

ORIGINAL ARTICLES

Waterloo-Stanford Group Scale of Hypnotic Susceptibility, Form C with African American College Students and Non-African American College Students

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This study compared a group of African American college students at a traditional black university with a group of largely white European American college students at a traditional white institution on the Waterloo-Stanford Group Scale of Hypnotic Susceptibility, Form C (WSGC). The two groups differed significantly: Wilks' Lambda=.32 (26, 56), $p=.000$, and partial eta squared=.680. **(Sleep and Hypnosis 2005;7(1):42-46)**

Key words: *hypnotizability, african amerikan collage students, cultural differences*

INTRODUCTION

Hypnotizability scales are standardized normative measures that determine the level of responsiveness that participants have to hypnosis (1). There is a distinction between hypnotizability, an increase in suggestibility after a formal hypnotic induction, and suggestibility, a social psychological construct that does not require an induction. Most participants report an increase in suggestibility following an induction, whereas a minority of participants do not report such an increase.

Sapp and Hitchcock (2) reported that during the 1950s and early 1960s, the Harvard Group

Scale of Hypnotic Susceptibility, Form A (HGSHS:A) was derived from the Stanford Hypnotic Susceptibility Scales. The HGSHS:A is the benchmark standard for group measures of hypnotizability, and it is composed of 12 items that are reported to have reliability for items of .83 for European American college students. Sapp and Hitchcock (2) reported seminal data of the HGSHS:A for African American college students, and they found the reliability of this scale for an African American sample was lower than two European American college students samples; however, an inner subjective experiences method for scoring the HGSHS:A produced more reliable items with African American college students. Sapp and Hitchcock (3) replicated their 2001 study and found that the inner subjective experiences method for scoring the HGSHS:A produced a reliability of .88 with African American college students. Sapp and Hitchcock (4) found that African American college students differed from

Presented at
American Psychological Association Annual Meeting
July 30, 2004

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Accepted September 13, 2004

European American college students in creative imagination, and the two groups differed in terms of construct validity as measured by creative imagination.

Sapp (5) performed a third study that replicated the two previous studies with African American college students. Again, Sapp found that the inner subjective experiences method for scoring the HGSHS:A with African American college students produced more reliable results than the standard scoring system.

The Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C) is the benchmark for individual assessment of hypnotizability. With European American college students, items from the SHSS:C tend to produce items with an internal consistency reliability of .85. Unlike the HGSHS:A, the SHSS:C has a variety of cognitive items and has items with greater difficulty than the HGSHS:A.

Sapp (5) provided seminal research that assessed hypnotizability using the HGSHS:A and the SHSS:C with African American students. Like other studies with African American college students, it was found that the inner subjective experiences method for scoring the HGSHS:A produced more reliable results than the standard scoring method. In contrast, the SHSS:C and the inner subjective scoring method for the SHSS:C and the standard scoring method both produced reliable results with African American college students. Finally, point estimates for coefficient alphas for the SHSS:C standard scoring method and the inner subjective experiences scoring method did not differ from European American college students. Recently, Sapp (6) described how hypnosis can have applications for academically at-risk African American high school students. For example, hypnosis can be useful in reducing test anxiety with these students and aid them with study skills training. The purpose of this study is to compare African American college students and non-African American college students on the

Waterloo-Stanford Group Scale of Hypnotic Susceptibility Form (WSGS). Sapp (1) reported that this scale is a modification of the SHSS:C and has items with a reliability of .80. It is composed of 12 items with scores that range from 0 to 12.

METHODS

Participating in this study were 49 African American undergraduate college students and 39 non-African American undergraduate college students. Twenty-six of the African American students were females and 23 were males. For African American college students, the mean for the age variable was 21.18 and the standard deviation was 1.81. For the non-African American students, 24 were females and 15 were males. In terms of age, the mean was 21 and the standard deviation was 5.35. Thirty-seven of the non-African American college students were European American and two were Asian American. The African American students were from a predominantly African American four-year college, and the non-African American students were from a predominantly white Midwestern university.

Procedures

Participants completed the experimental procedures in groups, and all received extra credit for their participation. They received the following experimental procedure: Waterloo-Stanford Group Scale (WSGS), the completed booklet for the WSGS, Inner Subjective Experience Scale (ISES) for the WSGS, which measures participants' inner subjective experiences, Vividness of Imagination Scale (VIS), and Hypnotic Depth Scale. Finally, non-African American college students completed the Hypnotic Survey (HS).

