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Misperceptions of Asian Subgroup Representation in STEM

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Abstract

The stereotype that Asian Americans excel in science and math has contributed to the narrative that they are overrepresented in STEM fields. However, U.S. Census data reveals this is not the case—there are significant disparities in STEM representation across Asian subgroups. The present research investigates whether U.S. participants are aware of these disparities. In Studies 1 and 2, the researchers show that participants misperceive the STEM representation of Chinese, Japanese, Korean, Indian, Filipino, and Vietnamese subgroups. Study 3 demonstrates that these misperceptions persist despite changes in question framing and measurement. Furthermore, the findings suggest that these misperceptions are due to stereotypical expectations: participants view East and South Asian subgroups as more representative of Asian Americans and therefore more likely to be overrepresented in STEM, while perceiving Southeast Asian subgroups as less representative and more likely to be underrepresented. In a final study, the researchers find that informing egalitarian-minded participants about these disparities increases support for racial equity–enhancing policies, and all participants' support for disaggregated data about Asian subgroups. Overall, the findings indicate that many U.S. participants are unaware of the within-group disparities among Asian Americans and underscore the importance of collecting and reporting data at the subgroup level to bring these inequalities to light.

Significance Statement: Identifying which groups are underrepresented in STEM is essential for determining the strategies and resources needed to improve their representation. However, prevailing narratives that Asian Americans are overrepresented in STEM often obscure the disparities that exist within this diverse group. Our research finds this to be the case: U.S. participants consistently misperceive the representation of various Asian subgroups in STEM. These misperceptions stem from stereotypical expectations that East and South Asian subgroups are overrepresented, while Southeast Asian subgroups are underrepresented. This lack of awareness can perpetuate inequality by masking the challenges faced by underrepresented Asian subgroups and neglecting their specific needs.

Misperceptions of Asian Subgroup Representation in STEM

In 1987, Time Magazine published an article about Asian American whiz kids excelling in science, engineering, and math (Brand, 1987). The article captured a strong and enduring association between Asian Americans and the science, technology, engineering, and mathematics (STEM) field (Cooc & Kim, 2021; Ghavami & Peplau, 2013; S. Lee, 1994; Leong & Hayes, 1990). While many people consider this stereotypic association between Asian Americans and STEM as positive (e.g., Czopp et al., 2015; Kim et al., 2021), there are costs associated with this stereotype. It can cause test anxiety among Asian American students (Cheryan & Bodenhausen, 2000; Cooc & Kim, 2021; S. Lee, 1994; Saad et al., 2015) and can lead to inferences of Asian overrepresentation in STEM, which can create backlash (Funk & Parker, 2018). In this research, we investigate how this stereotype is unevenly applied to Asian ethnic subgroups, including some while leaving others out of the STEM field.

Data on Asian Americans is often excluded from national surveys and rarely disaggregated by ethnic subgroups (e.g., Chinese, Japanese, Korean, Indian, Filipino, and Vietnamese; Budiman & Ruiz, 2021; Jin, 2021; Vinluan & Remedios, 2024). Given these conditions, lay perceptions regarding the representation of Asian subgroups in STEM are likely to be inaccurate. The above analysis supports our first hypothesis that people will hold inaccurate beliefs about Asian subgroup representation in STEM.

Asian typicality and status

Beyond inaccuracy, perceptions of Asian representation in STEM are likely to be shaped by expectations that more typical Asian subgroups (e.g., East Asians) are more strongly associated with STEM fields than less typical Asian subgroups (e.g., South and Southeast Asians). Typicality in person perception is the extent to which an individual closely matches the prototype, or mental representation, of a group (Rosch et al., 1976). We generally expect that U.S. perceptions of subgroup typicality within the broader Asian American category will predict perceptions of subgroup representation in STEM. Previous work suggests that group-based stereotypes are more readily applied to more typical category members than less typical members (Maddox, 2004; Maurer et al., 1995; Richards & Hewstone, 2001). Given existing stereotypes about Asian Americans in STEM (Ghavami & Peplau, 2013; Leong & Hayes, 1990; Cooc & Kim, 2021; S. Lee, 1994), we expect people to be more likely to view East Asian subgroups as excelling in STEM compared to South or Southeast Asian subgroups, since East Asians are perceived as more representative of the Asian American category (Goh & McCue, 2021; Lee & Ramakrishnan, 2022). Perceptions of Asian typicality may also be related to narratives that Asian Americans are overrepresented in STEM (Chen & Buell, 2017; Vue et al., 2023; Wolfgram et al., 2024). That is, typicality may mean that overrepresentation in STEM refers to East Asian subgroups in particular.

Additionally, Asian Americans are stereotyped as a high-status racial group within the U.S. (Zou & Cheryan, 2017), and based on previous research, we would expect that East Asian subgroups are perceived as having a higher status than South or Southeast Asian subgroups (Kuo et al., 2020; Lei & Bodenhausen, 2017). Relatedly, STEM occupations are perceived as high status (Fiske et al., 2002). Thus, people may assume that East Asian subgroups are of a higher status due to being more likely to work in a STEM occupation than South or Southeast Asian subgroups (Kuo et al., 2020; Fiske et al., 2002; Kochhar & Cillufo, 2018; Xu & Lee, 2013).

Together, our analysis indicates that people are likely to hold beliefs that East Asian subgroups tend to be found in STEM occupations due to heightened expectations of their typicality and status among Asian origin subgroups. Thus, for our second hypothesis, we expected East Asian subgroups to be perceived as having greater representation in STEM than their population share, whereas the reverse would be true of representation for South or Southeast Asian subgroups. In addition to our prediction of discrepancies between STEM and population estimates, we also expected participant beliefs about subgroup typicality and status to positively correlate with estimates of STEM representation. We examined these associations as part of our test of our second hypothesis.

Social Networks and Measurement Effects on STEM Misperceptions

In the context of testing our first two hypotheses, we also wanted to explore alternative explanations for the perceptual patterns we observed in Asian subgroup STEM estimates. One such alternative explanation centers around informational sources of STEM perceptions—that is, people with experiences among Asian subgroups or with experiences in STEM fields might, due to their experiences within these groups, have a more accurate understanding of which Asian subgroups can be found in STEM fields. For example, people's estimates of racial inequality were more accurate when people had more diverse social networks (Kraus et al., 2017). On the other hand, research indicates that misperceptions of resource distribution occur because people reference their social networks (e.g., family, friends, coworkers, and acquaintances) to make judgments about how attributes or resources are distributed within a population (Dawtry et al., 2015; Galesic et al., 2012). Therefore, we might expect that Asian individuals and STEM workers could be just as inaccurate in their perceptions of Asian subgroup representation in STEM as those who do not identify as Asian or work in STEM. This would suggest that misperceptions in STEM occur regardless of who is in one's social network.

While we have taken steps to measure perceptions of Asian subgroup STEM participation, these perceptions can be shaped by errors related to math and other comparative contexts (Gigerenzer & Hoffrage, 1995; Kraus et al., 2022). In related research on misperceptions, scholars have varied the survey questions and reference groups used for assessing perceptions of inequality and group representation, to rule out scale or other context artifacts as explanations of perceptual patterns (e.g., Kraus et al., 2022). We employ similar methods in the present research, varying survey question response options and reference group comparisons, to determine if STEM estimates show consistent patterns across methodology. With these study design choices, we hope to test alternative methodological interpretations of our findings.

Raising Awareness of STEM Misperceptions

Our argument, thus far, suggests that people will misperceive the representation of Asian subgroups in STEM and that these misperceptions are related to psychological processes of subgroup typicality and status. One solution to these perceptual errors is to use information to counter stereotypes about Asian subgroup representation in STEM. Previous research suggests that providing people with such counter-narratives, under specific conditions that mitigate racial threat, has improved accuracy in prior research (Callaghan et al., 2021; Kraus & Vinluan, 2023). Thus, for our third hypothesis, we predicted that when people are presented with data on actual Asian subgroup representation in STEM, it would raise awareness about Asian subgroup inequality in STEM and thereby increase policy support for affirmative action policies that broaden representation in STEM for underrepresented groups.

Although counter-narrative information has shaped policy beliefs in the context of group inequality in past research (Callaghan et al., 2021), the evidence of the effectiveness of these narratives is mixed (Onyeador et al., 2021). One challenge is that some people prefer to maintain status hierarchies (i.e., social dominance orientation) (Ho et al., 2015; Pratto et al., 1994) and are less likely to change their attitudes about support for hierarchy-attenuating policies (e.g., affirmative action) (Gutiérrez & Unzueta, 2013; Ho & Unzueta, 2015). Thus, we explored, as part of our third hypothesis, whether learning counter-narratives about Asian subgroup representation in STEM would only increase support for affirmative action among people low in these hierarchy preferences as measured by social dominance orientation.

Finally, we explored one final consequence of providing people with counter narratives about Asian subgroup representation in STEM: That such information would show the value of disaggregating the Asian category—in terms of who is marginalized by broad conceptions of Asian overrepresentation in STEM—and thereby increase support for similar disaggregation for data on Asian people. Such perceptions of the importance of disaggregation would be consistent with how organizations and legislatures are starting to collect data about Asian populations in the U.S. (e.g., AAPI Data, 2022; New York State Assembly, 2021).

The Present Research

In the present research, we were interested in perceptions of the representation of Asian individuals with advanced STEM degrees. Therefore, we obtained STEM data from the U.S. Census Bureau using their 2023 Annual Social and Economic Supplement (ASEC), a comprehensive work experience information on the employment status, occupation, and industry of people over the age of 15 years. Unlike the U.S. Census, the ASEC is conducted every year and does not include observations for most U.S. counties. Instead, the ASEC's sample design is meant to provide consistent national-level estimates. The dataset contains an individual's highest degree earned (i.e., a Master's or Ph.D.), their current field of occupation, and importantly, the ethnic subgroup to which Asian Americans belong. Consistent with the National Science Foundation's (NSF) definition of STEM, we include only the Science and Engineering occupations: 1) Computer & mathematical occupations, 2) Architecture & engineering occupations, and 3) Life, physical, and social science occupations. From this dataset, we found that 32% of Chinese Americans, 2% of Japanese Americans, 3% of Korean Americans, 50% of Indian Americans, 2% of Filipino Americans, 2% of Vietnamese Americans, and 9% of Asian individuals from other ethnic subgroups have an advanced STEM degree. These results demonstrate that there is an unequal representation of advanced STEM degree holders within the Asian American category.

In Studies 1 and 2, we tested our first two hypotheses that (1) people will be inaccurate in their estimates of Asian subgroup representation in STEM and (2) that perceptions of East Asian representation in STEM will overestimate perceptions of the overall East Asian population. We will also examine associations with perceptions of subgroup typicality and status. In Study 3, we attempted to replicate our results from the previous two studies using a different estimation method to rule out the possibility that STEM misperceptions were due to measurement effects. Finally, in Study 4, we tested our third hypothesis that presenting participants with actual data on the unequal representation of Asian subgroups in STEM will increase support for equity-enhancing policy, data disaggregation, as well as the potential moderating role of social dominance orientation.

Results

Accuracy of STEM Representation Perceptions

We first examined if people knew of the unequal representation of Asian ethnic subgroups in STEM. In Studies 1-2, we recruited participants from Prolific, an online recruitment platform, to estimate the number of people from the six largest Asian ethnic groups in the U.S. who have an advanced degree in STEM. Study 1 was a large, racially diverse sample and Study 2 was a sample of participants who indicated they had an advanced STEM degree. Detailed demographic information about the samples in each study is provided in Table S1.

Participants were given the following: "Within the United States, Asian Americans make up 34.7% of the advanced degrees (e.g., MA, MS, Ph.D.) in the Science, Technology, Engineering, and Mathematics (STEM) field. If you had a random sample of 100 Asian Americans with advanced STEM degrees, how many would be from each of the subgroup categories below: Chinese, Asian Indian, Japanese, Korean, Filipino, Vietnamese, and other Asian." Participants were then asked to enter their responses. We additionally informed participants that their responses should equal 100 and that the "other Asian subgroup" includes Pakistani, Thai, Cambodian, Hmong, Taiwanese, etc. Participants were excluded from the final analyses if their total STEM estimates equaled less than 90 or greater than 110. Study 2 was pre-registered before data collection (https://osf.io/p5qj6/?view_only=0de4def437a943a2a58318ed05f4fb81). We ran a series of one-sample t-tests for each subgroup comparing participants' average STEM estimates to the percentages provided by the U.S. Census Bureau (2023). Given that the method and measures of Studies 1 and 2 were the same, we report combined meta-means (M_{meta}) and meta-analytic effect size estimates (i.e., the Fisher's z transformed correlation coefficient[1]; z_{Fisher}) in the main text (Goh et al., 2016) but see Table 1 for individual study results.

Across two studies ($N = 981$), we found evidence that participants misperceived the representation of each Asian subgroup in STEM, supporting our first hypothesis that people will be inaccurate in their estimates of Asian subgroup representation in STEM (see Figure 1).

[1] We conducted the meta-analysis by first converting the Cohen's d effect size from the one-sample t-tests into correlation coefficients (r) using the following equation: $r = \frac{d}{\sqrt{d^2+4}}$. Then, we used the *metafor* R package (Viechtbauer, 2010) to calculate the average effect size for each Asian subgroup.

