective
- High stigma consciousness:
  - ↓ trust and comfort *unless* the website featured a Black woman role model
  - In line with double jeopardy perspective
- **Problem**: *The White female scientist was never effective*

Study 3

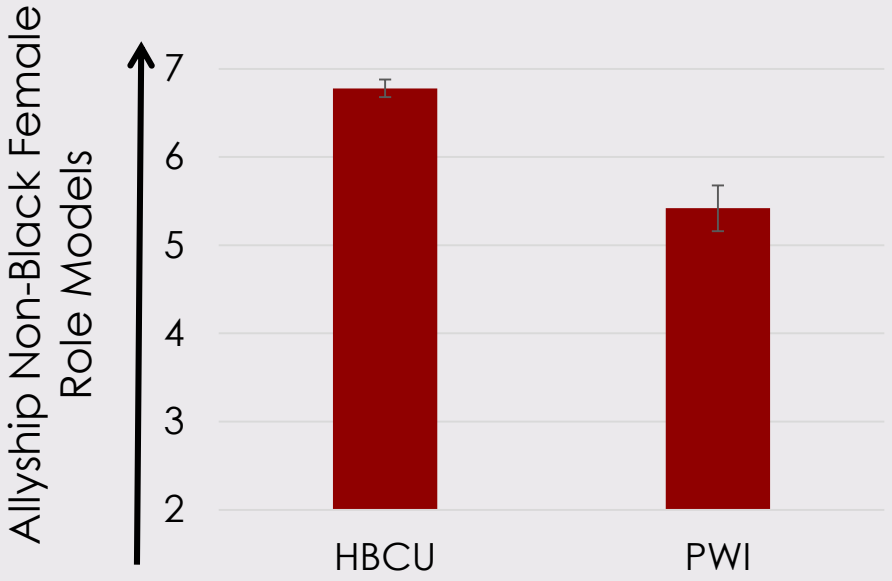
- How do role models influence Black female STEM majors experiences in an institution?
- Recruited Black female STEM majors from:
  - Predominately White University (PWI) (89)
  - Historically Black female college (HBCU) (116)
    - 54 full-time faculty in STEM- 18 Black women (33%)

Study 3: Measures

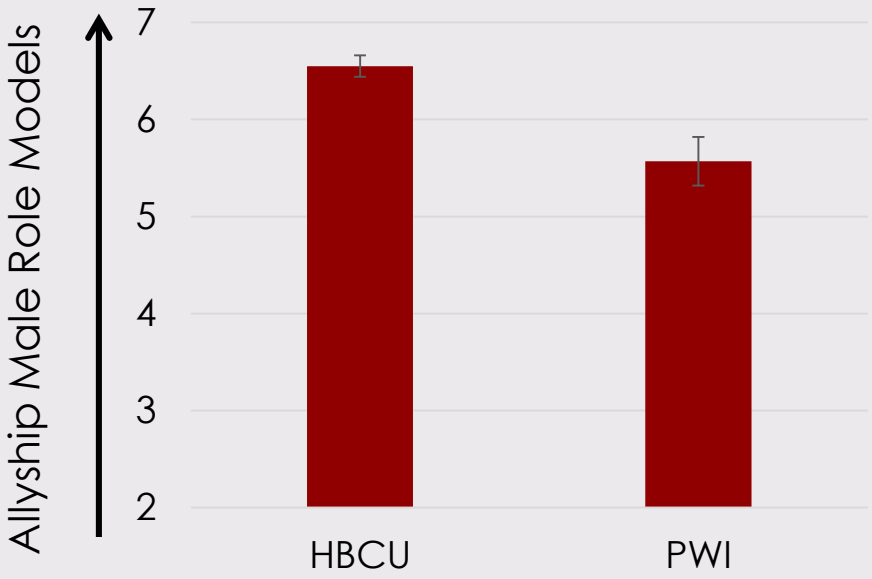
- Role models at institution
  - Indicated the race and gender of the role model
  - Perceived allyship of the role model
    - "How much do you think this role model cares about helping Black women?" (1- *does not care at all* to 7- *cares very much*)
- Belonging at their institution
- Belonging in STEM
  - "I belong in the sciences" (1-*strong disagree* to 5-*strongly agree*)
    - 8 items, α=.85

Study 3: Results

- Significantly more Black female role models at HBCU(~2-3) than PWI(~0-1), $t(203)=8.53$, $p<.001$, $d=1.12$

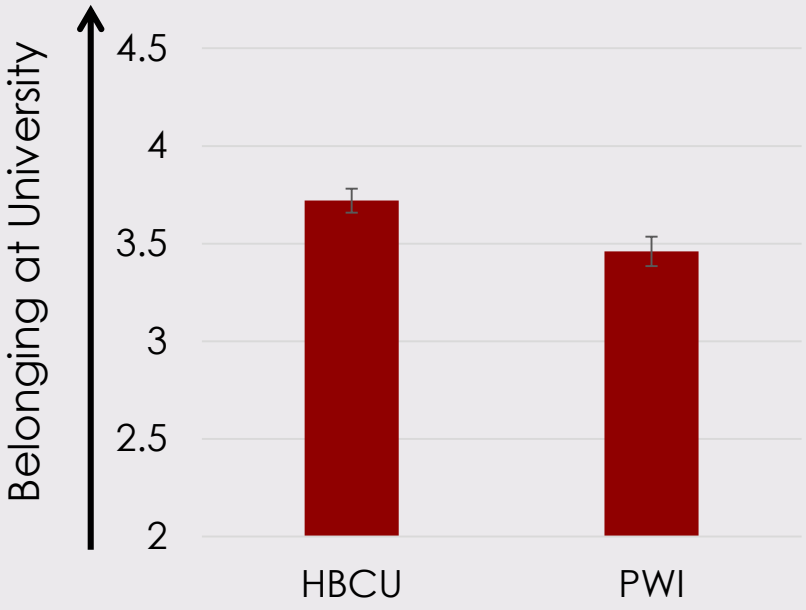


$t(73)=4.70$, $p<.001$, $d=1.10$

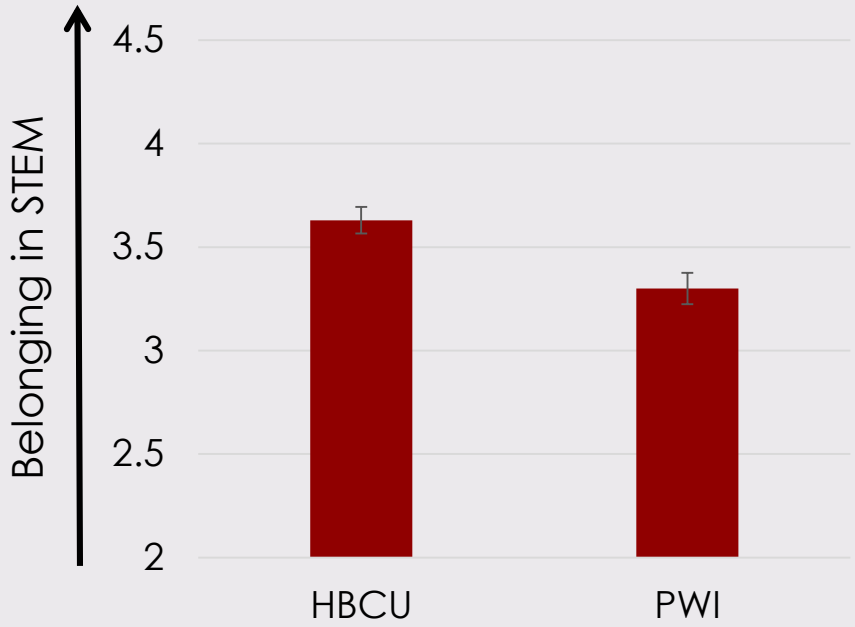


$t(82)=4.17$, $p<.001$, $d=.92$

Study 3: Results



t(203)=2.64, *p*=.009, *d*=.37



t(203)=3.50, *p*=.001, *d*=.49

Study 3: Results

	Belonging university	**Belonging STEM**
Black female role models	$r(203)=.31$, $p<.001$	$r(203)=.14$, $p=.046$
Allyship non-Black female role models	$r(72)=.21$, $p=.080$	$r(72)=.42$, $p<.001$
Allyship male role models	$r(81)=.14$, $p=.134$	$r(81)=.20$, $p=.068$