RESULTS

Data Reliability

To assess internal consistency, Cronbach's alpha coefficient was calculated for each scale of measurement for all participants and participants' groups, as appropriate. It should be noted that Waterloo-Stanford Group Scale items 8, 10, 11, and 12 were omitted from the group analysis for African American participants because the variance for each of these items was zero. A 95% confidence interval was obtained for each reliability coefficient using a bootstrap sampling technique (2000 samples, 90% of N in each sample). The results for the reliability analyses are presented in Table 1.

Table 1. Reliability Statistics for Research Instruments

| Instrument | Group | N | a | 95% CI |
|------------|--------|----|-------|-----------|
| ISES | AA | 47 | .9035 | .86 -.93 |
| | Non AA | 39 | .9034 | .84 -.93 |
| | Total | 86 | .9079 | .87 -.93 |
| HS | Non AA | 39 | .5792 | .37 -.72 |
| WSGC | AA | 49 | .2928 | -.11 -.52 |
| | Non AA | 40 | .6427 | .36 -.77 |
| | Total | 89 | .5675 | .40 -.68 |

Note: ISES is the Inner Subjective Experience Scale; WSGC is the Waterloo-Stanford Group Scale, Form C; HS is the Hypnotic Survey; AA refers to African American participants; Non AA refers to non-African American participants; N refers to the number of cases with complete data. The negative value for the 95% confidence interval for the African American participants on the WSGC is due to minimal variance in several survey items.

Correlational Analyses

Bivariate correlations were calculated to assess relationships between the research instruments—Waterloo-Stanford Group Scale (WSGC), Inner Subjective Experience Ratings Scale (ISRS), Vividness of Imagination Scale (VIS), Hypnotic Depth (HD), and Hypnotic Survey—which was only completed by non-African American college students. Correlations were conducted for all participants and by their groups, as appropriate. Statistical results for the correlations are presented in Table 2.

Table 2. Correlations Between Research Instruments

| | HD | HS | ISES | VIS |
|--------|--------|---------|---------|--------|
| HD | | | | |
| HSC | | | | |
| Non AA | -.539* | | | |
| ISES | | | | |
| AA | .774** | - | | |
| Non AA | .743** | -.523** | | |
| Total | .827** | - | | |
| VIS | | | | |
| AA | .553** | - | .522** | |
| Non AA | .625** | -.267 | .743** | |
| Total | .615** | - | .638** | |
| WSGC | | | | |
| AA | .134 | - | .111 | .325* |
| Non AA | .379* | -.334* | -.596** | .542** |
| Total | .334** | - | .443** | .465** |

Note: * indicates that the correlation is statistically significant at .05; ** indicates that the correlation is statistically significant at .01.

Multivariate Analysis

A two-group MANOVA compared African American and non-African American college students on the 12 items of the WSGC, and the 12 items of the ISES, VIS, and HD. Group means for each instrument are presented in Table 3. The groups differed significantly Wilks's Lambda=.32(26,56), p=.000, and partial eta squared=.680 as a point estimate, and the 95% confidence interval around the population eta squared is .336 to .660. The power value for this analysis is 1.0. The Bonferroni procedure was used to control for the overall alpha level; therefore, follow-up univariate tests were tested at the .002 alpha level. Items 4 and 11 of the WSGC contributed to multivariate significance. Items 1, 2, 5, and 7 of the ISES also contributed to multivariate significance. Table 3 has the means, standard deviations, and partial etas squared for each dependent variable and the observed power value. Table 4 has the 95% confidence intervals for the population partial etas squared for the dependent variables.

Table 3. Descriptive Statistics

| | Group | Mean | Standard Deviation |
|---------|--------|------|--------------------|
| WSGC 1 | Non-AA | .78 | .422 |
| | AA | .57 | .500 |
| | Total | .66 | .476 |
| WSGC 2 | Non-AA | .83 | .378 |
| | AA | .68 | .471 |
| | Total | .75 | .437 |
| WSGC 3 | Non-AA | .36 | .487 |
| | AA | .26 | .441 |
| | Total | .30 | .462 |
| WSGC 4 | Non-AA | .72 | .454 |
| | AA | .32 | .471 |
| | Total | .49 | .503 |
| WSGC 5 | Non-AA | .72 | .454 |
| | AA | .49 | .505 |
| | Total | .59 | .495 |
| WSGC 6 | Non-AA | .53 | .506 |
| | AA | .57 | .500 |
| | Total | .55 | .500 |
| WSGC 7 | Non-AA | .56 | .504 |
| | AA | .64 | .486 |
| | Total | .60 | .492 |
| WSGC 8 | Non-AA | .08 | .280 |
| | AA | .00 | .000 |
| | Total | .04 | .188 |
| WSGC 9 | Non-AA | .08 | .280 |
| | AA | .15 | .360 |
| | Total | .12 | .328 |
| WSGC 10 | Non-AA | .14 | .351 |
| | AA | .00 | .000 |
| | Total | .06 | .239 |
| WSGSC11 | Non-AA | .25 | .439 |
| | AA | .00 | .000 |
| | Total | .11 | .313 |
| WSGC 12 | Non-AA | .03 | .167 |
| | AA | .00 | .000 |
| | Total | .01 | .110 |
| VIVI | Non-AA | 4.39 | 2.541 |
| | AA | 2.77 | 3.252 |
| | Total | 3.47 | 3.057 |