Participants estimated M_{meta} = 26.16, *95%* Confidence Interval (*CI*) [25.42, 26.91] individuals have an advanced STEM degree for the Chinese subgroup, which is less than the actual percentage for the Chinese subgroup (32%), z_{Fisher} = -0.243, p<.0001, *95% CI* [-0.306, -0.181]. Additionally, participants estimated M_{meta} = 13.87, *95% CI* [12.37, 15.38] for the Japanese subgroup and M_{meta} = 11.94, *95% CI* [11.53, 12.35] for the Korean subgroup, both of which are more than the actual percentage for the Japanese (2%), z_{Fisher} = 0.679, p<.0001, *95% CI* [0.616, 0.742], and Korean subgroups (3%), z_{Fisher} = 0.645, p<.0001, *95% CI* [0.582, 0.708]. Participants estimated M_{meta} = 23.96, *95% CI* [20.42, 27.50] for the Indian subgroup, which is less than the actual percentage (50%), z_{Fisher} = -0.863, p<.0001, *95% CI* [-0.996, -0.731]. Moreover, participants estimated M_{meta} = 7.96, *95% CI* [7.14, 8.79] for the Filipino subgroup, and M_{meta} = 7.75, *95% CI* [7.39, 8.10] for the Vietnamese subgroups, both of which are more than the actual percentage for the Filipino (2%), z_{Fisher} = 0.489, p<.0001, *95% CI* [0.427, 0.552] and Vietnamese subgroups (2%), z_{Fisher} = 0.485, p<.0001, *95% CI* [0.422, 0.548]. Finally, participants estimated M_{meta} = 8.74, *95% CI* [8.21, 9.27] for the other subgroup, which is similar to the actual percentage (9%), z_{Fisher} = -0.015, p<.0001, *95% CI* [-0.078, 0.048]. These findings suggest that U.S. participants misperceive the representation of Asian subgroups in STEM. In the next section, we test if these misperceptions are due to stereotypic expectations.

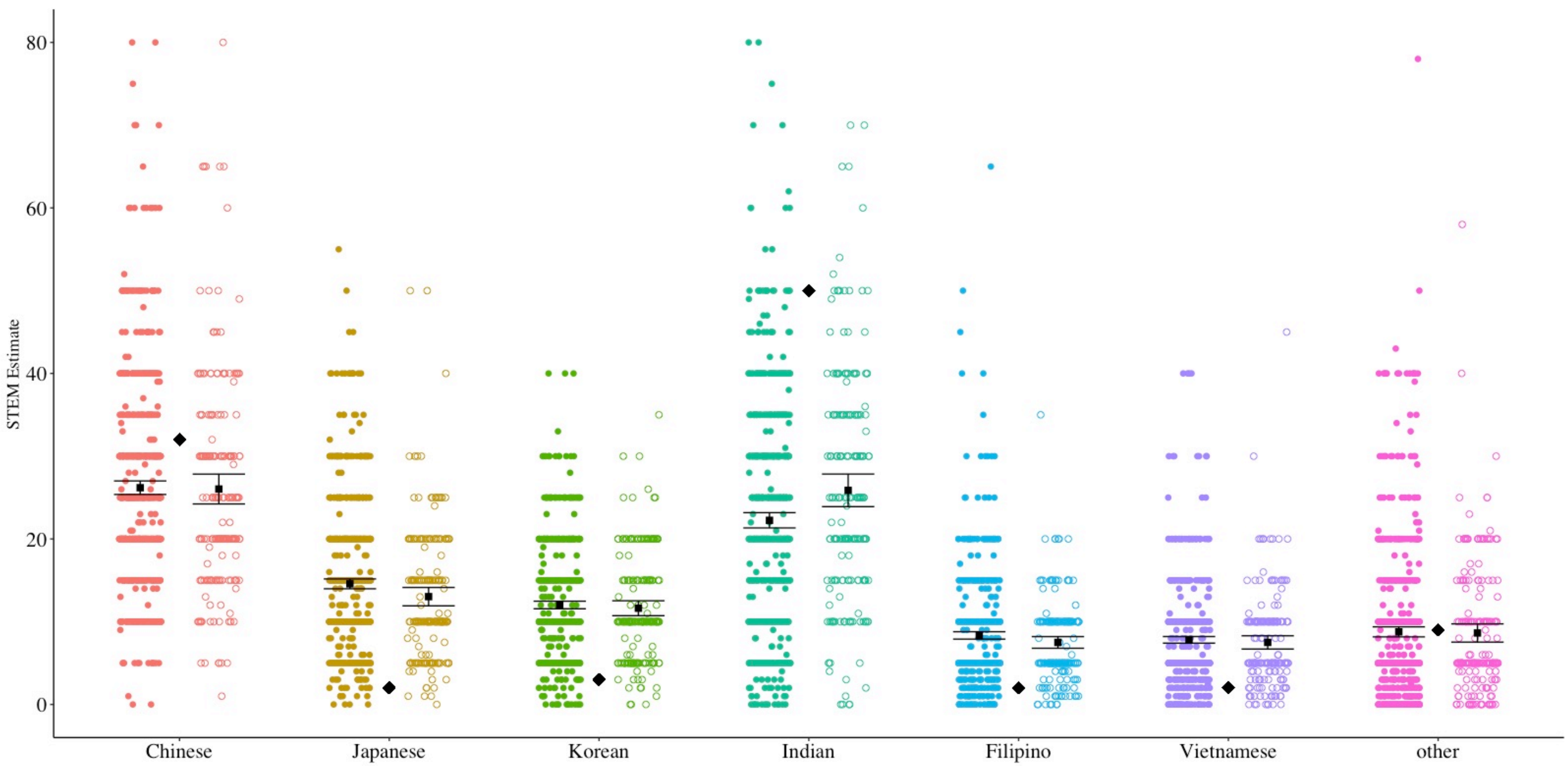
Table 1

*Descriptive statistics, individual one-sample t-test results comparing participants' STEM and population estimates to actual STEM and population percentages provided by the U.S. Census, and paired sample t-test results comparing participants' STEM to their population estimates for Study 1 (N = 784) and Study 2 (N = 197) by Asian subgroup. *p<.05*

Subgroup	Study	STEM Estimates			Population Estimates			Paired Samples t-value
		Mean (SD)	Actual	t-value	Mean (SD)	Actual	t-value	
Chinese	1	26.19 (11.67)	32	-13.94*	25.04 (10.79)	23	5.29*	3.09*
	2	26.03 (12.84)	32	-6.53*	25.22 (11.76)	23	2.65	1.15
Japanese	1	14.57 (8.49)	2	41.48*	12.58 (7.09)	5	29.96*	7.40*
	2	13.03 (7.89)	2	19.62*	11.81 (6.59)	5	14.50*	2.34*
Korean	1	12.02 (6.49)	3	38.89*	12.07 (6.35)	8	17.92*	-0.18
	2	11.63 (6.41)	3	18.90*	11.71 (6.00)	8	8.69*	-0.22
Indian	1	22.25 (13.17)	50	-58.98*	17.97 (10.64)	33	-39.58*	10.85*
	2	25.87 (14.00)	50	-24.19*	21.47 (11.23)	33	-14.41*	6.10*
Filipino	1	8.34 (6.35)	2	27.97*	12.39 (7.16)	12	1.53	-15.63*
	2	7.49 (5.01)	2	15.39*	11.49 (6.41)	12	-1.12	-9.66*
Vietnamese	1	7.81 (5.70)	2	28.54*	10.48 (6.72)	6	18.66*	-10.91*
	2	7.50 (5.69)	2	13.55*	9.44 (5.91)	6	8.18*	-4.85*
Other	1	8.77 (8.64)	9	-0.74	9.85 (9.08)	14	-12.80*	-3.65*
	2	8.63 (7.84)	9	-0.66	8.85 (8.51)	14	-8.48*	-0.42

Figure 1

STEM estimates by Asian ethnic subgroup for Study 1 (N = 784) and Study 2 (N = 197). Filled-in circles represent Study 1 estimates while outlined circles represent Study 2 estimates. Each Asian subgroup is represented by a distinct color. Each point represents a participant's response – clustered points indicate more common responses. The black diamond between the studies' data represents the actual STEM value for that subgroup. The black squares with brackets indicate means and 95% confidence intervals surrounding the mean.



Perceptions of Over- or Underrepresentation in STEM

In the previous analyses, we found evidence that U.S. participants misperceive the representation of Asian subgroups in STEM. In the next set of analyses, we determined a potential reason for these misperceptions. Specifically, we examined whether participants' STEM misperceptions were due to stereotypic expectations that more typical Asian subgroups (e.g., Chinese, Japanese, Korean) are more strongly associated with STEM fields than less typical Asian subgroups (e.g., Indian, Filipino, Vietnamese).

In Studies 1-2, we additionally asked participants to complete perceptions of population numbers for each subgroup to compare with participants' STEM estimates by answering the following: "If you had a random sample of 100 Asian Americans who live in the United States, how many would be from each of the subgroup categories below: Chinese, Asian Indian, Japanese, Korean, Filipino, Vietnamese, and other Asian". We again told participants to enter their responses, and that their responses should equal 100. See Table 1 for one-sample t-tests comparing participants' population estimates to actual population percentages by subgroup. We then conducted paired samples t-tests comparing participants' STEM estimates to their population estimates for each subgroup (see Table 1 for results), but report combined meta-means (M_{meta}) and meta-analytic effect size estimates (i.e., standardized mean difference[2]; *d*) in the main text. If participants' STEM estimates were greater than their population estimates for a subgroup (i.e., participants perceive the subgroup to be overrepresented in STEM), we could infer that the subgroup was seen as well represented in STEM, relative to the perceived population. However, if participants' STEM estimates were smaller than their population

[2] We conducted the meta-analysis by using Cohen's *d* obtained from paired samples t-test for each study. Then, we used the *metafor* R package (Viechtbauer, 2010) to calculate the average effect size for each Asian subgroup.

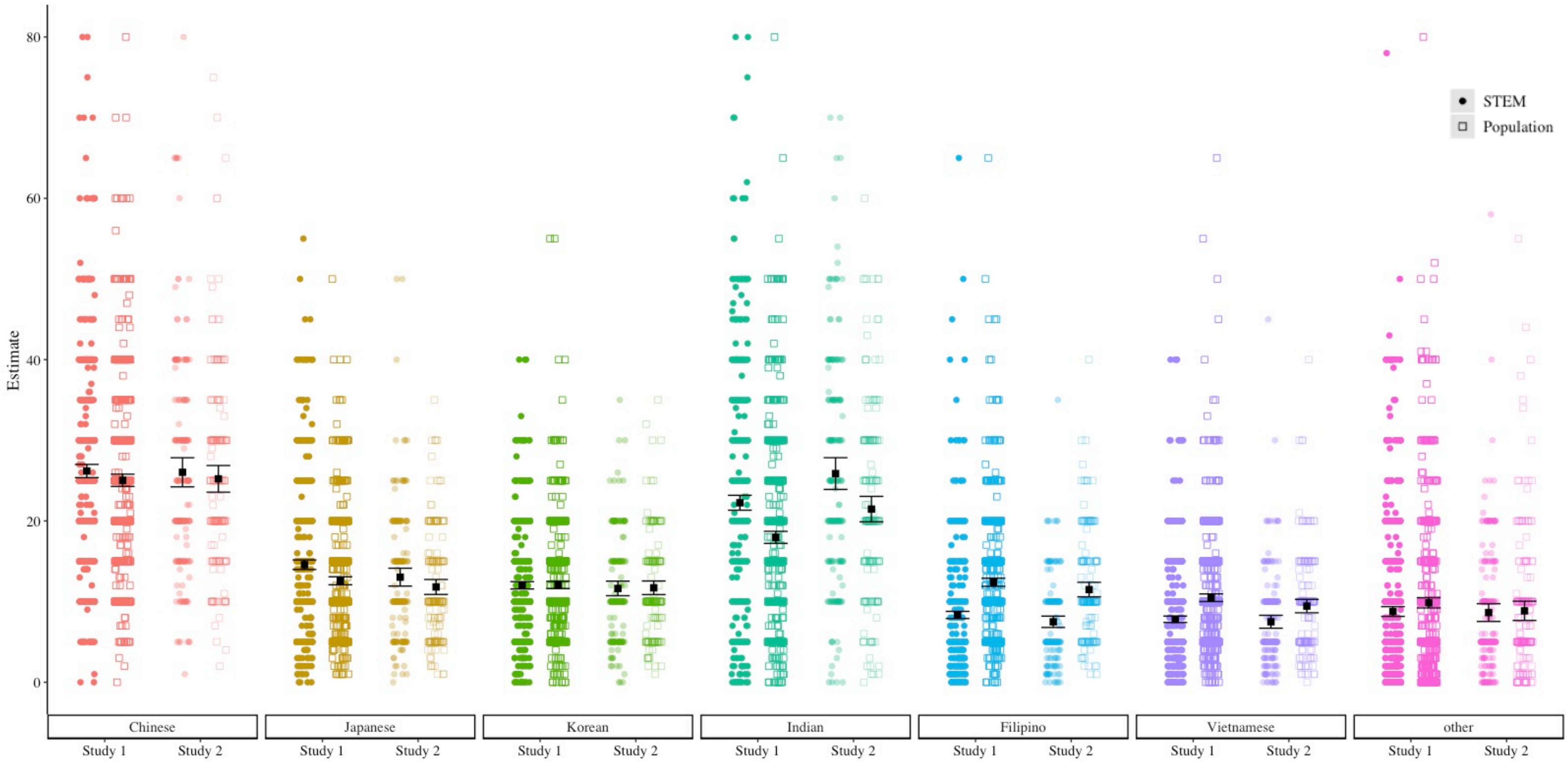
estimates for a subgroup (i.e., participants perceive the subgroup to be underrepresented in STEM), this indicates the group is not well-represented in STEM.

Consistent with our second hypothesis, participants' STEM estimates for the Chinese subgroup (M_{meta} = 26.16, 95% CI [25.42, 26.91]) were greater than their population estimates (M_{meta} = 25.07, 95% CI [24.38, 25.76]), d = 0.104, p = .0011, 95% CI [0.04, 0.17]. Similarly, participants' STEM estimates for the Japanese subgroup (M_{meta} = 13.87, *95% CI* [12.37, 15.38]) were greater than their population estimates (M_{meta} = 12.30, 95% CI [11.58, 13.03]), d = 0.235, p<.0001, 95% CI [0.15, 0.32]. These results suggest that participants consider the Chinese and Japanese subgroups to be overrepresented in STEM. Interestingly, participants' STEM estimates for the Korean subgroup (M_{meta} = 11.94, *95% CI* [11.53, 12.35]) were equivalent to their population estimates (M_{meta} = 11.99, 95% CI [11.60, 12.38]), d = -0.008, p = .7922, 95% CI [-0.07, 0.05]. For two of the three East Asian subgroups, our participants thought these groups were well-represented in STEM relative to their share of the population. See Figure 2.