Study 3: Summary

- Compared to PWI, Black female STEM majors at HBCU
  - ↑ Black female role models
  - ↑ belonging at their institution and in STEM
  - ↑ Perceived allyship from role models with different gender and racial identities

Study 3: Summary

- Believing their non-Black female role models were allies
  - ↑ belonging at their institution and in STEM
- How do we make White women more effective role models?
  - Have them signal allyship

Study 4

- Ethnic minorities feel more welcomed in companies that acknowledge the value of diverse perspectives (e.g. a multicultural ideology) (Plaut, Thomas, & Goren, 2009; Stevens, Plaut, & Sanchez-Burks, 2008)
- *A White woman who endorses multiculturalism*

Study 4

- Black women have more positive experiences when they perceive more allyship from their White counterparts (Dominigue, 2015)
  - White women can demonstrate allyship acknowledging and combating prejudice (Brown & Ostrove , 2013; Droogendyk et al., 2016)
- *A White woman ally who acknowledges the unique experiences of Black women*

Study 4

- 426 Black women from the general population using Amazon's Mechanical Turk Website

Imagine how you would feel working at this company

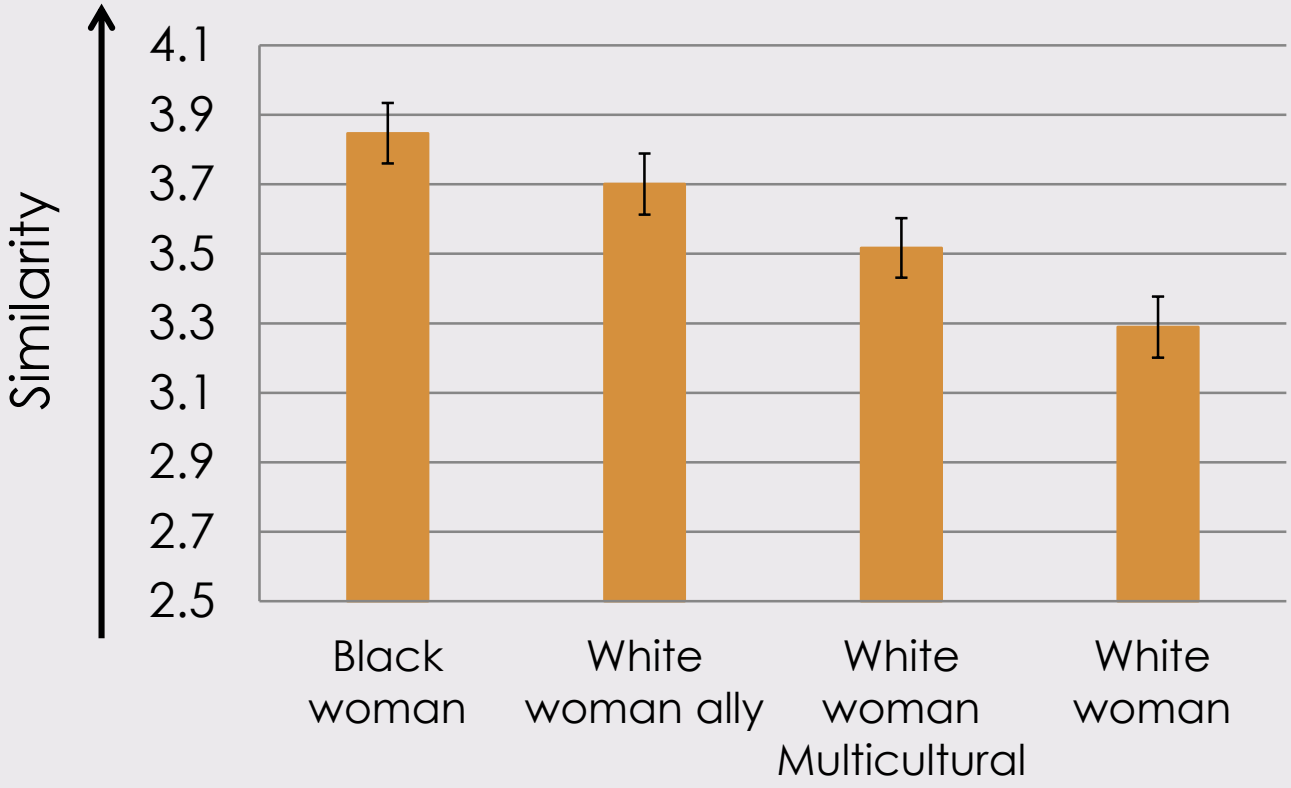
Study 4

- 5 conditions
  - No profile
  - Black woman profile
  - White woman profile
  - White woman endorsing multiculturalism
    - *Having diverse research teams has been key in the success of this research. Diverse groups really do bring more creative and innovative ideas for new experiments and avenues to take this research.*
  - White woman ally
    - *The reality is, right now there are just not as many women as men in science and the group that is really missing is women of color. Even though I'm a woman, I recognize my experience as a White women is different than that of a Black or Latina woman. I really value their unique perspective and work to actively recruit them as research assistants and research scientists for my group.*

Study 4: Measures

- Perceived similarity to scientist
- Perceived allyship of the scientist
  - "Most likely this person wants to help Black women succeed in the sciences" (1-*strong disagree* to 5-*strongly agree*)
    - 2 items, α=.85
- Predicted Trust and Comfort
- Gender-Race Stigma Consciousness

