



SEX DIFFERENCES ON THE HGSHS:A

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Abstract: Over a 28-year period, 724 men and 1148 women completed the Harvard Group Scale of Hypnotic Susceptibility, Form A. Overall, women scored higher than men. This effect was most prominent on 6 of the 12 items, most (though not all) challenge items (identified by a principal-components analysis). The overall effect size was quite small. Results are discussed in terms of differences in item difficulty.

Hypnotic susceptibility has been assessed with several standardized instruments. Among these, the most commonly used is the Harvard Group Scale of Hypnotic susceptibility, Form A (HGSHS:A), adapted by Shor and Orne (1962) from the individually administered Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A; Weitzenhoffer & Hilgard, 1959). The suggestions in the HGSHS:A (in order) are head falling forward, eye closure, hand lowering, arm immobilization, finger lock, arm rigidity, hands moving together, communication inhibition, hallucination, eye catalepsy, posthypnotic suggestion, and posthypnotic amnesia. Through the years, copious studies have established the reliability and validity of the HGSHS:A. Further, normative studies in countries such as Canada (Laurence & Perry, 1982), Spain (Lamas, del Valle-Inclan, Blanco, & Diaz, 1989), Denmark (Zachariae, Sommerlund, & Molay, 1996), Italy (De Pascalis, Russo, & Marucci, 2000), Australia (McConkey, Barnier, Maccallum, & Bishop, 1996), Germany (Bongartz, 1985), and Finland (Kallio & Ihamuotila, 1999) reveal that the basic underlying factor structure remains constant across linguistic context, although occasional differences in item difficulty (i.e., percentage of people who pass each one of the 12 items on the instrument) are reported (Benham, Smith, & Nash, 2002). Finally, stability of hypnotic susceptibility over time has been assessed using the SHSS:A (e.g., Morgan, Johnson, & Hilgard, 1974) and HGSHS:A

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(e.g., Gwynn, Spanos, Gabora, & Jarrett, 1988). Test-retest correlations in these studies reveal a high degree of stability.

Although tests of hypnotic susceptibility are frequently thought of as measuring a unified trait, factor-analysis studies of the HGSHS:A have consistently supported the existence of three dimensions (McConkey, Sheehan, & Law, 1980; McConkey et al., 1996; Peters, Dhanens, Lundy, & Landy, 1974). These dimensions have been described as consisting of ideomotor (or direct suggestion) items (e.g., suggestions that one's hands will move together or that one's arm will feel heavy and fall), challenge items (e.g., suggestions that one's arm is so stiff that it cannot bend, no matter how hard one tries), and cognitive (or complex-delusory) items (e.g., a hypnotic hallucination of a fly or a posthypnotic suggestion). These factors are consistent with those seen on the individually administered SHSS:A (Weitzenhoffer & Hilgard, 1959).

A factor related to hypnosis that has received occasional attention is sex. Published reports of sex differences are equivocal. Early research in hypnotic susceptibility revealed little difference between men and women (e.g., Boucher & Hilgard, 1962; Coe, 1976; Cooper & London, 1966; D'Eon, Mah, Pawlak, & Spanos, 1979; Levitt & Hershman, 1963). More recent research has suggested that women tend to be more hypnotically susceptible than are men (e.g., Jackson, Channon-Little, & Shannon, 1995; Kihlstrom et al., 1980; Weekes & Lynn, 1990), although the effect is typically weak. In the largest normative sample done to date ($N = 4752$, with participants run over an 8-year period), no significant sex difference was observed (McConkey et al., 1996). In the current study, we again addressed the issue of sex differences using a large sample of American college-aged students. Specifically, we examined differences on each item of the HGSHS:A. Finally, we have yet to see sex comparisons address the three underlying factors of the HGSHS:A reported in the literature. Thus, we compared men and women with respect to ideomotor items, challenge items, and cognitive-delusory items.

METHOD

Participants

We tested 1,872 participants (724 men and 1,148 women) between the years of 1971 and 1998. The participant pool was quite homogenous. Though not specifically controlled for, the vast majority were traditional (aged 18–22 years old) undergraduates at a small, residential liberal arts college. Ninety-three percent of the college's student population is Caucasian. The percentage of Caucasian students has remained more or less constant over the years of our study, as has the ratio of male to female participants. All participants freely

volunteered for the experience and did not receive any form of compensation, monetary or otherwise.