Table 3. Descriptive Statistics (to be counted)

| | Group | Mean | Standard Deviation |
|---------|--------|------|--------------------|
| HD | Non-AA | 3.61 | 2.370 |
| | AA | 2.11 | 2.744 |
| | Total | 2.76 | 2.681 |
| ISES 1 | Non-AA | 4.17 | 1.648 |
| | AA | 2.53 | 1.804 |
| | Total | 3.24 | 1.910 |
| ISES 2 | Non-AA | 3.67 | 1.821 |
| | AA | 2.40 | 1.651 |
| | Total | 2.95 | 1.827 |
| ISES 3 | Non-AA | 2.19 | 1.618 |
| | AA | 1.62 | 1.226 |
| | Total | 1.87 | 1.429 |
| ISES 4 | Non-AA | 2.54 | 1.518 |
| | AA | 2.15 | 1.655 |
| | Total | 2.32 | 1.600 |
| ISES 5 | Non-AA | 3.86 | 1.726 |
| | AA | 2.19 | 1.498 |
| | Total | 2.92 | 1.796 |
| ISES 6 | Non-AA | 2.75 | 1.811 |
| | AA | 1.98 | 1.661 |
| | Total | 2.31 | 1.759 |
| ISES 7 | Non-AA | 3.61 | 1.761 |
| | AA | 2.33 | 1.714 |
| | Total | 2.89 | 1.838 |
| ISES 8 | Non-AA | 2.50 | 1.682 |
| | AA | 1.68 | 1.163 |
| | Total | 2.04 | 1.460 |
| ISES 9 | Non-AA | 1.64 | 1.246 |
| | AA | 1.51 | 1.120 |
| | Total | 1.57 | 1.171 |
| ISES 10 | Non-AA | 1.92 | 1.903 |
| | AA | 2.32 | 1.783 |
| | Total | 2.14 | 1.836 |
| ISES 11 | Non-AA | 1.69 | 1.283 |
| | AA | 1.34 | .962 |
| | Total | 1.49 | 1.119 |
| ISES 12 | Non-AA | 2.67 | 1.394 |
| | AA | 2.53 | 1.755 |
| | Total | 2.59 | 1.601 |