Study 4 Results: Perceived similarity



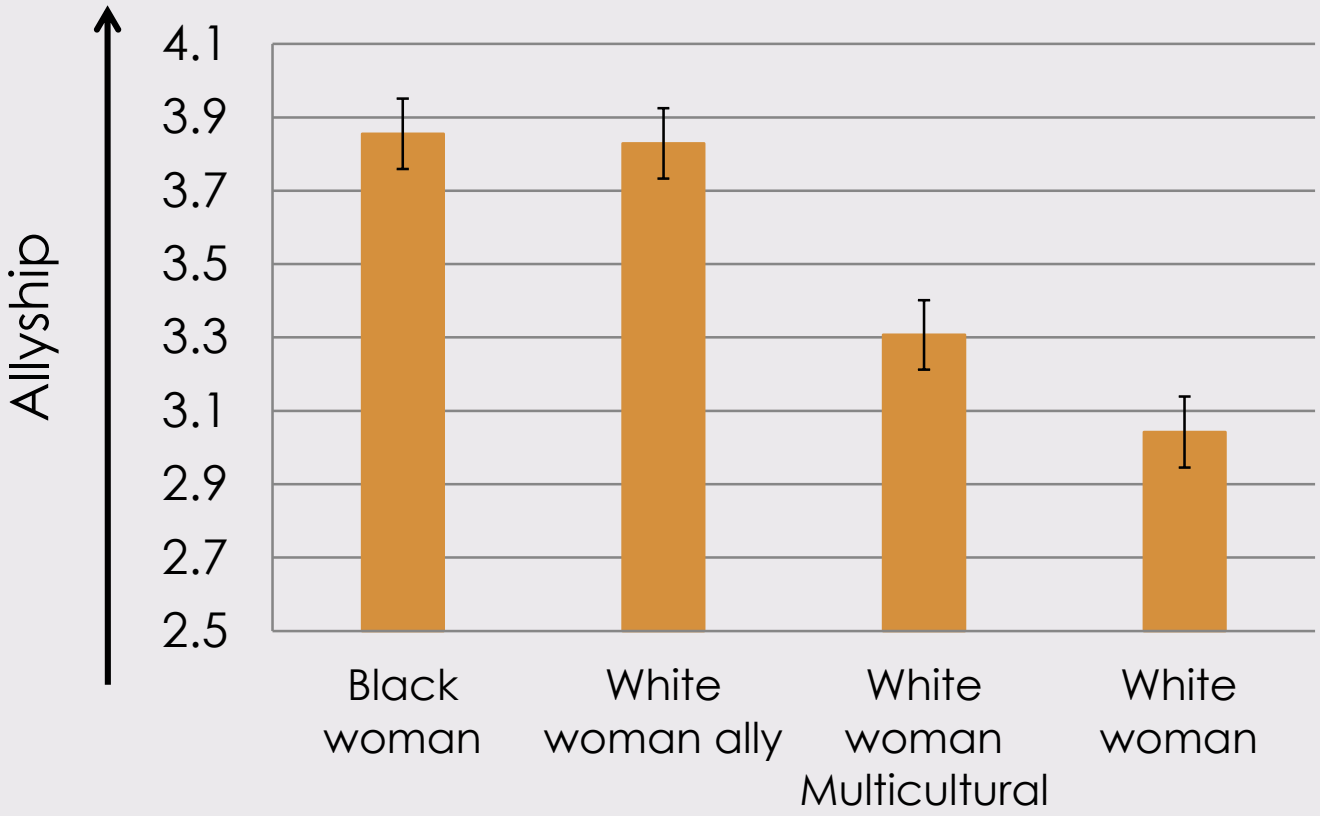
Black woman vs. White woman : d=.44, p=.021

White woman ally vs. White woman : d=.26, p=.321

White woman ally vs. White woman : d=.04, p=.994

$F(3,339)=3.70$, $p=.012$, $\eta_p^2=.032$

Study 4 Result: Perceived allyship



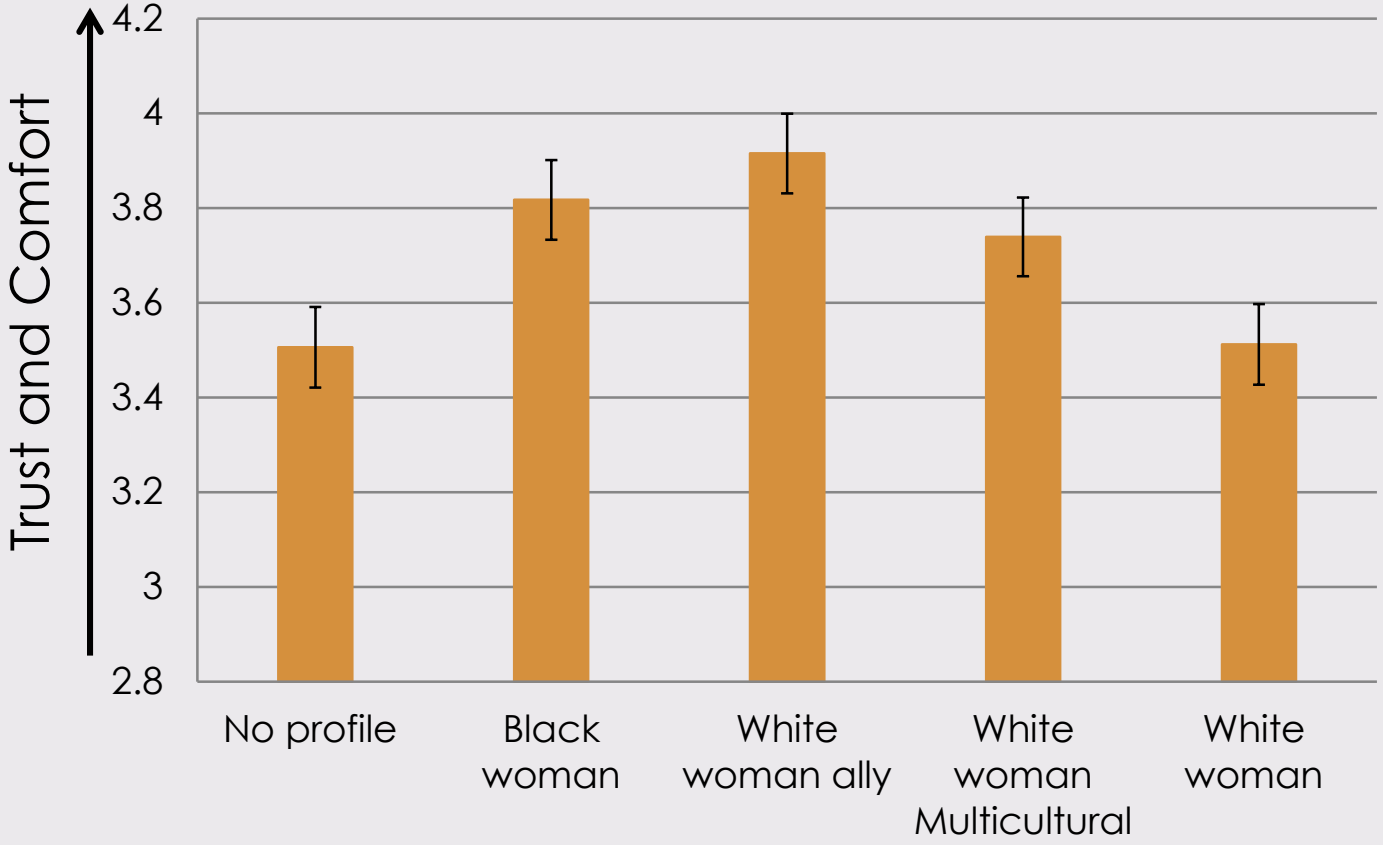
Black woman vs. White woman : d=.97, p<.001

