Abstract

Ethnic differences in self-assessed intelligence (SAI) were examined in two studies. In Study 1 no differences in SAI were found. In Study 2 significant differences in SAI were found with Blacks rating themselves higher in intelligence than Whites, Asians, and Hispanics. Whites rated themselves higher than Hispanics. When scores on a measure of cognitive ability were taken into account it was found that Whites underestimated and Blacks overestimated their ability in comparison to each other and Asians and Hispanics. The results contradict previous findings of higher White SAI and are more consistent with ethnic differences in self-esteem. Future research could examine the possible role of self-esteem in ethnic differences in SAI and further disaggregate ethnic group categorization.

Key words: Self-assessed intelligence; cognitive ability; White male effect

1. Introduction

Accurate appraisal of one's abilities is important. Underestimating ability increases the likelihood of failure to reach one's potential as obtainable goals are incorrectly judged as out of reach. Overestimation may not only lead to a higher likelihood of failure as an individual attempts tasks that are beyond their capabilities but may also increase frustration and lashing out at others in a case of misattribution or due to the loss of self-esteem (Baumeister, Smart & Boden, 1996; Zajenkowski, M., & Gignac, G. E., 2018). In a post-industrial economy in which service, information, and research are of increasing importance cognitive ability has become paramount in determining success. It then follows that the accurate assessment of the specific trait of intelligence is of increasing consequence.

In a multicultural society, interethnic and cultural dynamics add a layer of complexity to self-assessment as it may be important to take interethnic proclivities into account when assessing individual ability. In WEIRD (Henrich, Heine & Norenzayan, 2010) societies, such as the United States, there is an assumption of equality of ability amongst groups (e.g., all men are created equal). If equality is assumed, then no group difference in self-assessed intelligence (SAI) should be expected. There should be a platykurtic distribution as individuals tend to rank themselves as being similar to others; as average to reflect the underlying equality. However, in contrast, it is consistently found that individuals rank cognitive ability as better than average (Krueger & Mueller, 2002). Thus, in terms of SAI, all men and women are created better than average.

Accuracy is another possibility. It could be that group differences in SAI align with group differences in objectively measured ability. Groups with lower cognitive ability may, on aggregate, also have lower SAI and those with higher cognitive ability also have higher SAI. To

point, there is a positive correlation between SAI and objectively measured intelligence. SAI is significantly correlated with cognitive ability at $r = .30$ (Freund & Kasten, 2012). However, although the correlation between SAI and objective measured generalized ability is significant and positive the majority of the variance between the two variables is not shared. Thus, an expectation of accuracy is not warranted.

Howard and Cogswell (2018) conducted a meta-analysis on associations with SAI which included differences in SAI between Blacks and Whites. Reasoning that White males are especially susceptible to overestimating their positive attributes (i.e., the White male effect) Howard and Cogswell (2018) hypothesized that Whites would have a higher SAI than Blacks. They identified three studies that looked at ethnic differences in SAI. Looking exclusively at the differences between Blacks and Whites, Heiss and Owens (1972) combined responses of two 1966 National Opinion Research Center surveys each of which sampled participants residing in metropolitan regions of the northern United States. Looking at the percentages of participants who rated themselves as either average or above average in intelligence they found that Whites were more likely to rate themselves as above average. This difference, however, was moderated by both the sex and social class of the participants. In contrast, Von Hippel et al. (2005) et al. found no difference in claimed intelligence between Black and White college students. The most extensive study included in the meta-analysis looked at SAI in a large sample of ethnically diverse college students. Kaufman (2012) found that Whites had the highest SAI followed, in order, by Asians, Blacks, and Hispanics. Thus, the joint analysis of the three studies by Howard and Cogswell (2018) supported the hypothesis that Whites have a higher SAI than Blacks. However, as noted by Kaufman (2012) it was not possible to ascertain how these differences map onto differences in objectively measured differences in cognitive ability.