For the Southeast Asian subgroups, perceptions tended to reflect a sense of lack of representation for Filipino and Vietnamese subgroups. Participants' STEM estimates for the Filipino subgroup (M_{meta} = 7.96, *95% CI* [7.14, 8.79]) were fewer than their population estimates (M_{meta} = 12.02, 95% CI [11.15, 12.89]), d = -0.603, p<.0001, 95% CI [-0.72, -0.48]. Similarly, participants' STEM estimates for the Vietnamese subgroup (M_{meta} = 7.75, *95% CI* [7.39, 8.10]) were fewer than their population estimates (M_{meta} = 10.02, 95% CI [9.01,11.03]), d = -0.380, p<.0001, 95% CI [-0.44, -0.32] – participants consider the Filipino and Vietnamese subgroups to be underrepresented in STEM. Finally, participants' STEM estimates for the other subgroup (M_{meta} = 8.74, *95% CI* [8.21, 9.27]) were fewer than their population estimates (M_{meta} = 9.48, 95% CI [8.54, 10.42]), d = -0.099, p = .0334, 95% CI [-0.19, -0.01].

Figure 2

STEM and population estimates by Asian ethnic subgroup for Study 1 (N = 784) and Study 2 (N = 197). Estimates are separated by study – Study 2 estimates are a lighter shade than Study 1 estimates. Circles represent STEM while squares represent population estimates. Each Asian subgroup is represented by a distinct color. Each point represents a participant's response – clustered points indicate more common responses. The black squares with brackets indicate means and 95% confidence intervals surrounding the mean.



Interestingly, participants' STEM estimates for the Indian subgroup (M_{meta} = 23.96, *95% CI* [20.42, 27.50]) were greater than their population estimates (M_{meta} = 19.65, 95% CI [16.22, 23.07]), $d = 0.396$, $p<.0001$, 95% CI [0.33, 0.46]. Perhaps this pattern reflects unique insights about Indian representation in STEM fields, an insight we return to in the discussion.

Overall, these analyses provide some evidence that two East Asian subgroups (e.g., Chinese, Japanese) are seen as more representative of STEM than their population share would indicate, whereas the two Southeast Asian subgroups (e.g., Vietnamese, Filipino) were seen as not well-represented based on their perceived population share. This pattern of findings could be due to a number of psychological and structural factors. To begin to better understand these patterns, we examined participants' estimates of subgroup typicality and status.

Perceived Asian Typicality and Status

We found evidence that participants' STEM misperceptions are due to stereotypic expectations based on how strongly participants associate each subgroup with STEM. However, we were unable to determine whether these stereotypic expectations are specifically based on participants' perceptions of Asian typicality or status, given that both Asian Americans and STEM occupations are considered high status (Fiske et al., 2002; Zou & Cheryan, 2017). We hypothesized that people's perceptions of Asian typicality and the status of an Asian subgroup would predict STEM representation perceptions for that subgroup. Therefore, in Studies 1 and 2, we additionally asked participants to rate how typical they perceived each Asian subgroup to be of the Asian American category on a 1(*not at all typical*) - 7(*very typical*) scale and to indicate where they perceived each Asian subgroup to be on a ladder where the bottom (1) represented people who were the worst off and the top (10) represented people who were the best off (Adler et al., 2000). See Supporting Information and Tables S2-S3 for complete ANOVA results for perceived Asian typicality and status ratings.

We conducted a series of separate multi-level models (MLMs) using the *lmer* R package (Bates et al., 2015) with perceived Asian typicality or perceived status as the predictor variable, Asian subgroup as a moderator (reference = Chinese), and STEM estimate differences (i.e., participants' STEM estimate - actual STEM percentage) as the dependent variable. A STEM estimate difference allows for easier interpretation: A score of zero indicates that the participant's STEM estimate was the same as the actual percentage, regardless of Asian subgroup. We additionally conducted each model without and with demographic control variables, and the results remain largely consistent across these models (see Tables S4-S7). We again meta-analyzed the regression results, given the similarity in methods and measures by calculating semipartial correlations (Aloe & Becker, 2012). We report the results for the models with demographic control variables in the main text.

We found that perceiving a subgroup as more typical of the Asian American category predicted perceptions of higher STEM representation, $r_{sp} = 0.19$, *95%CI* [0.13, 0.25], $p<.001$ (see Figure 3A). There were also significant interactions between perceived Asian typicality and Asian subgroups, except for the Indian subgroup (see Table 2). Follow-up simple slopes analyses indicated that perceived Asian typicality predicted greater STEM representation perceptions for all Asian subgroups (see Table S4). Additionally, higher status ratings for an Asian subgroup predicted greater perceptions of STEM representation, $r_{sp} = 0.18$, *95%CI* [0.12, 0.24], $p<.001$ (see Figure 3B). Only a significant interaction between perceived status and the Indian subgroup emerged (see Table 2), and follow-up simple slopes analyses revealed that perceived status predicted greater STEM representation perceptions for all Asian subgroups, including the Indian subgroup (see Table S6). These findings suggest that the stereotypic expectations driving participants' STEM misperceptions for each Asian subgroup may be based on participants' perceptions of Asian typicality and status for each subgroup.

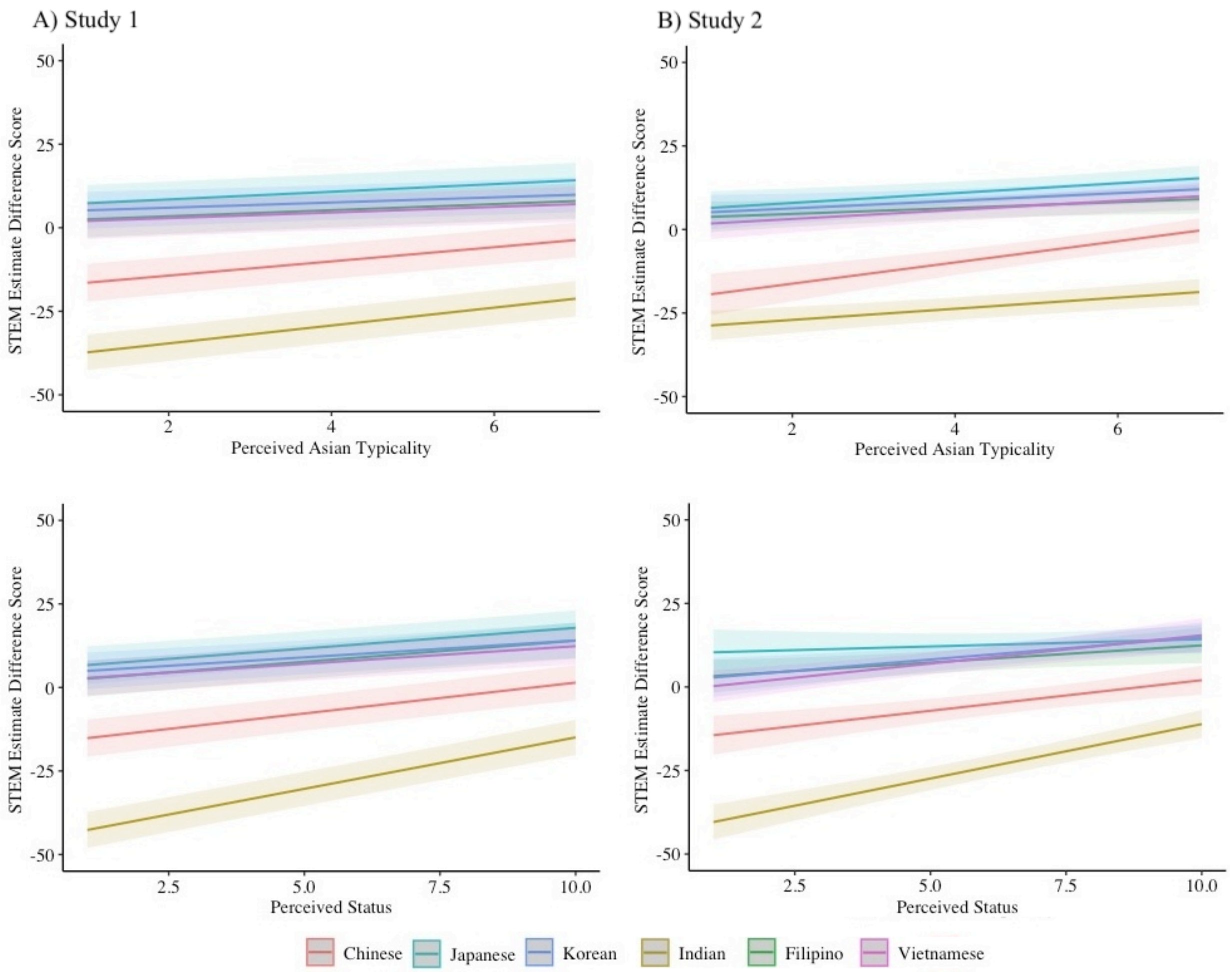
Table 2

*Meta-analysis of semipartial correlations (r_{sp}) between the interaction of perceived Asian typicality or status and Asian subgroup on Asian STEM difference scores for Studies 1 and 2 with demographic control variables (e.g., age, race, gender. Semipartial correlations are calculated using the common effect model. The inclusion of control variables in the multi-level regression analysis reduced the overall sample size from N = 784 to N = 767 in Study 1 and from N = 197 to N = 196 in Study 2. Note: CI = Confidence Interval, *p<.05*

Effect	Study 1		Study 2		Combined	
	r_{sp}	95% CI	r_{sp}	95% CI	r_{sp}	95% CI
Asian Typicality Model						
Japanese (vs. Chinese)	0.28	0.21, 0.34	0.31	0.18, 0.43	0.28*	0.22, 0.34
Korean (vs. Chinese)	0.25	0.18, 0.32	0.29	0.16, 0.42	0.26*	0.20, 0.32
Indian (vs. Chinese)	-0.26	-0.32, -0.19	-0.09	-0.23, 0.05	-0.22*	-0.28, -0.16
Filipino (vs. Chinese)	0.23	0.16, 0.30	0.30	0.16, 0.42	0.25*	0.19, 0.30
Vietnamese (vs. Chinese)	0.22	0.16, 0.29	0.26	0.13, 0.39	0.23*	0.17, 0.29
Perceived Asian Typicality	0.18	0.11, 0.24	0.26	0.12, 0.38	0.19*	0.13, 0.25
Japanese x Typicality	-0.06	-0.13, -0.24	-0.11	-0.24, 0.4	-0.07*	-0.13, -0.01
Korean x Typicality	-0.08	-0.15, -0.01	-0.12	-0.26, 0.02	-0.09*	-0.15, -0.03
Indian x Typicality	0.04	-0.04, 0.11	-0.10	-0.23, 0.04	0.01	-0.05, 0.07
Filipino x Typicality	-0.08	-0.15, -0.004	-0.14	-0.27, 0.001	-0.09*	-0.15, -0.02
Vietnamese x Typicality	-0.08	-0.15, -0.01	-0.11	-0.24, 0.03	-0.09*	-0.15, -0.02
Status Model						
Japanese (vs. Chinese)	0.21	0.15, 0.28	0.25	0.11, 0.37	0.22*	0.16, 0.28
Korean (vs. Chinese)	0.21	0.14, 0.28	0.19	0.05, 0.32	0.21*	0.15, 0.27
Indian (vs. Chinese)	-0.31	-0.38, -0.25	-0.31	-0.43, -0.18	-0.31*	-0.37, -0.25
Filipino (vs. Chinese)	0.20	0.13, 0.27	0.22	0.08, 0.35	0.21*	0.14, 0.27
Vietnamese (vs. Chinese)	0.21	0.14, 0.28	0.18	0.04, 0.31	0.20*	0.14, 0.26
Perceived Status	0.18	0.11, 0.25	0.19	0.05, 0.32	0.18*	0.12, 0.24
Japanese x Status	-0.04	-0.11, 0.03	-0.09	-0.23, 0.05	-0.05	-0.12, 0.01
Korean x Status	-0.06	-0.13, 0.01	-0.04	-0.17, 0.11	-0.05	-0.12, 0.01
Indian x Status	0.09	0.02, 0.16	0.11	-0.03, 0.25	0.10*	0.03, 0.16
Filipino x Status	-0.04	-0.11, 0.03	-0.06	-0.20, 0.08	-0.04	-0.11, 0.02
Vietnamese x Status	-0.06	-0.13, 0.01	-0.01	-0.15, 0.13	0.05	-0.11, 0.02

Figure 3

Multi-level model regression results for Study 1 (left) and Study 2 (right) showing the interaction between perceived Asian typicality or perceived status and Asian subgroup on STEM estimate (difference score). Each Asian subgroup is represented by a distinct color. Greater ratings of perceived Asian typicality and status predict greater STEM estimates for all Asian subgroups.



Social Network and Measurement Effects

Our findings indicate that U.S. participants misperceive Asian subgroup representation in STEM and that these misperceptions are due to stereotypic expectations of each Asian subgroup. However, we wanted to begin to rule out other possible explanations of our findings. First, we checked the possibility that these misperceptions are due to U.S. participants' social networks lacking either Asian people or STEM workers. We had expected that if this was the case, then

Asian participants and participants with an advanced STEM degree might be more accurate. However, that was not the case. In Study 1, we examined STEM estimates among our racially diverse sample to compare Asian participants' responses to Black, Latinx, and White participants' responses[3]. While Asian participants in Study 1 were slightly more accurate in estimating Indian and Japanese subgroup representation in STEM than other racial groups (see Table S8 for mixed-model ANOVA results), Asian participants still misperceived STEM representation for each Asian subgroup just like the other racial groups (see Table S9 for one-sample t-test results by race). In Study 2, recall that we recruited a sample of participants who indicated they had an advanced STEM degree. Like in Study 1, participants with an advanced STEM degree still misperceived the representation of Asian subgroups in STEM (see Table 1 for one-sample t-test results). Thus, it seems that these STEM misperceptions were not due to the lack of Asian people or STEM workers in participants' social networks.