White woman ally vs. White woman : d=.98, p<.001

White woman multicultural vs. White woman : d=.34, p=.207

$F(3,339)=17.29$, $p<.001$, $\eta_p^2=.133$

Study 4 Results: Trust and comfort



Black woman vs. no profile: *d*=.42, *p*=.071

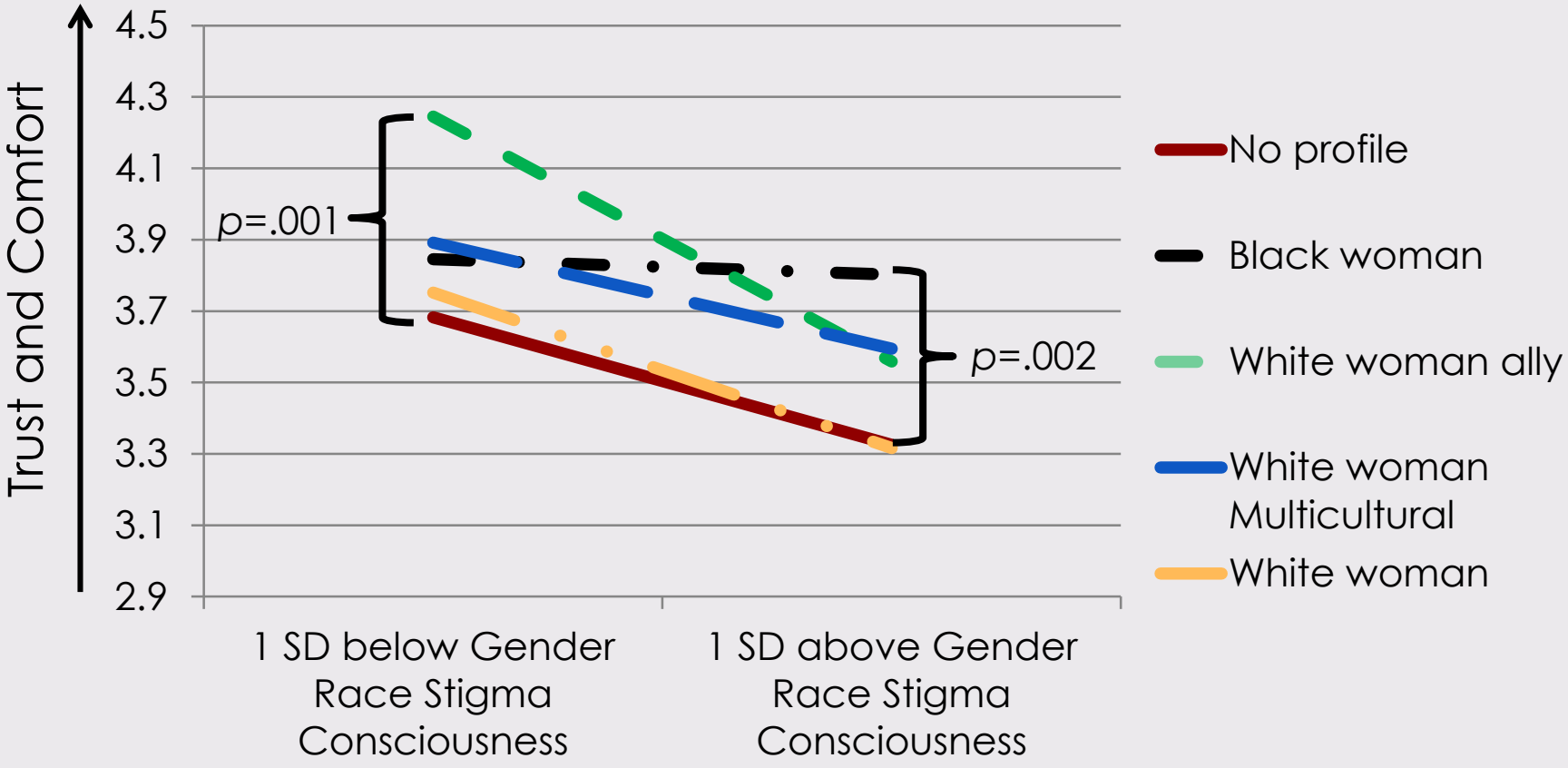
White woman ally vs. no profile: *d*=.50, *p*=.006

White woman multiculturalism vs. no profile: *d*=.31, *p*=.287

White woman vs. no profile: *d*=.01, *p*=.999

$F(4,421)=4.71$, $p=.001$, $\eta_p^2=.043$

Study 4 results: Moderation by stigma consciousness



Study 4: Summary

- Website featuring a Black woman or White woman ally
  - ↑ trust and comfort at a company
- High stigma consciousness:
  - ↓ trust and comfort *unless* the website featured a Black woman role model
- Low stigma consciousness:
  - The White woman ally resulted in higher trust and comfort

Study 5

- How can we make the White female scientist more effective for Black woman with high stigma consciousness?
- Extended Contact Theory
  - Knowledge that ingroup members have positive contact experiences with an outgroup→ reductions in prejudice towards outgroup members (Turner, Hewstone, Voci, Paolini, & Christ, 2007)
- *Black woman endorsing a White woman scientist as an ally*

Study 5

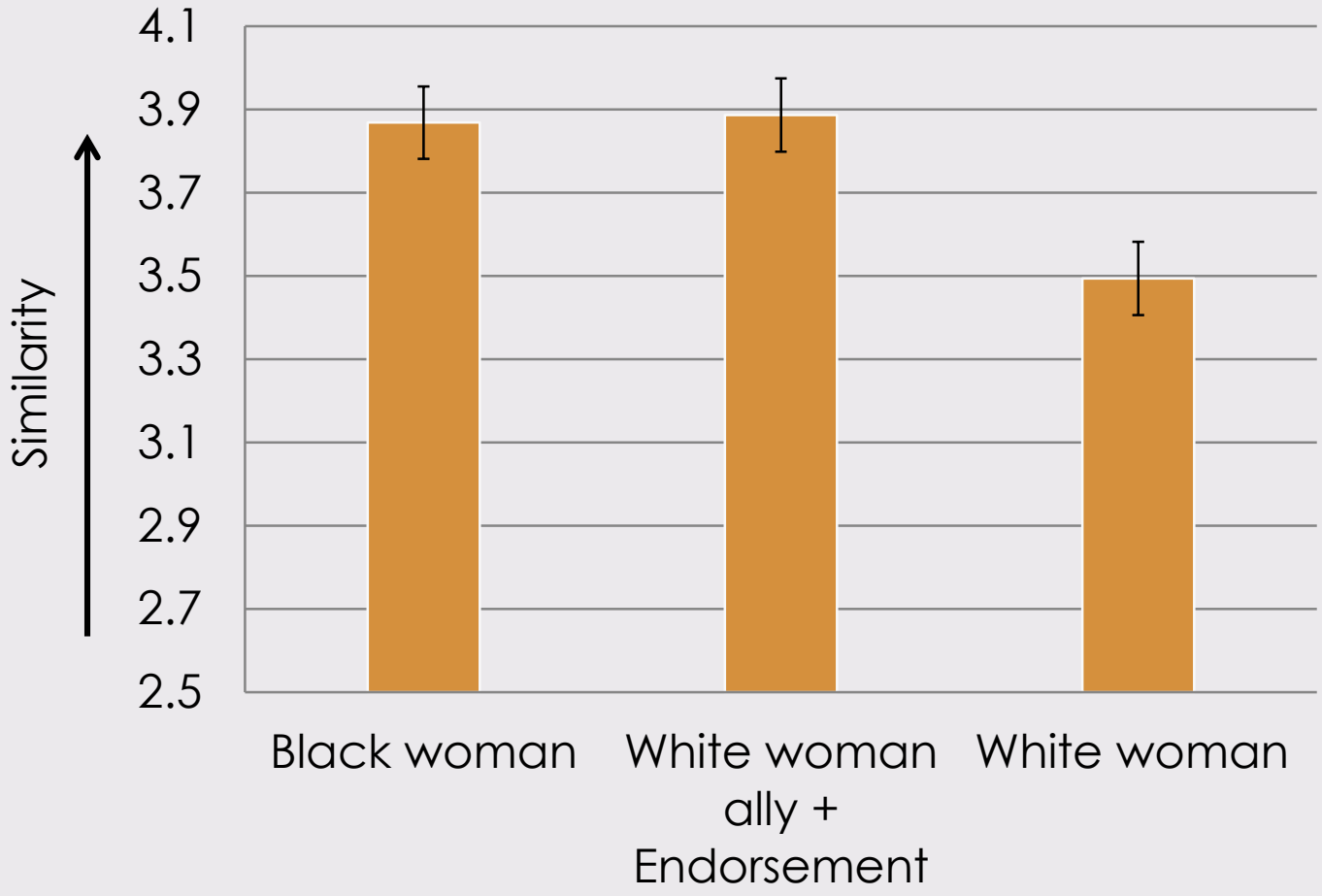
- 315 Black women from the general population using Amazon's Mechanical Turk Website