Subsequent to Howard and Cogswell's (2018) meta-analysis, Heck, Simons, and Chabris (2018) published an additional study with results on ethnic differences in SAI. While each of the three studies included in the meta-analysis relied on restricted or biased sampling methods such as using a convenience sample of university students, Heck et al. (2018) went through extensive effort to ensure that their sample was representative of US demographics. However, Heck et al. (2018) aggregated ethnic groups into the false dichotomy of White and non-White obscuring possible more specific ethnic differences. Thus, in Study 1 the non-White group of Heck et al. (2018) is disaggregated so that differences between ethnic groups in SAI can examined.

Study 1

2. Method

2.1 Participants

Heck et al. (2018) recruited participants via phone ($N = 1,838$) and through Amazon Mechanical Turk (MTurk, $N = 983$). The ethnic composition of the samples as reported by Heck et al. (2018) was as follows: phone (White = 1,563, Non-White = 275) and Mturk (White = 764, Non-White = 219). Although, the method of survey administration (phone or MTurk) accounted for some minor differences between groups, because the purpose of the current investigation is to examine more fine-tuned group differences, to maximize group size the two samples were merged. After the merger of the two files, there were 2,347 Whites, 211 Blacks, 113 Hispanics, 92 Asians, and 78 "other". Due to the ambiguity of the "other" group it was removed from the analyses. The merged sample included 1,728 females and 1,093 males. The data is available at https://osf.io/zkh3e/?view_only=57b247e35eb4496399f40ca20cdf635f.

2.2 Procedure

As described in Heck et al. (2018) the telephone survey was designed to attain a sample that was representative of U.S. ethnic demographics. Participants were asked to rate the statement "I am more intelligent than the average person". The scale for rating the statement included the following options: strongly agree; mostly agree; mostly disagree; strongly disagree; don't know. For the current study responses were coded so that 1 = strongly disagree; 2 = mostly disagree; 3 = mostly agree; 4 = strongly agree. "Don't know" responses were discarded. Respondents also reported their level of education using four possible options which were converted into the following values: 1 = no college; 2 = some college; 3 = college graduate; 4 = graduate degree.

3. Results

A one-way analysis of variance (ANOVA) was conducted with ethnicity as the independent variable and rated intelligence as the dependent variable. The ANOVA was not significant, $F(3, 2431) = 1.87$, $p > .05$. The means and standard deviations by ethnic group can be seen in Table 1.

However, because ethnic groups vary on measures of general cognitive ability (Jensen, 1998), in examining differences in SAI as an indicator of accuracy, when possible, it is also important to examine differences in SAI after adjusting for objectively measured ability. Using education level as a proxy for cognitive ability, SAI was regressed on education level and the residuals were saved. The ANOVA testing for difference on the residuals was also not significant, $F(3, 2431) = 2.21$, $p > .05$. The descriptive statistics for the residuals can also be seen in Table 1.

Table 1

Descriptive Statistics for SAI by Ethnicity

Ethnicity	SAI	Residualized SAI
White	2.86 (.74)	-.02 (.72)
Black	2.95 (.85)	.10 (.86)
Hispanic	2.92 (.89)	.06 (.90)
Asian	3.00 (.83)	.08 (.84)

Note. Standard deviations are in parentheses.

4. Discussion

While the results were not significant, they also contrast with the finding that Whites have higher SAI. Indeed, the results show that among the four ethnic groups Whites had the lowest SAI scores. However, because level of education has been found to correlate with measures of cognitive ability at $r \approx .50$ (Deary & Johnson, 2010) a more valid measure of cognitive ability may provide more accurate results. Thus, in Study 2 another nationally representative sample is used to examine ethnic differences in SAI and SAI after accounting for objectively measured cognitive ability.

Study 2

5. Method

5.1 Participants

Data files from the publicly available version of the National Longitudinal Study of Adolescent to Adult Health (Add Health; Harris et al., 2009) were employed. For the current

study, information from the in-home interview that occurred in the third wave when participants

young adults (aged 18 – 26) was used. Self-reported ethnicity in which respondents first reported

whether they were Hispanic or Latino and then responded to questions about self-identified race

produced the following: 3,294 Whites, 1,204 Blacks, 111 Hispanics, and 227 Asians with 2,607

females and 2,229 males. The data is available at

https://addhealth.cpc.unc.edu/documentation/study-design/.