Another source of participants' STEM misperceptions could be the context and method of measuring participants' perceptions. We addressed these possibilities in Study 3. Specifically, participants were asked about the STEM representation of each Asian subgroup relative to the entire U.S. population instead of relative to just the U.S. Asian American population as in Studies 1 and 2. We also manipulated how participants made their STEM estimations by asking participants to either enter their responses (i.e., the open-ended condition; "If you had a random sample of 100 Americans with advanced STEM degrees, how many would be from each of the categories below?") or select their responses from one of the provided categories (i.e., the closed-ended condition; "What percentage of Americans from the following categories below

[3] We attempted to recruit an equal number of Asian, Black, Latinx, and White participants from Prolific, an online recruitment platform. However, due to the limited racial identity options on Prolific's demographic form used to filter participants by race, there were a number of participants who identified as Pacific Islander who were included in our sample.

have an advanced STEM degree?"). Despite these changes in context and method, we replicated our previous finding that participants' estimations of Asian subgroup representation in STEM were inaccurate (see Supporting Information and Tables S11 for complete method and results). While the changes in the context did result in participants underestimating Chinese STEM representation in the open-ended condition, we still found the same pattern of estimation errors for Japanese, Korean, Indian, Filipino, and Vietnamese subgroup STEM representation, despite having more conservative percentage options in the closed-ended condition. Thus, our Study 3 results suggest that participants' STEM misperceptions are not due to the context and method of measurement.

Disaggregated Data Intervention

We hypothesized that presenting people with information to counter stereotypes about Asian subgroup representation in STEM would increase awareness about Asian subgroup inequality and, as a result, increase support for affirmative action to broaden representation in STEM for underrepresented groups and for the collection of disaggregated data at the Asian subgroup level. Therefore, in Study 4, we designed an intervention where we presented data on the actual Asian subgroup representation in STEM. Specifically, we informed participants about the underrepresentation of Filipino and Vietnamese individuals in STEM and asked participants to indicate their support for policies aimed at addressing the underrepresentation of specific social groups in education and STEM.

Study 4 was pre-registered before data collection (https://osf.io/cjuam/?view_only=63f29e0de3fb40d6b9e9711bf6874e48). Participants were assigned to one of two intervention conditions. In the informational intervention condition, participants watched a video where the narrator first introduced what fields are considered part of

STEM. Next, the narrator discussed racial groups that are underrepresented in STEM, which include Filipino and Vietnamese Americans, but many people are unaware of this due to the overall Asian American category being represented in STEM. In the control condition, participants also watched a video where the narrator first introduced what fields are considered part of STEM, but then transitioned into facts about the STEM workforce and why people may consider a career in STEM. After, participants completed three items assessing support for affirmative action: "In general, do you think affirmative action programs in hiring, promoting, and college admissions should be continued, or do you think these affirmative action programs should be abolished?", "In general, do you think affirmative action programs in STEM degree programs should be continued, or do you think these affirmative action programs should be abolished?"(both measured on 1 *definitely should be abolished* - 4 *definitely should be continued* scales), and "In general, do you think affirmative action programs in STEM should include Vietnamese and Filipino students, or do you think these affirmative action programs should not include these students?" (measured on a 1 *definitely should not be included* - 4 *definitely should be included* scale). These three items were then averaged to create a composite score ($\alpha = .851$).

An independent sample t-test revealed that there was not an overall significant difference in participants' reported support for affirmative action between the intervention ($M = 2.98$, $SD = 0.91$) and control conditions ($M = 3.00$, $SD = 0.86$), $t(706) = 0.21$, $p = .833$, $d = 0.016$. As an exploratory analysis, we examined the interaction between intervention conditions and social dominance orientation (SDO; Ho et al., 2015), or support for social inequality and hierarchy, on affirmative action support. Regression results show that SDO significantly and negatively predicts affirmative action support, $B = -0.33$, $p<.0001$, *95% CI*[-0.39, -0.27], and when SDO is included in the regression model, affirmative action support is significantly higher in the intervention than in the control condition, *B* = 0.31, *p* = .015, *95% CI*[0.06, 0.56], which is consistent with our hypothesis. Furthermore, SDO significantly moderates the relationship between intervention condition and affirmative action support, *B* = -0.11, *p* = .014, *95% CI* [-0.20, -0.02]. We followed up the significant interaction with a simple slopes analysis: for participants low in SDO (-*1 SD* = 1.27), participants in the intervention condition reported greater affirmative action support than participants in the control condition, *B* = 0.17, *p* = .040, 95% CI [0.01, 0.33]. However, there were no reported differences in affirmative action support for participants at the mean level of SDO (*M* = 2.53), *B* = 0.03, *p* = .610, 95% CI [-0.08,0.14], and those high in SDO (+*1 SD* = 3.79), *B* = -0.11, *p* = .170, 95% CI = -0.27, 0.05. The SDO moderation analysis replicates previous research findings that participants high in SDO are less likely to support hierarchy-attenuating policies like affirmative action (Gutiérrez & Unzueta, 2013; Ho & Unzueta, 2015).

We additionally measured participants' support for the government collecting and presenting Asian American data at the ethnic subgroup level on a 1 (*strongly oppose*) - 4 (*strongly support)* scale. Participants in the intervention condition (*M* = 2.85, *SD* = 0.86) reported greater support for the government collecting and presenting disaggregated Asian American data than participants in the control condition (*M* = 2.57, *SD* = 0.90), *t*(706) = -4.30, *p*<.001, *d* = -0.323. Together, these results suggest that when participants learn about the underrepresentation of Filipino and Vietnamese Americans in STEM, participants are more likely to support affirmative action, but only those low in SDO (i.e., those who prefer social equality and dismantling hierarchies), and are more likely to support the government collecting and presenting disaggregated Asian American data. Broadly, interventions that raise awareness of inequalities within racial groups by presenting data can promote racial equity-enhancing policies.

General Discussion

The stereotypical association between Asian Americans and STEM fields in the U.S. is often viewed as positive, but the potential downsides of this association are frequently overlooked. Our research shows that one significant cost is the widespread misperception of Asian subgroup representation in STEM - misperceptions that cannot be attributed solely to measurement methods or network homophily. In particular, there is a general lack of awareness about the existing disparities among Asian subgroups in STEM representation. Participants tend to perceive East and South Asian subgroups as overrepresented in STEM, while Southeast Asian subgroups are viewed as underrepresented. We find that these misperceptions reflect perceptions of over- and under-estimation based on perceived population among East Asian and South/Southeast Asian groups, respectively, and are related to participants' views of each subgroup's typicality and perceived social status. Overall, our findings suggest that people in the U.S. often misperceive the representation of Asian subgroups in STEM, and that these misperceptions are shaped by the stereotypical belief that STEM is more strongly associated with East and South Asian subgroups than with Southeast Asian subgroups.

Interestingly, our findings suggest that perceived Asian typicality varies depending on context. We had expected that participants would perceive the Indian subgroup to be underrepresented in STEM given that Indian Americans are generally perceived as less typical of the Asian American category than both East and Southeast Asian subgroups (Goh & McCue, 2021; Lee & Ramakrishnan, 2022). However, our results indicate that participants consider Indian Americans to be overrepresented in STEM rather than underrepresented, suggesting that within the STEM context, Indian Americans are perceived as more typical of the Asian American category. In fact, supplemental analyses of perceived Asian typicality ratings show that while the

Indian subgroup is still rated as less typical of the Asian American category than East Asian subgroups, they are rated as typical of the Asian American category as Southeast Asian subgroups. This latter finding is inconsistent with previous research (Goh & McCue, 2021; Lee & Ramakrishnan, 2022). Thus, it seems likely that Indian Americans are perceived as more typical of the Asian American category in STEM-context compared to unspecified contexts. Future research should consider the role of context in perceptions of Asian typicality.

Our findings also provide insight into a potential solution to address these misperceptions in STEM representation. Specifically, informational interventions highlighting the underrepresentation of Southeast Asian subgroups in STEM can increase support for the government collecting and presenting disaggregated data (i.e., data at the Asian subgroup level) as well as support for affirmative action, but only for participants who report having a low social dominance orientation. We theorized that this was the case because participants learned that there were inequalities in STEM and contradicted their beliefs that all Asian Americans are overrepresented in STEM (Funk & Parker, 2018), leading to a desire to address these issues. If increasing awareness of the underrepresentation of Southeast Asian subgroups in STEM can lead to greater support for racial equity policies, then disaggregated data may also provide additional benefits for advancing the broader Asian American community. Most importantly, disaggregated data can highlight the unequal representation of Asian subgroups in STEM - particularly the underrepresentation of Southeast Asian subgroups. Only when the U.S. public and policymakers are aware of these disparities can resources be effectively allocated to improve representation.

Despite our efforts in our studies to examine whether certain groups of people would be more accurate in their STEM or framing to increase STEM estimations, we still found that participants were misperceiving Asian subgroup representation in STEM. However, there are still some limitations in our study design that may have contributed to these misperceptions. One is that we limited our definition of STEM representation to include Asian individuals who have an advanced STEM degree, which does not include those with a Bachelor's degree in STEM. According to the U.S. Census (2023), when Bachelor's degree-holders are included in the percentage, 70% of the Asian individuals in STEM are from the Chinese and Indian subgroups (compared to 82% of advanced STEM degree holders), while 11% are from the Filipino and Vietnamese subgroups (compared to 4%). In supplemental analyses, we compared the current STEM estimates from Studies 1 and 2 to the STEM percentages that include Bachelor's degree-holders and replicated our results with the exception of the Chinese subgroup. However, because our participants were asked to consider advanced degree holders, future research should examine if this is indeed the case.

Interestingly, Asian participants are just as likely to misperceive subgroup representation in STEM as other racial groups. This finding runs counter to expectations that within-group knowledge might elicit some special understanding of representation (DiDonato et al., 2010; Judd & Park, 1993). Instead, perhaps Asian people in the U.S. are subject to the same stereotypes as other racial groups and thus exhibit the same expectations of STEM representation (Cheryan & Bodenhausen, 2000). Future research could more definitively test these alternatives by sampling particular Asian subgroups who are more and less well-represented in STEM.

Another future research avenue is exploring the consequences of these STEM misperceptions. We would expect these STEM misperceptions to influence how likely it is that resources are allocated to Asian Americans. For example, given that participants in our studies considered Southeast Asian subgroups to be underrepresented in STEM, will participants be more likely to consider students from these Southeast Asian subgroups deserving of a scholarship meant for students who are underrepresented in STEM? Understanding this process has implications for Asian applicants and the likelihood that these Asian applicants receive funding during their graduate career and obtain tenure-track positions at research institutions.

Identifying where inequalities exist is essential to addressing them. The Asian American category is often perceived as a successful racial group (Fiske et al., 2002; Zou & Cheryan, 2017), which can lead to the neglect of unique histories and experiences within this diverse group. The present research highlights the consequences of overlooking these within-group inequalities, particularly the misperceptions about Asian subgroup representation in STEM fields. Our findings underscore the critical role of social science in raising awareness of such disparities. Importantly, institutions can begin to rectify this by collecting and presenting data at the Asian subgroup level to help increase awareness. Failing to educate the U.S. population and continuing to ignore these within-group differences perpetuates inequality, resulting in the persistent underrepresentation of Southeast Asian subgroups in STEM.

Materials and Methods

The materials and methods for Studies 1-3 were reviewed and approved by the Institutional Review Board at Yale University, while the Institutional Review Board at Northwestern University approved the materials and methods for Study 4. Data files, syntax, and materials are available on the Open Science Framework (https://osf.io/g7z8x/?view_only=07b45c2d46a84888af3fd210731e6d41). For each study, we aimed to recruit at least *n* = 200 participants per condition or unit of between-subjects analysis (e.g., participant race).

In all four studies, participants were recruited through Prolific, an online recruitment platform, to complete a 10-minute study about their “perceptions” and were compensated $2.00.

An initial introductory screen informed participants that the study concerned how "individual personality is related to various social judgments" and that participation involved estimating the number of people who worked in certain fields. Participants were informed that they could skip any questions that they did not want to complete, with no loss of compensation or penalty. Participants indicated their consent to participate in the study by clicking the arrow on their computer screen to advance to the next page.

Studies 1-3

After indicating their consent to complete the survey, participants in Studies 1-3 were first informed that they were going to make population estimates for each Asian subgroup. Specifically, we asked participants if they had a random sample of 100 Asian Americans, how many would be from the following subgroup categories: Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and other Asian subgroups (e.g., Pakistani, Thai, Cambodian). Then, participants completed the STEM estimation items for each subgroup. Participants in Studies 1 and 2 were informed that within the U.S. Asian Americans made up 34.7% of the advanced degrees in the STEM field. We asked participants if they had a random sample of 100 Asian Americans with advanced STEM degrees, how many would be from the following subgroup categories: Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and other Asian subgroups. Participants were then asked to enter their responses.

Participants in Study 3 completed a different version of the STEM estimation question and were randomly assigned to one of two conditions: the open-ended condition or the closed-ended condition. In the open-ended condition, participants read the following: "Within the United States, a career in the Science, Technology, Engineering, and Mathematics (STEM) fields often requires an advanced degree (e.g., MA, MS, Ph.D.). If you had a random sample of 100

Americans with advanced STEM degrees, how many would be from each of the categories below: White, Black, Chinese, Indian, Japanese, Korean, Filipino, and Vietnamese?" We asked participants to provide STEM estimates for the Black and White racial groups to help participants think about the entire U.S. population rather than just the U.S. Asian American population. Participants were asked to enter their responses. In the closed-ended condition, participants read the following: "Within the United States, a career in the Science, Technology, Engineering, and Mathematics (STEM) fields often requires an advanced degree (e.g., MA, MS, Ph.D.). What percentage of Americans from the following categories below have an advanced STEM degree: White, Black, Chinese, Indian, Japanese, Korean, Filipino, and Vietnamese?" Participants were presented with 12 options and asked to select their response: "0-0.9%", "1-1.9%, "2-2.9%", "3-3.9%", "4-4.9%", "5-5.9%", "6-6.9%", "7-7.9%", "8-8.9%", "9-9.9%", "10%", and "greater than 10%".