Imagine how you would feel working at this company

Study 5

- 3 conditions
  - Black woman profile
  - White woman profile
  - White woman ally + Endorsement
    - *Although she is a woman, Dr. Evans acknowledges that the experiences of Black woman in the sciences are unique and does what she can to support my needs; she is truly an ally and an advocate for challenges Black women in the sciences face. She recognizes that Black women are underrepresented in the sciences, and actively works to support and recruit women of color (like me!) so we too can contribute to the sciences!*

Study 5 Results: Perceived similarity

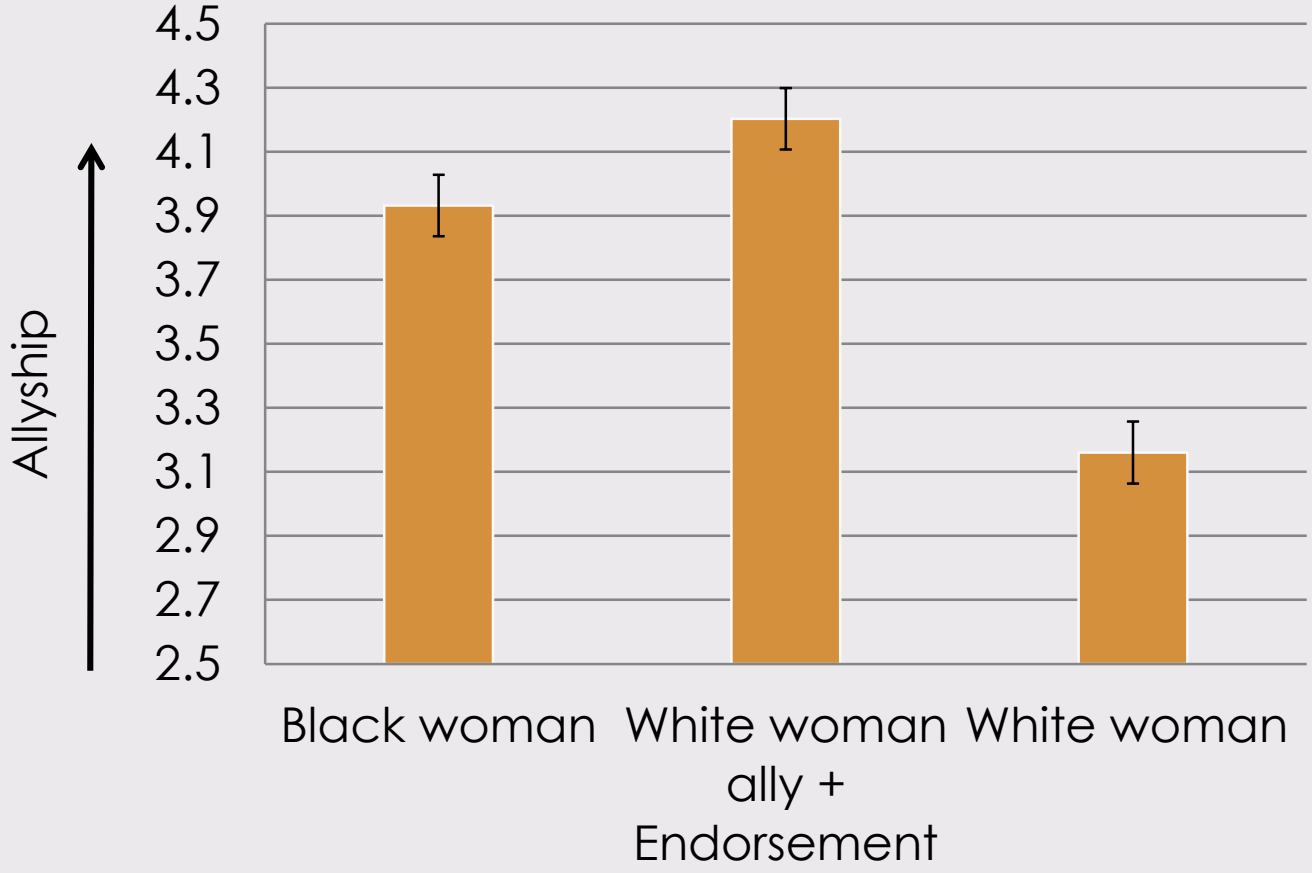


Black woman vs. white woman: d=.48, p=.001

White woman ally + Endorsement vs. white woman: d=.39, p=.016

$F(2,306)=8.59$, $p<.001$, $\eta_p^2=.053$

Study 5 Results: Perceived Allyship