5.2 Measures

5.2.1 Self-assessed intelligence or SAI.

The SAI was a sum of two items. Participants responded to the question "Compared to

other people your age, how intelligent are you?". Responses were coded using a six-point Likert

scale (1 = moderately below average; 2 = slightly below average; 3 = about average; 4 = slightly

above average; 5 = moderately above average; 6 = extremely above average). Participants were

later asked "How intelligent are you?" with responses indicated on a four-point Likert scale (1 =

very intelligent; 2 = moderately intelligent; 3 = slightly intelligent; 4 = not at all intelligent).

A multi-step process was followed to create the *SAI* measure. First, item 2 ("How

intelligent are you?") was reverse coded to match the coding direction of item 1. Second, both

items were standardized (i.e., *z*-transformed) and then summed. Third, to produce estimated IQ

scores, the total scores were then standardized once again, with a mean of 100 and a standard

deviation of 15.

5.2.2 Objective IQ.

Intelligence was measured using an abbreviated version of the Peabody Picture

Vocabulary Test (PPVT; Dunn, 1981) administered in wave 3 (Halpern et al., 2000). To simulate

IQ scores, we used the standardized PPVT scores calculated by the Add Health administrators.

6. Results

Descriptive statistics for SAI, PPVT, and difference scores (PPVT – SAI) can be seen in Table 2. In the first analysis, a one-way ANOVA was conducted with ethnic group as the IV and SAI as the DV. The results were significant, $F(3, 4680) = 30.08$, $p < .001$. Hochberg's GT2 post hoc tests (used due to highly unequal cell sizes) showed that Blacks had a higher SAI than each of the other groups and Whites had a higher SAI than Hispanics. Repeating the first analysis with PPVT as the DV also resulted in a significant effect, $F(3, 4653) = 180.79$, $p < .001$. Hochberg's GT2 post hoc tests showed that Whites scored higher than each of the other groups and that Asians scored higher than Blacks and Hispanics. In the last analysis difference scores were inserted as the DV and the result was significant, $F(3, 4653) = 180.79$, $p < .001$. Hochberg's GT2 post hoc tests revealed that Whites had higher difference scores than the other three groups and that Blacks a had lower difference scores than Asians and Hispanics.

Descriptive Statistics for SA, PPTV, and Difference Score by Ethnicity

Ethnicity	SAI	PPVT	Difference
White	99.20 (14.54)	103.18 (12.37)	4.11 (15.79)
Black	103.65 (15.65)	92.25 (18.39)	-11.04 (21.85)
Hispanic	94.76 (15.53)	89.68 (15.24)	-4.59 (19.82)
Asian	97.56 (14.50)	96.05 (20.88)	-.93 (22.77)

Note. Standard deviations are in parentheses.

7. Discussion

The results are in contrast with a White > Black differences in SAI reported by Howard and Cogswell (2018). Therefore, the evidence suggests that the White male effect as applied to

SAI should be rejected. Alternatively, the results of Study 2 align with long-standings findings on ethnic differences in self-esteem. Blacks consistently score higher on measures of self-esteem than Whites (Gray-Little & Hafdahl, 2000; Hoelter, 1983). Additionally, the inclusion of Asian and Hispanic as ethnic groups in the examination of group differences in self-esteem largely mirrors the findings in Study 2, with the difference that Asians score lower on self-esteem than Hispanics (Bachman et al., 2011; Twenge & Crocker, 2002).

However, the inability to test this hypothesized role for self-esteem is one limitation of the studies. Future research could control for self-esteem to see if the differences in SAI evaporate. Additionally, while an effort was made to move beyond the overly restricted comparison of Blacks and Whites to include other ethnic groups, the ethnic group classifications themselves (e.g., Asian) is the fusion of numerous disparate groups. To address these limits of generality future research could examine group differences beyond these largely artificial classifications.

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