Afterward, participants in all three studies were asked to rate how typical they considered the six Asian subgroups of the Asian American group using a seven-point Likert scale (1 = not at all typical, 7 = very typical). Finally, participants indicated the status of the six Asian subgroups using the MacArthur Scale of Subjective Status (Adler et al., 2000) on a ten-point Likert scale (1 = worst off, 10 = best off).

Following these survey responses, participants completed several additional questions about their beliefs about society, including social dominance orientation and perceived symbolic and realistic threat from Asian immigrants. The full list of questions for all studies is available online. Following these items, participants reported their demographic information (e.g., age, gender, race, educational attainment) and indicated how socially and economically conservative they considered themselves to be using a seven-point Likert scale (1 = very liberal, 7 = very conservative).

Study 4

After indicating their consent to complete the survey, participants in Study 4 were first informed that they were going to review government policies. However, before reviewing the policies, participants were informed they would be watching a video. Participants were randomly assigned to one of two video conditions: control or intervention. In the informational intervention condition, participants watched a 2:35-minute video where the narrator first introduced what fields are considered part of STEM. Next, the narrator discussed racial groups that are underrepresented in STEM, which include Filipino and Vietnamese Americans, but many people are unaware of this due to the overall Asian American category being represented in STEM. In the control condition, participants watched a 2:22-minute video where the narrator first introduced what fields are considered part of STEM, but then transitioned into facts about the STEM workforce and why people may consider a career in STEM. Importantly, in the control condition, there was no discussion about representation in STEM.

After, participants completed three items assessing support for affirmative action: “In general, do you think affirmative action programs in hiring, promoting, and college admissions should be continued, or do you think these affirmative action programs should be abolished?”, “In general, do you think affirmative action programs in STEM degree programs should be continued, or do you think these affirmative action programs should be abolished?”(both measured on 1 *definitely should be abolished* - 4 *definitely should be continued* scales), and “In general, do you think affirmative action programs in STEM should include Vietnamese and Filipino students, or do you think these affirmative action programs should not include these students?” (measured on a 1 *definitely should not be included* - 4 *definitely should be included* scale). We also measured participants’ support for the government collecting and presenting Asian American data at the ethnic subgroup level on a 1 (*strongly oppose*) - 4 (*strongly support)*.

Following these survey responses, participants answered eight items about their social dominance orientation (Ho et al., 2015) (e.g., “An ideal society requires some groups to be on top and others to be on the bottom”). Their responses were averaged to create a composite score. Afterward, participants completed several additional questions about their perceptions of Asian Americans, including a feeling thermometer and the internalization of the model minority myth. The full list of questions for all studies is available online. Following these items, participants reported their demographic information.

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Supplement

Table S1

Demographic characteristics of participants from studies 1-4.

	Study 1	Study 2	Study 3	Study 4
Sample Size, *N*	784	197	451	708
Exclusions, *n*	15	32		
Conditions, *n*				
Open-ended			226	
Close-ended			227	
Control				354
Intervention				354
Age, *mean (SD)*	37.72 (12.70)	43.97 (13.50)	37.88 (11.69)	46.54 (25.07)
Gender Identity, *n*				
Man	369	106	189	341
Woman	383	86	255	354
Non-binary	14	5	7	9
Racial Identity, *n*				
White	190	118	338	439
Black	180	37	25	103
Asian	192	23	43	43
East, South, Southeast	107, 22, 63	10, 8, 5	16, 10, 17	21, 4, 18
Latinx	134	5	19	45
Pacific Islander	71	12	25	48
Education, *n*				
Some High School	2		4	6
High School/GED	79		52	75
Some College	131		93	130
Associate's	72		41	81
Bachelor's	335		165	271
Some Graduate School	23		8	13
Master's	116	164	63	113
Doctoral	10	33	9	15
Occupational Field, *n*				
Computer & Math Science	90		44	72
Architecture & Engineering	29		7	14
Life, Physical, & Social Science	16		7	15
Non-STEM field	768		393	603
STEM degree, *n*				
Agriculture, Forestry, Fisheries, & Veterinary		6		
Engineering, Manufacturing, & Construction		38		
Information & Communication Technologies		48		
Math & Statistics		24		
Natural Sciences		33		
Social Sciences		47		
		6		
Conservatism, *mean (SD)*	3.19 (1.65)	3.36 (1.76)	3.20 (1.67)	3.86 (1.82)

Additional Study 1 and 2 Analyses

Repeated Measures ANOVA Results

For each study, we conducted separate one-way repeated measures Analysis of Variances (ANOVAs) to test if there was a significant main effect of Asian subgroup (Chinese, Japanese, Korean, Indian, Filipino, and Vietnamese) on perceived Asian typicality and perceived status. We conducted Bonferroni-adjusted post hoc comparisons if there were significant main effects. Descriptive statistics and complete pairwise comparison results for perceived Asian typicality are in Table S2, and perceived status are in Table S3.

Perceived Asian Typicality

In Study 1, there was a significant main effect of Asian subgroup on perceived Asian typicality, $F(5,3905) = 144.93$, $p<.001$, $\eta_p^2 = 0.157$. The Chinese subgroup was rated as more typical of the Asian American category than the other Asian subgroups, p's <.001. The Japanese subgroup was rated as more typical of the Asian American category than the Indian, Filipino, and Vietnamese subgroups, p's <.001. The Korean subgroup was rated as more typical of the Asian American category than the Indian, Filipino, and Vietnamese subgroups, p's<.001. Finally, the Vietnamese subgroup was rated as more typical of the Asian American category than both the Indian and Filipino subgroups, $p<.001$.

In Study 2, there was a significant main effect of Asian subgroup on perceived Asian typicality, $F(5,980) = 32.86$, $p<.001$, $\eta_p^2 = 0.151$. The Chinese subgroup was rated as more typical of the Asian American category than the other Asian subgroups, p's <.001. The Korean subgroup was rated as more typical of the Asian American category than the Indian, Filipino, and Vietnamese subgroups, p's$\leq$.005. The Japanese subgroup was rated as more typical of the Asian

American category than the Filipino subgroup, $p<.001$. Finally, the Vietnamese subgroup was rated as more typical of the Asian American category than the Filipino subgroup, $p = .011$.

Table S2

*Descriptive statistics and Bonferroni-adjusted post hoc comparisons for perceived Asian typicality results for Studies 1 – 2. *p<.003 (Bonferroni-adjusted p-value)*

Study	Asian subgroup	Mean (SD)	Pairwise Comparisons: Mean Differences					
			Asian Subgroup					
			Chinese	Japanese	Korean	Indian	Filipino	Vietnamese
1	Chinese	5.69 (1.32)						
	Japanese	5.02 (1.51)	0.66*					
	Korean	5.06 (1.44)	0.63*	-0.03				
	Indian	4.32 (1.68)	1.37*	0.71*	0.74*			
	Filipino	4.41 (1.46)	1.28*	0.61*	0.64*	-0.10		
	Vietnamese	4.64 (1.47)	1.05*	0.39*	0.42*	-0.32*	-0.23*	
2	Chinese	5.62 (1.17)						
	Japanese	4.92 (1.37)	0.70*					
	Korean	5.02 (1.29)	0.60*	-0.10				
	Indian	4.49 (1.55)	1.13*	0.44	0.53*			
	Filipino	4.28 (1.31)	1.34*	0.65*	0.74*	0.21		
	Vietnamese	4.61 (1.36)	1.01*	0.32	0.41*	-0.12	-0.33*	

Perceived Status

In Study 1, there was a significant main effect of Asian subgroup on perceived status, $F(5,3890) = 333.71$, $p<.001$, $\eta_p^2 = 0.300$. The Japanese subgroup was perceived as having higher status than the Korean, Indian, Filipino, and Vietnamese subgroups, p's<.001. The Chinese subgroup was perceived as having higher status than the Korean, Indian, Filipino, and Vietnamese subgroups, p's<.001. The Korean subgroup was perceived as having higher status than the Indian, Filipino, and Vietnamese subgroups, $p\text{'s} \leq .003$. Finally, the Indian subgroup was perceived as having higher status than the Filipino and Vietnamese subgroups, p's<.001.

In Study 2, there was a significant main effect of Asian subgroup on perceived status, $F(5,980) = 99.32$, $p<.001$, $\eta_p^2 = 0.336$. The Japanese subgroup was perceived as having higher status than the Chinese, Korean, Indian, Filipino, and Vietnamese subgroups, p's <.001. The

Chinese subgroup was perceived as having higher status than the Filipino and Vietnamese subgroups, *p*'s <.001. The Korean subgroup was perceived as having higher status than the Filipino and Vietnamese subgroups, *p*'s <.001. Finally, the Indian subgroup was perceived as having higher status than the Filipino and Vietnamese subgroups, *p*'s <.001

Table S3

*Descriptive statistics and Bonferroni-adjusted post hoc comparisons for perceived status results for Studies 1 – 2. *p<.003 (Bonferroni-adjusted p-value)*

Study	Asian subgroup	Mean (SD)	Pairwise Comparisons: Mean Differences					
			Asian Subgroup					
			Chinese	Japanese	Korean	Indian	Filipino	Vietnamese
1	Chinese	6.95 (1.58)						
	Japanese	7.08 (1.52)	-0.13					
	Korean	6.63 (1.59)	0.33*	0.45*				
	Indian	6.36 (1.82)	0.60*	0.73*	0.27*			
	Filipino	5.18 (1.56)	1.78*	1.91*	1.45*	1.18*		
	Vietnamese	5.28 (1.62)	1.67*	1.80*	1.34*	1.07*	-0.11	
2	Chinese	6.80 (1.48)						
	Japanese	7.30 (1.28)	-0.51*					
	Korean	6.80 (1.46)	-0.01	0.50*				
	Indian	6.64 (1.67)	0.15	0.66*	-0.16			
	Filipino	5.21 (1.44)	1.58*	2.09*	1.59*	1.43*		
	Vietnamese	5.32 (1.53)	1.47*	1.98*	1.48*	1.32*	-0.11	

Multilevel Model Moderation Results

We conducted a series of separate multi-level models (MLMs) using the *lmer* R package (Bates et al., 2015) with perceived Asian typicality or perceived status as the predictor variable, Asian subgroup as a moderator (reference = Chinese), and STEM estimate differences (i.e., participants' STEM estimate - actual STEM percentage) as the dependent variable. A STEM estimate difference allows for easier interpretation: A score of zero indicates that the participant's STEM estimate was the same as the actual percentage regardless of Asian subgroup. Each model was conducted twice: once without demographic control variables and once with demographic control variables (i.e., race, age, gender, education, field of current occupation). We report the results for the model with demographic control variables below and note any discrepancies between models and/or studies.

Perceived Asian Typicality

We expected that perceiving an Asian subgroup to be more typical of the Asian American category would predict the overestimation of STEM representation for that Asian subgroup. Consistent with our hypothesis, results show that perceiving the Chinese subgroup as more typical of the Asian American category significantly predicted the overestimation of the representation of Chinese individuals in STEM (B_1 = 2.13, p<.0001, *95% CI*$_1$ [1.65, 2.60]; B_2 = 3.18, p<.0001, *95% CI*$_2$ [2.07, 4.28]). See Table S4. Simple slopes analysis showed that perceiving an ethnic subgroup as more typical of the Asian American category also significantly predicted STEM overestimation for the Japanese (B_1 = 1.15, p<.0001, *95% CI*$_1$ [0.73, 1.56]; B_2 = 1.47, p<.0001, *95% CI*$_2$ [0.54, 2.41]), Korean (B_1 = 0.78, p<.0001, *95% CI*$_1$ [0.34, 1.21]; B_2 = 1.14, p<.0001, *95% CI*$_2$ [0.15, 2.13]), Indian (B_1 = 2.68, p<.0001, *95% CI*$_1$ [2.30, 3.05]; B_2 = 1.67, p<.0001, *95% CI*$_2$ [0.84, 2.49]), and Vietnamese subgroups (B_1 = 0.83, p<.0001, *95% CI*$_1$ [0.41, 1.26]; B_2 = 1.36, p<.0001, *95% CI*$_2$ [0.42, 2.30]). However, perceived Asian typicality ratings predicted STEM estimations for the Filipino subgroup in Study 1 (B_1 = 0.91, p<.0001, *95% CI*$_1$ [0.49, 1.34]) but not in Study 2 (B_2 = 0.88, p = .076, *95% CI*$_2$ [-0.09, 1.86]).

We also meta-analyzed the regression results, given the similarity in methods and measures by calculating semipartial correlations (Aloe & Becker, 2012), and found that the effects in the meta-regression analysis remained significant without and with demographic control variables. (see Table S5).

Table S4

Results for the moderation analysis and simple slopes analysis testing the interaction between perceived Asian typicality and Asian subgroup on STEM estimate difference score. Control variables include age, race, gender, field, and education.