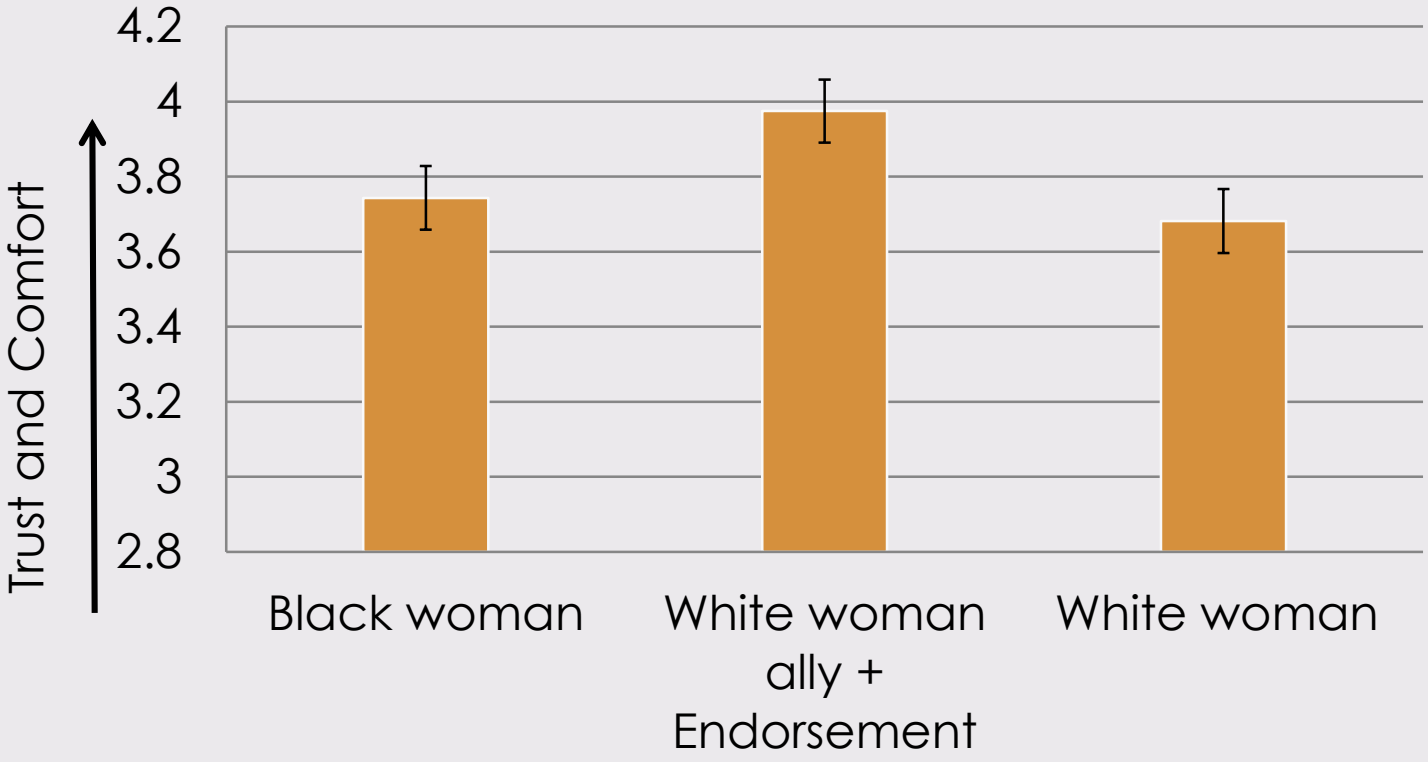


Black woman vs. white woman: d=.87, p<.001

White woman ally + Endorsement vs. white woman: d=.1.04, p<.001

$F(2,306)=38.14$, $p<.001$, $\eta_p^2=.20$

Study 5 Results: Trust and comfort

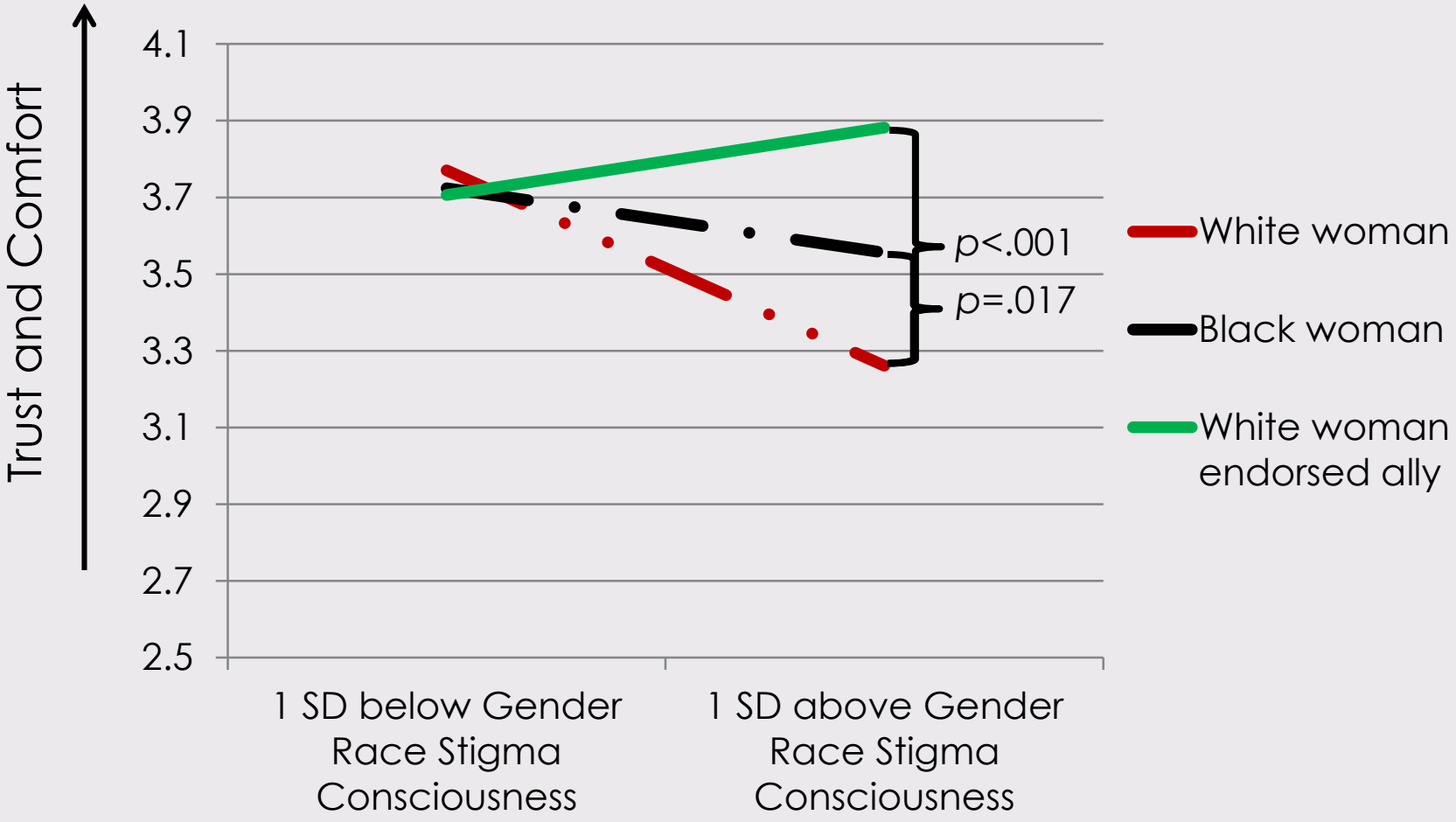


Black woman vs. white woman: *d*=.08, *p*=.816

White woman ally + Endorsement vs. white woman: *d*=.40, *p*=.015

$F(2,302)=4.46$, $p=.012$, $\eta_p^2=.029$

Study 5 Results: Moderation by stigma consciousness



Study 5: Summary

- Website featuring a White woman ally endorsed by a Black woman
  - ↑ trust and comfort at a company
  - Even for participants ***high in stigma consciousness***
- Do these effects generalize to other underrepresented identities?

Study 6

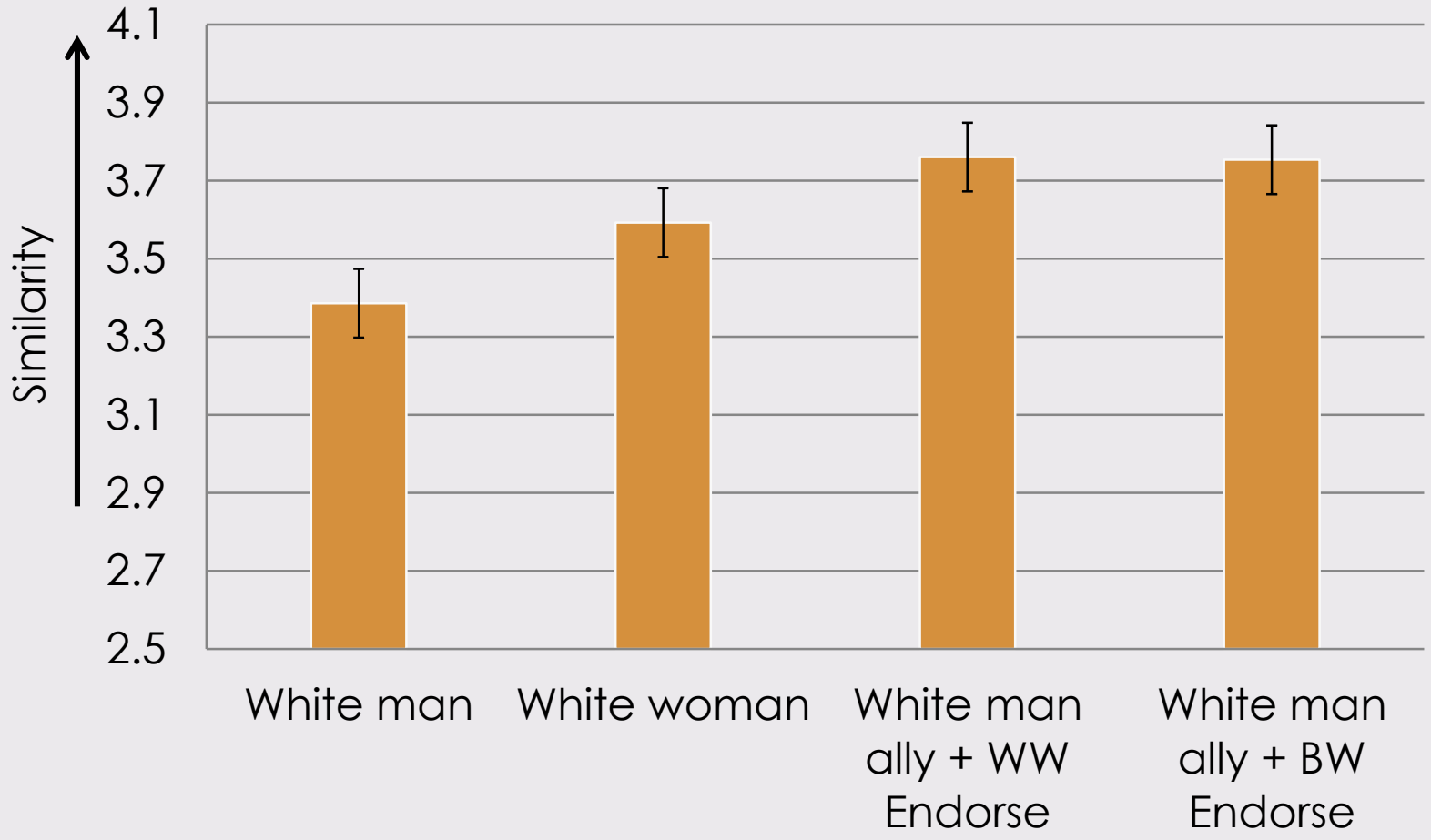
- 335 White women from the general population using Amazon's Mechanical Turk Website