Procedure

Subjects were tested in a classroom setting, with a group size of 25 participants being typical. All participants were informed that they were free to withdraw from participation at any time. The standard script of the HGSHS:A was read live to the participants by the same psychologist over the 28-year-period. Scoring of responses followed the standard procedure described by Shor and Orne (1963). Scores could range from 0 to 12, with higher scores indicating greater susceptibility to hypnosis. Sex differences were analyzed using two-tailed *t* tests.

RESULTS

Mean percentages of participants passing each item are presented in Table 1. The overall score for women was significantly higher than men, $t(1871) = 3.474, p < .001$. When studies have found a sex difference on hypnotizability, the effect size is typically quite small. The findings in the present study are consistent with this pattern: we found a small effect size (i.e., $d = .167$), with women scoring less than half a point more than men. Table 1 also summarizes comparisons (including effect sizes) of the percentage of men and women passing each test item.

A principal-components analysis was conducted and three factors with eigenvalues greater than one were extracted. These factors accounted for 46.8% of the variance. The appropriateness of this solution was confirmed with a scree plot. Factor loadings were rotated orthogonally using the varimax criterion. The communalities and rotated factor-loading matrix for the principal-components analysis are presented in Table 2. A stringent cut-off for factor loadings of 0.5 reveals that the first factor consists of arm immobilization, arm rigidity, communication inhibition, eye catalepsy, and finger lock. The second factor consists of hand lowering, moving hands together, and head falling. The third factor consists of the posthypnotic suggestion and the fly hallucination. The factor components were the same for men and women.

The three extracted factors correspond to those previously reported in the literature and are referred to as (a) challenge items, (b) ideomotor items, and (c) cognitive-delusory items. Table 3 contains a comparison of means and standard deviations between sexes on susceptibility according to each factor. Sex-difference comparisons reveal that women scored significantly higher on the challenge items, $t(1871) = 4.94, p < .0001$, effect size = 0.233, but not on the ideomotor items, $t(1871) = 1.725, p = .085$, and no different for the cognitive-delusory items, $t(1871) = 0.49, p = ns$.

Table 1
 Comparison of Percentage Participants Passing Each Test Item Between Men and Women

Item	Overall			Men (mean = 6.34)			Women (mean = 6.81)			<i>t</i> (<i>df</i> = 1871)	<i>d</i>
	%	<i>SD</i>	Rank	%	<i>SD</i>	Rank	%	<i>SD</i>	Rank		
Left hand lowering	82	39	1	79	41	1	84	37	1	2.42*	.112
Moving hands together	77	42	2	74	44	3	80	40	2	3.17**	.147
Eye closure	76	43	3	77	42	2	76	43	3	0.346	.017
Head falling forward	72	45	4	74	44	4	70	46	4	1.670	.077
Finger lock	66	47	5	64	48	5	68	47	5	1.42	.066
Left arm rigidity	54	50	6	49	50	6	57	50	6	3.24**	.150
Eye catalepsy	53	50	7	48	50	7	56	50	8	3.49**	.161
Communication inhibition	52	50	8	43	50	8	57	49	6	6.15**	.284
Arm immobilization	46	50	9	42	49	9	48	50	9	2.83**	.131
Amnesia	42	50	10	43	50	10	43	50	10	0.238	.011
Fly hallucination	22	41	11	21	41	12	23	42	11	0.841	.039
Posthypnotic suggestion	20	40	12	22	42	11	19	39	12	1.656	.077
Overall score	6.63	2.83		6.81	2.82		6.34	2.81		3.474**	.160

Note. * $p < .05$.