	Study 1				Study 2			
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
Regression Analysis								
Intercept	-17.79*	-20.52, -15.06	-18.58*	-24.44, -12.72	-23.04*	-29.28, -16.79	-22.56*	-29.65, -15.48
Subgroup: Japanese	24.88*	21.41, 28.34	24.76*	21.25, 28.28	27.01*	19.18, 34.85	27.56*	19.65, 35.47
Subgroup: Korean	23.21*	19.68, 26.74	23.03*	19.45, 26.60	26.39*	18.33, 34.45	26.59*	18.48, 34.69
Subgroup: Indian	-21.33*	-24.55, -18.12	-21.39*	-24.65, -18.13	-7.92*	-15.28, -0.56	-7.83*	-15.31, -0.35
Subgroup: Filipino	20.28*	16.92, 23.63	20.19*	16.80, 23.59	25.59*	18.00, 33.19	25.45*	17.76, 33.14
Subgroup: Vietnamese	19.94*	16.54, 23.35	19.78*	16.34, 23.23	22.85*	15.16, 30.54	22.98*	15.21, 30.75
Perceived Typicality	2.10*	1.64, 2.57	2.13*	1.65, 2.60	3.04*	1.95, 4.13	3.18*	2.07, 4.29
Japanese x Typicality	-1.01*	-1.63, -0.39	-0.98*	-1.61, -0.35	-1.60*	-3.03, -0.18	-1.70*	-3.14, -0.26
Korean x Typicality	-1.39*	-2.02, -0.76	-1.35*	-1.99, -0.71	-1.99*	-3.45, -0.52	-2.03*	-3.51, -0.56
Indian x Typicality	0.54*	-0.06, 1.13	0.55*	-0.05, 1.15	-1.52*	-2.88, -0.15	-1.51*	-2.89, -0.13
Filipino x Typicality	-1.23*	-1.86, -0.60	-1.22*	-1.85, -0.58	-2.35*	-3.81, -0.90	-2.29*	-3.76, -0.82
Vietnamese x Typicality	-1.32*	-1.95, -0.69	-1.29*	-1.92, -0.65	-1.80*	-3.24, -0.37	-1.81*	-3.26, -0.37
Simple Slopes Analysis								
Chinese	2.10*	1.64, 2.57	2.13*	1.65, 2.60	3.04*	1.95, 4.12	3.18*	2.07, 4.28
Japanese	1.10*	0.69, 1.50	1.15*	0.73, 1.56	1.43*	0.51, 2.36	1.47*	0.54, 2.41
Korean	0.71*	0.29, 1.14	0.78*	0.34, 1.21	1.05*	0.07, 2.03	1.14*	0.15, 2.13
Indian	2.64*	2.27, 3.01	2.68*	2.30, 3.05	1.52*	0.70, 2.34	1.67*	0.84, 2.49
Filipino	0.87*	0.45, 1.29	0.91*	0.49, 1.34	0.69	-0.28, 1.65	0.88	-0.09, 1.86
Vietnamese	0.78*	0.37, 1.20	0.83*	0.41, 1.26	1.23*	0.30, 2.17	1.36*	0.42, 2.30
Control Variables	No		Yes		No		Yes	

Table S5

*Meta-analysis of semipartial correlations (r_{sp}) between the interaction of perceived Asian typicality and Asian subgroup on Asian STEM difference scores for Studies 1 and 2. Semipartial correlations are calculated using the common effect model. The inclusion of control variables in the multi-level regression analysis reduced the overall sample size from N = 784 to N = 767 in Study 1 and N = 197 to N = 196 in Study 2. Note: CI = Confidence Interval, *p<.05*

Effect	Study 1		Study 2		Combined	
	r_{sp}	95% CI	r_{sp}	95% CI	r_{sp}	95% CI
Without Control Variables						
Japanese (vs. Chinese)	0.27	0.21, 0.34	0.30	0.16, 0.42	0.28*	0.22, 0.33
Korean (vs. Chinese)	0.25	0.18, 0.31	0.28	0.15, 0.40	0.26*	0.20, 0.31
Indian (vs. Chinese)	-0.25	-0.32, -0.18	-0.09	-0.23, 0.05	-0.22*	-0.28, -0.16
Filipino (vs. Chinese)	0.23	0.16, 0.29	0.29	0.16, 0.41	0.24*	0.18, 0.30
Vietnamese (vs. Chinese)	0.22	0.15, 0.29	0.25	0.12, 0.38	0.23*	0.17, 0.29
Perceived Asian Typicality	0.17	0.10, 0.24	0.24	0.10, 0.37	0.18*	0.12, 0.24
Japanese x Typicality	-0.06	-0.13, 0.01	-0.10	-0.23, 0.04	-0.07*	-0.13, -0.01
Korean x Typicality	-0.08	-0.15, -0.13	-0.12	-0.25, 0.02	-0.09*	-0.15, -0.03
Indian x Typicality	0.03	-0.04, 0.10	-0.10	-0.23, 0.05	0.01	-0.05, 0.07
Filipino x Typicality	-0.07	-0.14, -0.004	-0.14	-0.27, 0.001	-0.09*	-0.15, -0.02
Vietnamese x Typicality	-0.08	-015, -0.01	-0.11	-0.24, 0.03	-0.09*	-0.15, -0.02
With Control Variables						
Japanese (vs. Chinese)	0.28	0.21, 0.34	0.31	0.18, 0.43	0.28*	0.22, 0.34
Korean (vs. Chinese)	0.25	0.18, 0.32	0.29	0.16, 0.42	0.26*	0.20, 0.32
Indian (vs. Chinese)	-0.26	-0.32, -0.19	-0.09	-0.23, 0.05	-0.22*	-0.28, -0.16
Filipino (vs. Chinese)	0.23	0.16, 0.30	0.30	0.16, 0.42	0.25*	0.19, 0.30
Vietnamese (vs. Chinese)	0.22	0.16, 0.29	0.26	0.13, 0.39	0.23*	0.17, 0.29
Perceived Asian Typicality	0.18	0.11, 0.24	0.26	0.12, 0.38	0.19*	0.13, 0.25
Japanese x Typicality	-0.06	-0.13, -0.24	-0.11	-0.24, 0.04	-0.07*	-0.13, -0.01
Korean x Typicality	-0.08	-0.15, -0.01	-0.12	-0.26, 0.02	-0.09*	-0.15, -0.03
Indian x Typicality	0.04	-0.04, 0.11	-0.10	-0.23, 0.04	0.01	-0.05, 0.07
Filipino x Typicality	-0.08	-0.15, -0.004	-0.14	-0.27, 0.001	-0.09*	-0.15, -0.02
Vietnamese x Typicality	-0.08	-0.15, -0.01	-0.11	-0.24, 0.03	-0.09*	-0.15, -0.02

Perceived Status

We predicted that perceiving an Asian ethnic subgroup as higher status would predict the overestimation of STEM representation for that Asian ethnic subgroup. Consistent with our hypothesis, perceiving the Chinese subgroup as higher status significantly predicted the overestimation of Chinese STEM representation, (B_1 = 1.85, p<.0001, *95% CI₁* [1.46, 2.23]; B_2 = 1.83, p<.0001, *95%* CI_2 [0.98, 2.68]). See Table S6. Simple slopes analysis showed that perceiving an ethnic subgroup as higher status also significantly predicted STEM overestimation for the Korean (B_1 = 1.01, p<.0001, *95%* CI_1 [0.62, 1.40]; B_2 = 1.35, *95%* CI_2 [0.49, 2.21]), Indian (B_1 = 3.08, p<.0001, *95%* CI_1 [2.74, 3.42]; B_2 = 3.26, p<.0001, *95%* CI_2 [2.51, 4.01]), and Vietnamese subgroups (B_1 = 1.05, p<.0001, *95%* CI_1 [0.67, 1.43]; B_2 = 1.69, p<.0001, *95%* CI_2 [0.87, 2.51]). We also find this to be the case for the Filipino subgroup, (B_1 = 1.26, *95%* CI_1 [0.87, 1.66]; B_2 = 1.02, p = .021, *95%* CI_2 [0.15, 1.89]). However, in Study 2, the MLM without the control variables indicated that perceived status ratings did not predict STEM estimations for the Filipino subgroup, (B = 0.84, p = .058, *95%* CI_1 [-0.03, 1.70]). Finally, perceived status ratings predicted STEM estimations for the Japanese subgroup in Study 1 (B_1 = 1.24, p<.0001, *95%* CI_1 [0.83, 1.64]) but not in Study 2 (B_2 = 0.44, p = .380, *95%* CI_2 [-0.54, 1.41]).

We also meta-analyzed the regression results, given the similarity in methods and measures by calculating semipartial correlations (Aloe & Becker, 2012). We found that in the meta-regression analysis of the models with control variables, there was a significant interaction between the Indian subgroup and perceived status. However, this interaction was not significant in the meta-regression analysis of the models without the control variables (see Table S7).

Table S6

Results for the moderation analysis and simple slopes analysis testing the interaction between perceived status and Asian subgroup on STEM estimate difference score. Control variables include age, race, gender, field, and education.

	Study 1				Study 2			
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
Regression Analysis								
Intercept	-18.31*	-21.04, -15.58	-17.02*	-22.75, -11.28	-17.28*	-23.14, -11.42	-16.27*	-22.80, -9.74
Subgroup: Japanese	22.34*	18.37, 26.32	22.47*	18.44, 26.50	25.95*	16.65, 35.25	26.21*	16.89, 35.52
Subgroup: Korean	21.16*	17.39, 24.93	20.97*	17.14, 24.79	17.71*	9.37, 26.05	17.75*	9.42, 26.07
Subgroup: Indian	-28.26*	-31.77, -24.75	-28.72*	-32.27, -25.17	-27.77*	-35.56, -19.98	-27.42*	-35.19, -19.64
Subgroup: Filipino	18.34*	14.89, 21.78	18.39*	14.90, 21.88	18.42*	10.91, 25.92	18.48*	10.99, 25.98
Subgroup: Vietnamese	18.85*	15.43, 22.28	18.82*	15.36, 22.29	14.81*	7.41, 22.21	14.82*	7.43, 22.21
Perceived Status	1.80*	1.41, 2.18	1.85*	1.46, 2.23	1.66*	0.82, 2.51	1.83*	0.98, 2.68
Japanese x Status	-0.58*	-1.14, -0.03	-0.61*	-1.17, -0.05	-1.34*	-2.63, -0.05	-1.39*	-2.68, -0.10
Korean x Status	-0.86*	-1.40, -0.32	-0.83*	-1.38, -0.29	-0.46*	-1.66, 0.74	-0.48	-1.68, 0.71
Indian x Status	1.17*	0.66, 1.68	1.23*	0.72, 1.75	1.48*	0.36, 2.61	1.43*	0.30, 2.55
Filipino x Status	-0.58*	-1.12, -0.03	-0.58*	-1.13, -0.03	-0.83	-2.04, 0.38	-0.81	-2.01, 0.40
Vietnamese x Status	-0.80*	-1.34, -0.27	-0.79*	-1.33, -0.25	-0.17	-1.34, 1.00	-0.14	-1.31, 1.03
Simple Slopes Analysis								
Chinese	1.80*	1.41, 2.18	1.85*	1.46, 2.23	1.66*	0.82, 2.51	1.83*	0.98, 2.68
Japanese	1.21*	0.81, 1.61	1.24*	0.83, 1.64	0.32	-0.65, 1.30	0.44	-0.54, 1.41
Korean	0.93*	0.55, 1.32	1.01*	0.62, 1.40	1.21*	0.35, 2.06	1.35*	0.49, 2.21
Indian	2.96*	2.63, 4.30	3.08*	2.74, 3.42	3.15*	2.40, 3.90	3.26*	2.51, 4.01
Filipino	1.22*	0.83, 1.60	1.26*	0.87, 1.66	0.84	-0.03, 1.70	1.02*	0.15, 1.89
Vietnamese	0.99*	0.62, 1.32	1.05*	0.67, 1.43	1.50*	0.68, 2.31	1.69*	0.87, 2.51
Control Variables	No		Yes		No		Yes	

Table S7

*Meta-analysis of semipartial correlations (r_{sp}) between the interaction of perceived status and Asian subgroup on Asian STEM difference scores for Studies 1 and 2. Semipartial correlations are calculated using the common effect model. The inclusion of control variables in the multi-level regression analysis reduced the overall sample size from N = 784 to N = 767 in Study 1 and N = 197 to N = 196 in Study 2. Note: CI = Confidence Interval, *p<.05*

Effect	Study 1		Study 2		Combined	
	r_{sp}	95% CI	r_{sp}	95% CI	r_{sp}	95% CI
Without Control Variables						
Japanese (vs. Chinese)	0.21	0.14, 0.28	0.24	0.10, 0.36	0.21*	0.15, 0.27
Korean (vs. Chinese)	0.21	0.14, 0.28	0.18	0.04, 0.31	0.20*	0.14, 0.26
Indian (vs. Chinese)	-0.30	-0.36, -0.23	-0.30	-0.42, -0.17	-0.30*	-0.36, -0.24
Filipino (vs. Chinese)	0.20	0.13, 0.26	0.21	0.07, 0.34	0.20*	0.14, 0.26
Vietnamese (vs. Chinese)	0.21	0.14, 0.27	0.17	0.03, 0.30	0.20*	0.14, 0.26
Perceived Status	0.17	0.11, 0.24	0.17	0.03, 0.30	0.17*	0.11, 0.23
Japanese x Status	-0.04	-0.11, 0.03	-0.09	-0.22, 0.05	-0.05	-0.11, 0.01
Korean x Status	-0.06	-0.13, 0.01	-0.03	-0.17, 0.11	-0.05	-0.12, 0.01
Indian x Status	0.09	0.02, 0.16	0.11	-0.03, 0.25	0.09	0.03, 0.15
Filipino x Status	-0.04	-0.11, 0.03	-0.06	-0.20, 0.08	-0.04	-0.11, 0.02
Vietnamese x Status	-0.06	-0.13, 0.01	-0.01	-0.15, 0.13	-0.05	-0.11, 0.02
With Control Variables						
Japanese (vs. Chinese)	0.21	0.15, 0.28	0.25	0.11, 0.37	0.22*	0.16, 0.28
Korean (vs. Chinese)	0.21	0.14, 0.28	0.19	0.05, 0.32	0.21*	0.15, 0.27
Indian (vs. Chinese)	-0.31	-0.38, -0.25	-0.31	-0.43, -0.18	-0.31*	-0.37, -0.25
Filipino (vs. Chinese)	0.20	0.13, 0.27	0.22	0.08, 0.35	0.21*	0.14, 0.27
Vietnamese (vs. Chinese)	0.21	0.14, 0.28	0.18	0.04, 0.31	0.20*	0.14, 0.26
Perceived Status	0.18	0.11, 0.25	0.19	0.05, 0.32	0.18*	0.12, 0.24
Japanese x Status	-0.04	-0.11, 0.03	-0.09	-0.23, 0.05	-0.05	-0.12, 0.01
Korean x Status	-0.06	-0.13, 0.01	-0.04	-0.17, 0.11	-0.05	-0.12, 0.01
Indian x Status	0.09	0.02, 0.16	0.11	-0.03, 0.25	0.10*	0.03, 0.16
Filipino x Status	-0.04	-0.11, 0.03	-0.06	-0.20, 0.08	-0.04	-0.11, 0.02
Vietnamese x Status	-0.06	-0.13, 0.01	-0.01	-0.15, 0.13	0.05	-0.11, 0.02

Asian STEM Estimates by Participant Race

Repeated Measures ANOVA

In Study 1, we examined whether there were any participant race differences in STEM estimates by conducting a 5 (participant race: Asian, Black, Latinx, Pacific Islander, White) x 6 (Asian subgroup: Chinese, Japanese, Korean, Indian, Filipino, Vietnamese) mixed-model ANOVA on STEM estimate differences (i.e., participants' STEM estimate - actual STEM percentage) with Asian subgroup as a repeated-measure factor.