Tests of Between-Subject Effects

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent Parameter | Observed Power |
|-----------------|--------------------|-------------------------|-------|-------------|--------|------|---------------------|-------------------|----------------|
| Corrected Model | WSGC 1 | .843 | 1 | .843 | 3.854 | .053 | .045 | 3.854 | .492 |
| | WSGC 2 | .474 | 1 | .474 | 2.524 | .116 | .030 | 2.524 | .348 |
| | WSGC 3 | .228 | 1 | .228 | 1.072 | .304 | .013 | 1.072 | .176 |
| | WSGC 4 | 3.312 | 1 | 3.312 | 15.387 | .000 | .160 | 15.387 | .972 |
| | WSGC 5 | 1.015 | 1 | 1.015 | 4.721 | .033 | .055 | 4.721 | .574 |
| | WSGC 6 | 4.444E-02 | 1 | 4.444E-02 | .176 | .676 | .002 | .176 | .070 |
| | WSGC 7 | .140 | 1 | .140 | .573 | .451 | .007 | .573 | .116 |
| | WSGC 8 | .142 | 1 | .142 | 4.170 | .044 | .049 | 4.170 | .523 |
| | WSGC 9 | 8.773E-02 | 1 | 8.773E-02 | .816 | .369 | .010 | .816 | .145 |
| | WSGC 10 | .393 | 1 | .393 | 7.398 | .008 | .084 | 7.398 | .767 |
| | WSGC 11 | 1.274 | 1 | 1.274 | 15.289 | .000 | .159 | 15.289 | .972 |
| | WSGC 12 | 1.573E-02 | 1 | 1.573E-02 | 1.310 | .256 | .016 | 1.310 | .205 |
| | VISI | 53.694 | 1 | 53.694 | 6.104 | .016 | .070 | 6.104 | .685 |
| | HD | 46.157 | 1 | 46.157 | 6.885 | .010 | .078 | 6.885 | .737 |
| | ISES 1 | 54.479 | 1 | 54.479 | 18.033 | .000 | .182 | 18.033 | .987 |
| | ISES 2 | 32.488 | 1 | 32.488 | 10.905 | .001 | .119 | 10.905 | .904 |
| | ISES 3 | 6.797 | 1 | 6.797 | 3.425 | .068 | .041 | 3.425 | .448 |
| | ISES 4 | 3.144 | 1 | 3.144 | 1.232 | .270 | .015 | 1.232 | .195 |
| | ISES 5 | 56.827 | 1 | 56.827 | 22.174 | .000 | .215 | 22.174 | .996 |
| | ISES 6 | 12.127 | 1 | 12.127 | 4.063 | .047 | .048 | 4.063 | .513 |
| | ISES 7 | 33.469 | 1 | 33.469 | 11.125 | .001 | .121 | 11.125 | .909 |
| | ISES 8 | 13.679 | 1 | 13.679 | 6.873 | .010 | .078 | 6.873 | .736 |
| | ISES 9 | .335 | 1 | .335 | .242 | .624 | .003 | .242 | .078 |
| | ISES 10 | 3.302 | 1 | 3.302 | .980 | .325 | .012 | .980 | .165 |
| ISES 11 | 2.555 | 1 | 2.555 | 2.066 | .155 | .025 | 2.066 | .295 | |
| ISES 12 | .370 | 1 | .370 | .143 | .706 | .002 | .143 | .066 | |

Table 4. 95% Confidence Intervals for the Population Partial Etas Squared

| Dependent Variable | |
|--------------------|------------|
| WSGC 1 | 0, .156 |
| WSGC 2 | 0, .131 |
| WSGC 3 | 0, .097 |
| WSGC 4 | .040, .297 |
| WSGC 5 | 0, .170 |
| WSGC 6 | 0, .061 |
| WSGC 7 | 0, .081 |
| WSGC 8 | 0, .161 |
| WSGC 9 | 0, .089 |
| WSGC 10 | .006, .209 |
| WSGC 11 | .039, .296 |
| WSGC 12 | 0, .103 |
| VISI | .002, .191 |
| HD | .004, .202 |
| ISES 1 | .053, .321 |
| ISES 2 | .019, .252 |
| ISES 3 | 0, .148 |
| ISES 4 | 0, .101 |
| ISES 5 | .075, .354 |
| ISES 6 | 0, .160 |
| ISES 7 | .020, .254 |
| ISES 8 | .004, .202 |
| ISES 9 | 0, .065 |
| ISES 10 | 0, .094 |
| ISES 11 | 0, .121 |
| ISES 12 | 0, .058 |

DISCUSSION

This study assessed the reliability of items on the WSGC with African American and non-African American college students. Items of the WSGC were reliable for non-African American college students, but not for African American college students. These results for African American college students are similar to results found by Sapp and Hitchcock (2), Sapp and Hitchcock (3,4), and Sapp (5,6). These studies found that standard scoring method of the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A), and, with the current study, the same thing happened with the

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WSGC; however, the inner subjective experiences method for scoring the WSGC produced reliable items for African American and non-African American college students. In addition, African American college students differed from non-African American students on items of the WSGC and the inner subjective experiences items for the WSGC.

This study suggests that there are cultural differences between African American college students and non-African American college students. It is hypothesized that one reason items for the inner subjective experiences for both the WSGC and HGSHS:A are reliable with African American students is that they expect hypnosis to occur automatically, and items for inner subjective experiences assess automatic hypnotic responding. Several studies that investigated group hypnotic measures with African American college students have not found these items to be reliable using the standard scoring methods, but Sapp (5) found that the standard scoring method for the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C) produced reliable results with African American college students. Moreover, Sapp reported reliable items using the inner subjective experiences scoring method with African American college students.

Finally, additional research is needed to help explain why African American students show cultural differences when completing items to standardized group hypnotizability measures. In addition, larger samples are needed and studies that specifically assess African American college students' cultural differences.