** $p < .01$.

Table 2
Communalities and Rotated Factor-Loading Matrix for the Principal-Components Analysis

Item	Factor			
	Communality	1	2	3
1. Left hand lowering	.573	.049	.755	.026
2. Moving hands together	.455	.133	.659	-.053
3. Eye closure	.283	.386	.366	-.018
4. Head falling forward	.424	.124	.620	.155
5. Finger lock	.481	.636	.272	.052
6. Left arm rigidity	.479	.676	.094	.115
7. Eye catalepsy	.510	.660	.245	.121
8. Communication inhibition	.475	.670	.161	-.013
9. Arm immobilization	.517	.707	-.044	.121
10. Amnesia	.225	.373	-.055	.289
11. Fly hallucination	.573	.122	.098	.740
12. Posthypnotic suggestion	.618	.059	.118	.775

Table 3
Comparison of Sex Differences in Scores on Each Factor Identified by the Principal-Components Analysis

Factor	Male		Female		<i>t</i> (1871)	<i>p</i>
	Mean	SD	Mean	SD		
1 (challenge)	2.46	1.74	2.86	1.71	4.937**	.0001
2 (ideomotor)	2.270	0.91	2.34	0.88	1.725	.085
3 (cognitive-delusional)	0.432	0.66	0.417	0.64	0.490	.623

Note. ** $p < .01$.

DISCUSSION

The current data set reveals small sex differences in hypnotic susceptibility as measured by the HGSHS:A. This effect was most prominent in 6 of the 12 items, and most (though not all) were challenge items originally identified by Hilgard (1965) using the SHSS:A (and reproduced with the HGSHS:A by Peters et al., 1974). Past research on sex differences and susceptibility has been mixed; some studies have found statistically significant differences while others have not. Results from the current study suggest that if there is a sex difference, it is quite small.

It is possible that the exaggerated difference on challenge items is an artifact of item difficulty. Table 1 shows that the items that women excelled at tended to be "easier" in terms of percentage of participants

passing than those that revealed no significant differences. However, if item difficulty was the major factor underlying the sex differences (with women scoring higher on the easier items), one might expect that the differences would be greatest for the easiest items and get progressively smaller. We did not find this pattern of results. The greatest difference is found in communication inhibition (the eighth most difficult item), and the next two largest differences are in the seventh and sixth most difficult items, respectively. Still, the mean item pass rate for the six items on which women score significantly higher than men is 60.67%, whereas the mean pass rate for the other items is 49.67%, suggesting that the differential difficulty interpretation bears some consideration.

One other possible explanation underlying the small sex difference is that men and women differ on some other underlying personality variable that indirectly affects scores on the HGSHS:A. For example, should men have greater levels of reactance (e.g., Berkowitz, 1969; Mullin, Imrich, & Linz, 1996), they might be expected to be more resistant to responding or to report responding to items on the HGSHS:A.

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Geschlechtsunterschiede bei der HGSHS:A

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Zusammenfassung: Über einen Zeitraum von 29 Jahren absolvierten 724 Männer und 1148 Frauen die Harvard Group Scale of Hypnotic Susceptibility, Form A. Insgesamt erzielten Frauen höhere Werte als Männer. Dieser Effekt war am stärksten bei 6 der 12 Items, überwiegend (aber nicht

ausschließlich) Items mit Aufforderungscharakter (identifiziert durch Hauptkomponentenanalyse). Die Gesamt-Effektstärke war recht gering. Die Ergebnisse werden hinsichtlich der Item-Schwierigkeit besprochen.

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Différences liées au sexe observées dans l'échelle

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Résumé: Sur une période de 29 ans, 724 hommes et 1148 femmes ont rempli l'échelle HGSHS:A. De façon générale, les femmes présentaient des scores plus élevés que les hommes. Cet effet était le plus marqué sur 6 des 12 items, la plupart des (pas tous cependant) items de défi (identifiés par une analyse de composants principaux). Les différences sont plutôt légères. Les résultats sont discutés en termes de différences dans la difficulté des items.

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Diferencias de sexo en la HGSHS:A

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Resumen: En un período de 29 años, 724 hombres y 1148 mujeres completaron la Escala Grupal de Susceptibilidad Hipnótica de Harvard: Forma A. En general, las mujeres puntuaron más alto que los hombres. Este efecto resaltó más en 6 de 12 reactivos, la mayoría (aunque no todos) de desafío (identificados por un análisis de componente principal). El tamaño total del efecto fue bastante pequeño. Discutimos los resultados desde el punto de vista de diferencias en la dificultad de los reactivos.

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