There was not a significant main effect of participant race, $F(1,762) = 1.61$, $p = .169$, $\eta_p^2 = 0.008$. However, there was a significant main effect of Asian subgroup $F(6,4572) = 1351.11$, $p<.001$, $\eta_p^2 = 0.639$, and a significant interaction, $F(24, 4572) = 6.66$, $p<.001$, $\eta_p^2 = 0.034$. We conducted Bonferroni-adjusted post hoc comparisons to examine mean differences between participant races within Asian subgroup. See Table S8 for complete pairwise comparisons. Asian participants were significantly more accurate in their STEM estimates for the Japanese subgroup than Black, Latinx, Pacific Islander, and White participants, p's <.001. Asian participants were significantly more accurate in their STEM estimates for the Indian subgroup than the Black, Latinx, and White participants, p's<.001. Finally, Asian participants were significantly more accurate in their STEM estimates for the Filipino subgroup than the Black participants, $p = .003$.

One-sample t-tests

We additionally conducted a series of one-sample t-tests examining participants' STEM estimates to the actual data from the U.S. census by participant race and subgroup (see Table S9). We still found that participants underestimated Chinese and Indian subgroup representation in STEM and overestimated Japanese, Korean, Filipino, and Vietnamese subgroup representation in STEM, regardless of participant race.

Table S8

*Descriptive statistics for the interaction between Asian subgroup and participant race on STEM estimate difference scores (i.e., participants' STEM estimate – actual STEM percentage) and Bonferroni-adjusted post hoc comparison results for mean differences between participant races within Asian subgroup. *p<.005 (Bonferroni-adjusted p-value)*

Subgroup	Participant Race	Mean (SD)	Pairwise Comparisons: Mean Differences Participant Race				
			Asian	Black	Latinx	Pacific Islander	White
Chinese	Asian	-4.10 (9.53)					
	Black	-6.92 (12.40)	2.813				
	Latinx	-6.10 (11.23)	1.993	-0.82			
	Pacific Islander	-6.03 (11.45)	1.924	-0.89	-0.07		
	White	-6.09 (13.29)	1.991	-0.82	-0.002	0.07	
Japanese	Asian	8.31 (5.86)					
	Black	13.61 (7.84)	-5.30*				
	Latinx	13.60 (9.73)	-5.30*	0.01			
	Pacific Islander	14.39 (8.94)	-6.09*	-0.78	-0.79		
	White	14.76 (8.90)	-6.45*	-1.15	-1.15	-0.36	
Korean	Asian	8.19 (6.07)					
	Black	9.18 (6.26)	-0.99				
	Latinx	9.49 (7.24)	-1.30	-0.31			
	Pacific Islander	9.04 (5.83)	-0.86	0.14	0.44		
	White	9.56 (6.88)	-1.37	-0.38	-0.07	-0.52	
Indian	Asian	-22.59 (11.24)					
	Black	-30.97 (11.98)	8.38*				
	Latinx	-28.77 (13.26)	6.18*	-2.20			
	Pacific Islander	-27.08 (15.26)	4.50	-3.88	-1.68		
	White	-29.54 (13.85)	6.94*	-1.44	0.76	2.45	
Filipino	Asian	5.18 (5.38)					
	Black	7.58 (6.82)	-2.40*				
	Latinx	6.62 (7.11)	-1.44	0.96			
	Pacific Islander	5.92 (4.71)	-0.73	1.67	0.70		
	White	6.20 (6.68)	-1.02	1.38	0.42	-0.29	
Vietnamese	Asian	5.75 (5.63)					
	Black	6.82 (6.70)	-1.07				
	Latinx	5.45 (5.63)	0.30	1.37			
	Pacific Islander	5.42 (4.56)	0.33	1.40	0.03		
	White	5.16 (5.02)	0.59	1.66	0.29	0.26	
Other	Asian	-0.78 (7.13)					
	Black	0.28 (9.70)	-1.06				
	Latinx	-0.30 (8.86)	-0.48	0.58			
	Pacific Islander	-1.32 (7.48)	0.55	1.60	1.03		
	White	0.11 (9.00)	-0.89	0.17	-0.41	-1.43	

Table S9

*Descriptive statistics and individual one-sample t-test results comparing participants' STEM to actual provided by the U.S. Census separated by participant race for Study 1 (N = 784) by Asian subgroup. *p<.05*

Subgroup	Participant Race	*n*	STEM Estimates		
			Actual Value	Mean (SD)	t-value
Chinese	Asian	193	32	27.85 (9.52)	-6.05*
	Black	195	32	24.99 (12.96)	-7.55*
	Latinx	140	32	25.94 (11.26)	-6.37*
	Pacific Islander	73	32	25.67 (11.46)	-4.72*
	White	197	32	25.76 (13.27)	-6.60*
Japanese	Asian	193	2	10.41 (6.02)	19.42*
	Black	195	2	15.84 (8.63)	22.39*
	Latinx	140	2	15.86 (9.92)	16.52*
	Pacific Islander	73	2	16.63 (8.97)	13.94*
	White	197	2	16.78 (8.95)	23.17*
Korean	Asian	193	3	11.23 (6.09)	18.79*
	Black	195	3	12.68 (7.95)	17.00*
	Latinx	140	3	12.36 (7.21)	15.36*
	Pacific Islander	73	3	11.79 (5.95)	12.63*
	White	197	3	12.50 (6.95)	19.18*
Indian	Asian	193	33	27.37 (11.23)	-28.00*
	Black	195	33	19.06 (12.01)	-35.97*
	Latinx	140	33	21.09 (13.21)	-25.89*
	Pacific Islander	73	33	22.37 (15.40)	-15.33*
	White	197	33	20.28 (13.76)	-30.32*
Filipino	Asian	193	2	7.25 (5.44)	13.40*
	Black	195	2	9.82 (6.85)	15.93*
	Latinx	140	2	8.71 (7.08)	11.22*
	Pacific Islander	73	2	7.85 (4.72)	10.58*
	White	197	2	8.11 (6.61)	12.98*
Vietnamese	Asian	193	2	7.82 (5.71)	14.17*
	Black	195	2	9.24 (7.03)	14.39*
	Latinx	140	2	7.50 (5.63)	11.57*
	Pacific Islander	73	2	7.30 (4.56)	9.93*
	White	197	2	7.10 (4.98)	14.37*
Other	Asian	193	9	8.29 (7.16)	-1.39
	Black	195	9	10.44 (12.41)	1.62
	Latinx	140	9	8.61 (8.72)	-0.52
	Pacific Islander	73	9	7.55 (7.42)	-1.67
	White	197	9	8.93 (8.92)	-0.10

Additional Analyses

We additionally conducted a multi-level model with population estimate differences (i.e., participants' population estimate - actual population percentage) as the predictor variable, Asian subgroup as a moderator (reference = Chinese), and STEM estimate differences (i.e., participants' STEM estimate - actual STEM percentage) as the dependent variable. We expected that overestimating the U.S. population of an Asian ethnic subgroup would predict the overestimation of the representation of that Asian ethnic subgroup in STEM. Results for both studies do indeed show that the overestimation of the Chinese population in the U.S. predicted the overestimation of the representation of Chinese Americans in STEM (B_1 = 0.62, p<.0001, *95% CI*$_1$ [0.57, 0.67]; B_2 = 0.74, p<.0001, *95% CI*$_2$ [0.65, 0.82]). See Table 10. Simple slopes analysis showed that overestimating the population of a subgroup also significantly predicted the overestimation of STEM representation for the Japanese (B_1 = 0.67, p<.0001, *95% CI*$_1$ [0.59, 0.74]; B_2 = 0.60, p<.0001, *95% CI*$_2$ [0.44, 0.75]), Korean (B_1 = 0.39, p<.0001, *95% CI*$_1$ [0.31, 0.48]; B_2 = 0.69, p<.0001, *95% CI*$_2$ [0.53, 0.86]), Indian (B_1 = 0.73, p<.0001, *95% CI*$_1$ [0.68, 0.78]; B_2 = 0.88, p<.0001, *95% CI*$_2$ [0.79, 0.96]), Filipino (B_1 = 0.38, p<.0001, *95% CI*$_1$ [0.31, 0.46]; B_2 = 0.40, p<.0001, *95% CI*$_2$ [0.25, 0.56]), and Vietnamese subgroups (B_1 = 0.33, p<.0001, *95% CI*$_1$ [0.25, 0.41]; B_2 = 0.51, p<.0001, *95% CI*$_2$ [0.34, 0.68]).

Table S10

Results for the moderation analysis and simple slopes analysis testing the interaction between population estimate difference score and Asian subgroup on STEM estimate difference score. Control variables include age, race, gender, field, and education.

	Study 1				Study 2			
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
Regression Analysis								
Intercept	-7.07*	-7.61, -6.52	-7.56*	-12.08, -3.03	-7.61*	-8.62, -6.61	-7.49*	-10.12, -4.87
Subgroup: Japanese	14.68*	13.72, 15.64	14.65*	13.68, 15.62	14.50*	12.76, 16.24	14.56*	12.80, 16.31
Subgroup: Korean	14.52*	13.68, 15.36	14.52*	13.67, 15.37	13.63*	12.10, 15.17	13.58*	12.04, 15.12
Subgroup: Indian	-9.78*	-10.85, -8.70	-9.73*	-10.83, -8.64	-6.49*	-8.23, -4.76	-6.45*	-8.20, -4.71
Subgroup: Filipino	13.26*	12.49, 14.02	13.24*	12.46, 14.01	13.31*	11.90, 14.72	13.24*	11.83, 14.66
Subgroup: Vietnamese	11.35*	10.51, 12.20	11.35*	10.50, 12.21	11.35*	9.83, 12.87	11.31*	9.78, 12.83
Population Estimate	0.62*	0.57, 0.67	0.62*	0.57, 0.67	0.74*	0.66, 0.83	0.74*	0.65, 0.82
Japanese x Population	0.04	-0.05, 0.13	0.04	-0.05, 0.14	-0.13	-0.31, 0.04	-0.14	-0.31, 0.03
Korean x Population	-0.23*	-0.33, -0.13	-0.23*	-0.33, -0.13	-0.04	-0.22, 0.15	-0.04	-0.23, 0.14
Indian x Population	0.11*	0.04, 0.18	0.11*	0.03, 0.18	0.13*	0.01, 0.25	0.14*	0.02, 0.26
Filipino x Population	-0.24*	-0.33, -0.15	-0.24*	-0.33, -0.15	-0.34*	-0.52, -0.17	-0.33*	-0.51, -0.16
Vietnamese x Population	-0.28*	-0.37, -0.18	-0.29*	-0.39, -0.20	-0.23*	-0.42, -0.04	-0.23*	-0.41, -0.04
Simple Slopes Analysis								
Chinese	0.62*	0.57, 0.67	0.62*	0.57, 0.67	0.74*	0.66, 0.83	0.74*	0.65, 0.82
Japanese	0.65*	0.58, 0.73	0.67*	0.59, 0.74	0.61*	0.46, 0.76	0.60*	0.44, 0.75
Korean	0.38*	0.30, 0.47	0.39*	0.31, 0.48	0.70*	0.54, 0.87	0.69*	0.53, 0.86
Indian	0.73*	0.68, 0.78	0.73*	0.68, 0.78	0.87*	0.78, 0.96	0.88*	0.79, 0.96
Filipino	0.38*	0.30, 0.46	0.38*	0.31, 0.46	0.40*	0.24, 0.55	0.40*	0.25, 0.56
Vietnamese	0.34*	0.26, 0.42	0.33*	0.25, 0.41	0.51*	0.34, 0.68	0.51*	0.34, 0.68
Control Variables	No		Yes		No		Yes	

Study 3 Results

In Study 3, we modified how we asked participants to provide their STEM estimates. Specifically, we changed Americans' reference point when making estimations from the U.S. Asian population to the entire U.S. population. We also manipulated how participants made their STEM estimations by either entering their responses (i.e., the open-ended condition) or selecting their responses from one of the provided categories (i.e., the close-ended condition). We expected that participants might be more accurate in the close-ended condition by creating anchoring effects (Epley & Gilovich, 2001; Tversky & Kahneman, 1974). Given the differences in how STEM estimations were measured, we report the analysis for each condition separately.

In the open-ended condition, we modified our STEM estimation item by presenting participants with the following: "Within the United States, a career in the Science, Technology, Engineering, and Mathematics (STEM) fields often requires an advanced degree (e.g., MA, MS, Ph.D.). If you had a random sample of 100 Americans with advanced STEM degrees, how many would be from each of the categories below: White, Black, Chinese, Indian, Japanese, Korean, Filipino, and Vietnamese." We asked participants to provide STEM estimates for the Black and White racial groups to help participants think about the entire U.S. population rather than just the U.S. Asian American population. Participants were asked to enter their responses and we conducted one-sample t-tests comparing participants' average STEM estimates to the actual percentages provided by the U.S. Census (2023). Inconsistent with previous studies, participants estimated $M = 15.59$ ($SD = 9.30$) Chinese Americans out of 100 Americans with an advanced STEM degree which is more than the actual percentage (11.1%), $t(225) = 7.27$, $p<.001$, $d = 0.483$. However, consistent with previous studies, participants estimated $M = 8.99$ ($SD = 7.67$) Japanese Americans and $M = 7.68$ ($SD = 6.27$) Korean individuals out of 100 Americans which are all more than the actual percentage of Japanese (0.5%), $t(225) = 16.64$, $p<.001$, $d = 1.11$ and Korean individuals who have advanced STEM degrees (1.1%), $t(225) = 15.79$, $p<.001$, $d = 1.05$. Additionally, participants estimated $M = 14.06$ ($SD = 9.50$) Indian Americans out of 100 Americans which is more than the actual percentage (17.4%), $t(225) = -5.29$, $p<.001$, $d = -0.352$. Participants estimated $M = 5.55$ ($SD = 5.29$) Filipino and $M = 5.49$ ($SD = 5.69$) Vietnamese individuals which are more than the actual percentage of Filipino (0.6%), $t(225) = 14.07$, $p<.001$, $d = 0.936$; and Vietnamese individuals (0.8%), $t(225) = 12.38$, $p<.001$, $d = 0.823$, represented in STEM. Finally, participants also underestimated White STEM representation ($M = 35.28$, $SD = 17.57$; actual = 56.0%), $t(225) = -17.73$, $p<.001$, $d = -1.18$, and overestimated Black STEM representation ($M = 10.34$, $SD = 7.27$; actual = 7.3%), $t(225) = 6.29$, $p<.001$, $d = 0.418$.