Imagine how you would feel working at this company

Study 6

- 4 conditions
  - White man profile
  - White woman profile
  - White man ally + Black female Endorsement profile
  - White man ally + White female Endorsement profile

Study 6 Results: Perceived similarity



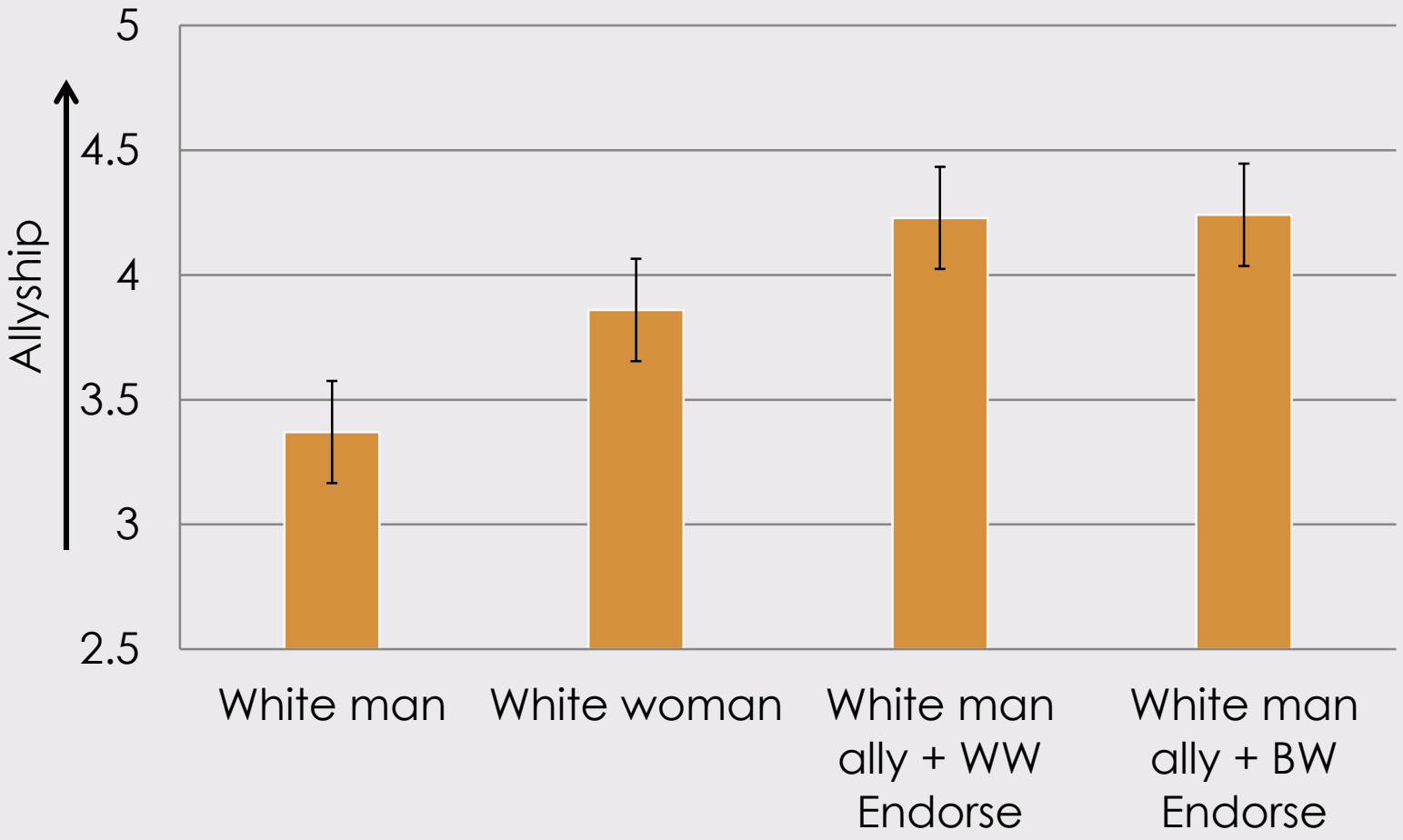
White woman vs. White man: d=.28, p=.33

White man ally + WW Endorsement vs. White man: d=.52, p=.006

White man ally + BW Endorsement vs. White man: d=.51, p=.007

$F(3,331)=5.24$, $p=.002$, $\eta_p^2=.045$

Study 6 Results: Perceived allyship



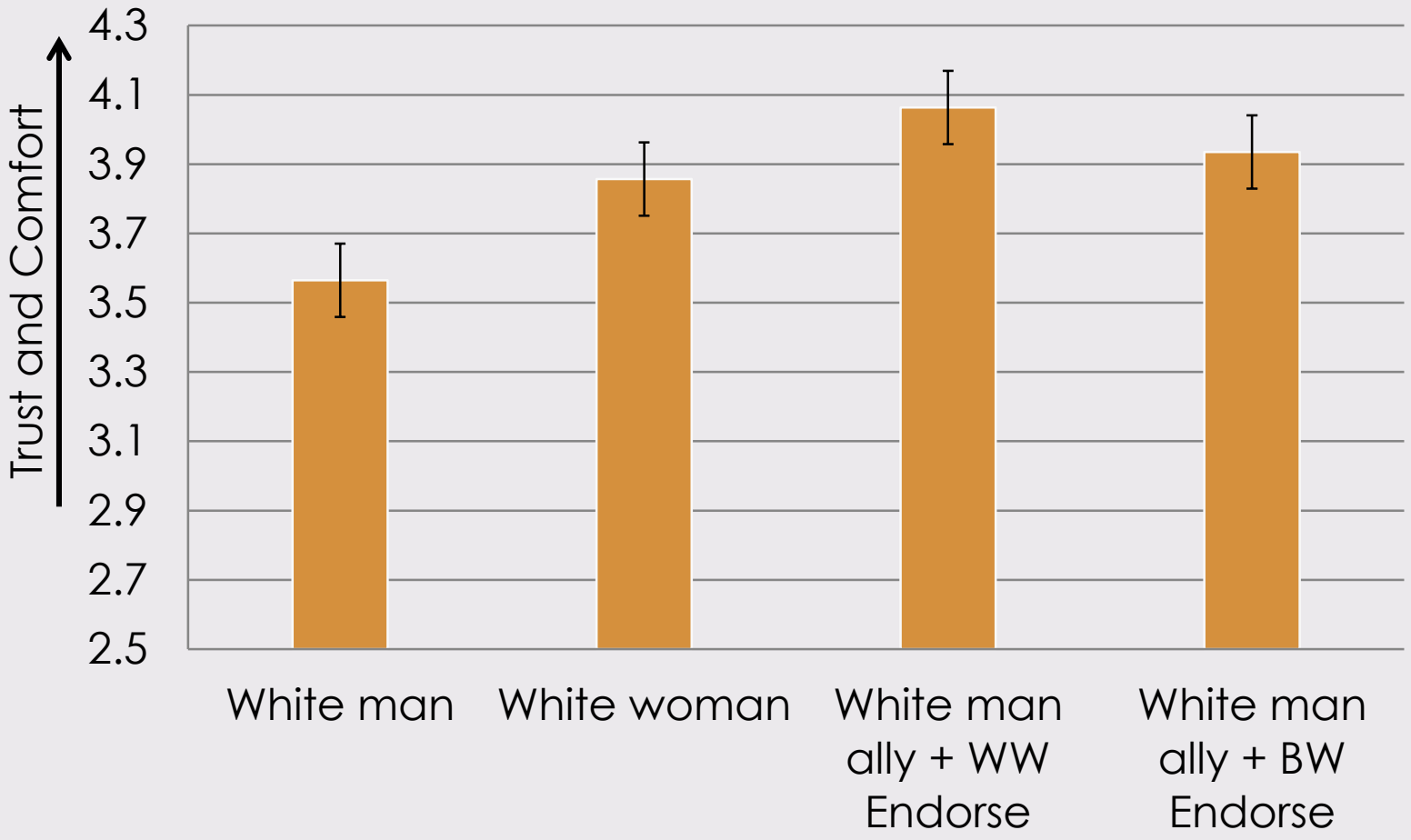
White woman vs. White man: d=.69, p<.001

White man ally + WW Endorsement vs. White man: d=1.21, p<.001

White man ally + BW Endorsement vs. White man: d=1.23, p<.001

$F(3,331)=29.56$, $p<.001$, $\eta_p^2=.211$

Study 6 Results: Trust and Comfort



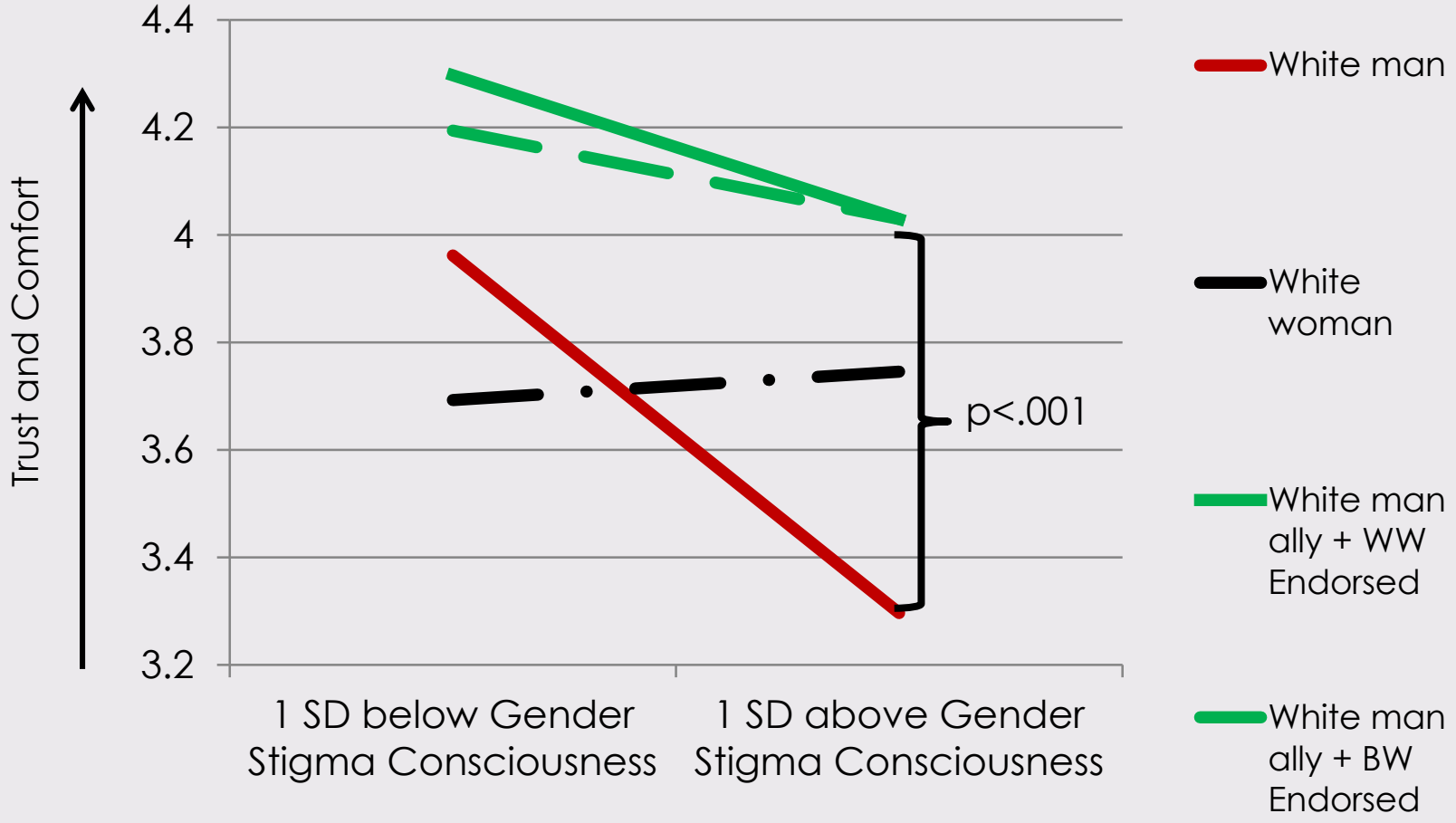
White woman vs. White man: d=.39, p=.093

White man ally + WW Endorsement vs. White man: d=.66, p<.001

White man ally + BW Endorsement vs. White man: d=.49, p=.013

$F(3,331)=6.83$, $p<.001$, $\eta_p^2=.059$

Study 6 Results: Moderation by stigma consciousness



Study 6: Summary

- Website featuring a White male ally endorsed by a Black or White woman
  - ↑ trust and comfort at a company
  - Even for participants ***high in stigma consciousness***

Taken together

- An ally who explicitly expressed allyship
  - Helpful for women with low are average levels of stigma consciousness
- Ally who expresses allyship and was endorsed by a woman (i.e., a member of the stigmatized group)
  - Helpful for all women regardless of stigma consciousness level

Next Steps

- Allyship Training Intervention
- Study 1
  - Mixed-methods approach to identify how students of underrepresented groups perceive individuals belonging to majority groups can best support and serve as effective allies
- Study 2
  - Experimentally manipulate allyship → Belonging, perceived allyship, & interest in future interactions

Next Steps: Allyship Training Intervention

- Study 3
  - Allyship Training Intervention
  - Anti-Bias Training
  - Waitlist Control
    - Faculty → Attitudes towards underrepresented students, behavioral intentions & self-efficacy
    - Underrepresented Groups → Belonging

Thanks!

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