In the close-ended condition, we presented participants with the following: “Within the United States, a career in the Science, Technology, Engineering, and Mathematics (STEM) fields often requires an advanced degree (e.g., MA, MS, Ph.D.). What percentage of Americans from the following categories below have an advanced STEM degree: White, Black, Chinese, Indian, Japanese, Korean, Filipino, and Vietnamese.” Participants were presented with 12 options: “0-0.9%”, “1-1.9%, “2-2.9%”, “3-3.9%”, “4-4.9%”, “5-5.9%”, “6-6.9%”, “7-7.9%”, “8-8.9%”, “9-9.9%”, “10%”, and “greater than 10%”. We conducted separate χ^2 analyses for each subgroup to determine if the number of observed participants who selected one of the 12 categories significantly differed from the expected equal distribution. We followed up significant χ^2 results by examining the residuals to determine which most frequently selected category deviated the most from the expected. See Table S11. Participants were more likely to select “greater than 10%” than the other categories for the Chinese subgroup, $\chi^2(11) = 87.59$, $p<.001$, which is consistent with the actual percentage (11.1%). Participants were more likely to select “greater than 10%" for the Japanese subgroup, $\chi^2(11) = 48.15$, $p<.001$, and "4-4.9%" for Korean Americans, $\chi^2(11) = 30.39$, $p<.001$, both selections are greater than their actual percentages (0.5% and 1.1%). Additionally, participants were more likely to select "greater than 10%" for the Indian subgroup, $\chi^2(11) = 61.37$, $p<.001$, which is consistent with the actual percentage (17.4%). Participants were more likely to select "2-2.9%" for Filipino Americans, $\chi^2(11) = 76.81$, $p<.001$ and "1-1.9%" for Vietnamese Americans, $\chi^2(10) = 48.69$, $p<.001$, both selections are greater than the actual percentages (0.6%, and 0.8%). (Note: the degrees of freedom for Vietnamese Americans is 10 compared to 11 because zero participants selected "greater than 10%".) Finally, participants were more likely to select "greater than 10%" for White Americans, $\chi^2(11) = 130.09$, $p<.001$, which is consistent with the actual percentage (56%), and more likely to select "2-2.9%" for Black Americans, $\chi^2(11) = 112.33$, $p<.001$, which is less than the actual percentage (7.3%).

Table S11

Results for the χ^2 analysis for STEM estimates in Study 3: close-ended condition.

Subgroup (*Actual*)	χ^2 Results	Category	Observed *N*	Expected *N*	Residual
Chinese	χ^2 (11) = 87.59, p<.001	0 - 0.9%	2	18.9	-16.9
11.1%		1 - 1.9%	10	18.9	-8.9
		2 - 2.9%	11	18.9	-7.9
		3 - 3.9%	12	18.9	-6.9
		4 - 4.9%	25	18.9	6.1
		5 - 5.9%	25	18.9	6.1
		6 - 6.9%	16	18.9	-2.9
		7 - 7.9%	21	18.9	2.1
		8 - 8.9%	17	18.9	-1.9
		9 - 9.9%	13	18.9	-5.9
		10%	24	18.9	5.1
		greater than 10%	51	18.9	32.1
Japanese	χ^2 (11) = 48.15, p<.001	0 - 0.9%	1	18.9	-17.9
0.5%		1 - 1.9%	13	18.9	-5.9
		2 - 2.9%	15	18.9	-3.9
		3 - 3.9%	20	18.9	1.1
		4 - 4.9%	26	18.9	7.1
		5 - 5.9%	28	18.9	9.1
		6 - 6.9%	17	18.9	-1.9
		7 - 7.9%	18	18.9	-0.9
		8 - 8.9%	24	18.9	5.1
		9 - 9.9%	14	18.9	-4.9
		10%	14	18.9	-4.9
		greater than 10%	37	18.9	18.1
Korean	χ^2 (11) = 30.92, p<.001	0 - 0.9%	5	18.9	-13.9
1.1%		1 - 1.9%	15	18.9	-3.9
		2 - 2.9%	20	18.9	1.1
		3 - 3.9%	20	18.9	1.1
		4 - 4.9%	32	18.9	13.1
		5 - 5.9%	21	18.9	2.1
		6 - 6.9%	20	18.9	1.1
		7 - 7.9%	18	18.9	-0.9
		8 - 8.9%	23	18.9	4.1
		9 - 9.9%	14	18.9	-4.9
		10%	11	18.9	-7.9
		greater than 10%	28	18.9	9.1

Table S11. (cont.)

Subgroup (*Actual)*	χ^2 Results	Category	Observed *N*	Expected *N*	Residual
Indian	χ^2 (11) = 61.37, p<.001	0 - 0.9%	8	18.9	-10.9
17.4%		1 - 1.9%	10	18.9	-8.9
		2 - 2.9%	17	18.9	-1.9
		3 - 3.9%	20	18.9	1.1
		4 - 4.9%	25	18.9	6.1
		5 - 5.9%	19	18.9	0.1
		6 - 6.9%	19	18.9	0.1
		7 - 7.9%	13	18.9	-5.9
		8 - 8.9%	18	18.9	-0.9
		9 - 9.9%	13	18.9	-5.9
		10%	17	18.9	-1.9
		greater than 10%	48	18.9	29.1
Filipino	χ^2 (11) = 76.81, p<.001	0 - 0.9%	15	18.9	-3.9
0.6%		1 - 1.9%	31	18.9	12.1
		2 - 2.9%	40	18.9	21.1
		3 - 3.9%	37	18.9	18.1
		4 - 4.9%	25	18.9	6.1
		5 - 5.9%	15	18.9	-3.9
		6 - 6.9%	17	18.9	-1.9
		7 - 7.9%	8	18.9	-10.9
		8 - 8.9%	9	18.9	-9.9
		9 - 9.9%	8	18.9	-10.9
		10%	12	18.9	-6.9
		greater than 10%	10	18.9	-8.9
Vietnamese	χ^2 (10) = 48.68, p<.001	0 - 0.9%	11	20.6	-9.6
0.8%		1 - 1.9%	41	20.6	20.4
		2 - 2.9%	30	20.6	9.4
		3 - 3.9%	32	20.6	11.4
		4 - 4.9%	20	20.6	-0.6
		5 - 5.9%	19	20.6	-1.6
		6 - 6.9%	16	20.6	-4.6
		7 - 7.9%	23	20.6	2.4
		8 - 8.9%	14	20.6	-6.6
		9 - 9.9%	10	20.6	-10.6
		10%	11	20.6	-9.6
		greater than 10%	0	-	-

Table S11. (cont.)

Subgroup (*Actual*)	χ^2 Results	Category	Observed *N*	Expected *N*	Residual
Black	χ^2 (11) = 112.33, p<.001	0 - 0.9%	19	18.9	0.1
7.3%		1 - 1.9%	36	18.9	17.1
		2 - 2.9%	47	18.9	28.1
		3 - 3.9%	35	18.9	16.1
		4 - 4.9%	23	18.9	4.1
		5 - 5.9%	19	18.9	0.1
		6 - 6.9%	9	18.9	-9.9
		7 - 7.9%	10	18.9	-8.9
		8 - 8.9%	4	18.9	-14.9
		9 - 9.9%	4	18.9	-14.9
		10%	9	18.9	-9.9
		greater than 10%	12	18.9	-6.9
White	χ^2 (11) = 130.09, p<.001	0 - 0.9%	2	18.9	-16.9
56.0%		1 - 1.9%	6	18.9	-12.9
		2 - 2.9%	7	18.9	-11.9
		3 - 3.9%	17	18.9	-1.9
		4 - 4.9%	25	18.9	6.1
		5 - 5.9%	42	18.9	23.1
		6 - 6.9%	16	18.9	-2.9
		7 - 7.9%	19	18.9	0.1
		8 - 8.9%	15	18.9	-3.9
		9 - 9.9%	9	18.9	-9.9
		10%	16	18.9	-2.9
		greater than 10%	53	18.9	34.1

Additional Analyses

Inclusion of Bachelor's degree data in STEM definition

As a supplemental analysis, we aimed to determine if participants' STEM estimates would be more accurate if the actual STEM values included Asian individuals who hold a Bachelor's degree and work in a STEM field. When we included Asian individuals with a Bachelor's degree, we found that 25% of Chinese Americans, 2% of Japanese Americans, 5% of Korean Americans, 45% of Indian Americans, 6% of Filipino Americans, 5% of Vietnamese Americans, and 12% of Asian individuals from other ethnic subgroups have a STEM degree. Notably, 70% of Asian individuals in STEM are from the Chinese and Indian subgroups, compared to 82% of advanced STEM degree holders. Meanwhile, 11% are from the Filipino and Vietnamese subgroups, compared to 4%. Like in our previous analyses, we ran a series of one-sample t-tests for each subgroup comparing participants' average STEM estimates to the new percentages provided by the U.S. Census Bureau listed above. We again report meta-analytic effect size estimates (i.e., the Fisher's z transformed correlation coefficient[4]; z_{Fisher}) below (Goh et al., 2016) but see Table S12 for individual study results.

Unlike in the previous analyses, participants estimated M_{meta} = 26.16, *95%CI* [25.42, 26.91] individuals have an advanced STEM degree for the Chinese subgroup, which is similar to the percentage of Chinese individuals in STEM (25%), which includes Bachelor's degree holders, z_{Fisher} = 0.049, p = .128, *95% CI* [-0.014, -0.112]. In other words, if we had included Bachelor's degree holders in the actual STEM percentage, then participants would have been accurate in their perceptions of Chinese subgroup representation in STEM.

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[4] We conducted the meta-analysis by first converting the Cohen's d effect size from the one-sample t-tests into correlation coefficients (r) using the following equation: $r = \frac{d}{\sqrt{d^2+4}}$. Then, we used the *metafor* R package (Viechtbauer, 2010) to calculate the average effect size for each Asian subgroup.

However, for the rest of the subgroups, we replicate our previous analyses in that participants misperceived Asian subgroup representation in STEM, even when we include Bachelor's degree holders. Specifically, participants estimated M_{meta} = 13.87, *95% CI* [12.37, 15.38] for the Japanese subgroup, which is more than the actual percentage for the Japanese (2%), z_{Fisher} = 0.679, p<.0001, *95% CI* [0.616, 0.742]. It is interesting to note that the actual percentage for the Japanese subgroup did not change when Bachelor's degree holders were included in the calculations. Additionally, participants estimated M_{meta} = 11.94, *95% CI* [11.53, 12.35] for the Korean subgroup, which is more than the actual percentage for the Korean subgroup (5%), z_{Fisher} = 0.513, p<.0001, *95% CI* [0.450, 0.576]. Furthermore, participants estimated M_{meta} = 23.96, *95% CI* [20.42, 27.50] for the Indian subgroup, which is less than the actual percentage (45%), z_{Fisher} = -0.724, p<.0001, *95% CI* [-0861, -0.586]. Moreover, participants estimated M_{meta} = 7.96, *95% CI* [7.14, 8.79] for the Filipino subgroup, and M_{meta} = 7.75, *95% CI* [7.39, 8.10] for the Vietnamese subgroups, both of which are more than the actual percentage for the Filipino (6%), z_{Fisher} = 0.177, p<.0001, *95% CI* [0.114, 0.239] and Vietnamese subgroups (5%), z_{Fisher} = 0.239, p<.0001, *95% CI* [0.176, 0.302]. Interestingly, despite still misperceiving STEM representation for the above Asian subgroups, participants' estimates do become more accurate when Bachelor's degree holders are included in the STEM percentages as indicated by the decrease in effect size.

Finally, inconsistent with previous analyses, participants estimated M_{meta} = 8.74, *95% CI* [8.21, 9.27] for the other subgroup, which is less than the actual percentage (12%), z_{Fisher} = -0.191, p<.0001, *95% CI* [-0.254, 0.129].

Table S12

*Descriptive statistics, individual one-sample t-test results estimates for Study 1 (N = 784) and Study 2 (N = 197) by Asian subgroup comparing participants' STEM to actual STEM percentages provided by the U.S. Census for advanced degrees (M.S., M.A., Ph.D.) only and for both bachelors (B.S., B.A.) and advanced degrees *p<.05*

Subgroup	Study	Mean (SD)	STEM *M.S, M.A., Ph.D. only*		STEM *B.S., B.A.,M.S, M.A., Ph.D.*	
			Actual	t-value	Actual	t-value
Chinese	1	26.19 (11.67)	32	-13.94*	25	2.86*
	2	26.03 (12.84)	32	-6.53*	25	1.13
Japanese	1	14.57 (8.49)	2	41.48*	2	41.48*
	2	13.03 (7.89)	2	19.62*	2	19.62*
Korean	1	12.02 (6.49)	3	38.89*	5	30.27
	2	11.63 (6.41)	3	18.90*	5	14.52
Indian	1	22.25 (13.17)	50	-58.98*	45	-48.35*
	2	25.87 (14.00)	50	-24.19*	45	-19.18*
Filipino	1	8.34 (6.35)	2	27.97*	6	10.33*
	2	7.49 (5.01)	2	15.39*	6	4.19*
Vietnamese	1	7.81 (5.70)	2	28.54*	5	13.80*
	2	7.50 (5.69)	2	13.55*	5	6.16*
Other	1	8.77 (8.64)	9	-0.74	12	-10.47*
	2	8.63 (7.84)	9	-0.66	12	-6.03*

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