Hypnotic Susceptibility as a Predictor of Participation in Student Activities

Kenneth R. Graham
Lauren C. Marra
Jeffrey M. Rudski
Muhlenberg College, Allentown, Pennsylvania

In this study, Harvard Group Scale of Hypnotic Susceptibility: Form A scores for 458 college students were compared with college yearbook records of their participation in student activities. Students who scored low in susceptibility showed significantly less participation in activities than others who were either moderate or high in susceptibility. Overall, females showed higher levels of participation than males, but there was no significant interaction between gender and hypnotic susceptibility. Spectral analysis showed participation scores to be somewhat more strongly related to easier HGSHS:A items than to more difficult items in the manner predicted by two-factor theory. Closer examination of the results revealed that this effect was primarily due to the fact that low susceptible subjects participated significantly less in student activities than subjects who were either moderate or high in hypnotic susceptibility. The results suggest that future research should further examine the unique contribution of low susceptibility subjects to hypnosis theory and research.

Keywords: Hypnosis, hypnotizability, longitudinal study, participation, student activities, two-factor theory

Hypnotizability and Suggestibility

Hypnosis is usually employed with individuals or small groups as a means to accomplish specific therapeutic goals in medicine and psychotherapy. Throughout its history, however, critics have warned that hypnosis could be misused if applied to the masses. Despite such warnings there have been few attempts to link the ability to become hypnotized to compliance in everyday life. Hull (1933) found a positive
relationship between hypnotizability and response to direct verbal suggestions, such as those given in hypnosis, but he found no significant relationship for indirect forms of suggestion. In later factor analytic studies both Eysenck and Furneaux (1945) and Stukat (1958) found little relationship between primary suggestibility, as measured by tests of hypnotic susceptibility, and so-called secondary suggestibility involving influence or indirect suggestion from authority, peers, situational set, or instructions. Moore (1964) attempted to relate hypnotic susceptibility scores to measures of social influence including a persuasibility test derived from Hovland and Janis (1959); an influencibility test derived from Schachter (1959); and an autokinetic test used by M. Sherif and C. W. Sherif (1948). Moore found that only the influencibility test showed a slight positive relationship to hypnosis.

**Hypnotizability and Behavior in Non-Hypnotic Settings**

A few studies have demonstrated a significant relationship between hypnotizability and behavior in non-hypnotic settings. Miller (1980) devised a Suggested Syllables Test as a behavioral measure of non-hypnotic suggestibility. The test required subjects to determine the identity of nonsense syllables presented in a tachistoscope when, unknown to the subjects, no syllables were present. Miller reported that subjects who had scored low on the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A; Shor & Orne, 1962) reported perceiving the suggested syllables significantly less frequently than did subjects who were either moderate or high in hypnotic susceptibility. Graham and Greene (1981) compared hypnotic susceptibility (HGSHS:A) scores for 235 college graduates to their records for alumni annual giving over a ten-year period. Those who had made at least one contribution to the college since graduation were significantly higher in hypnotic susceptibility than those who had made no contribution.

Woody, Drugovic, and Oakman (1997) developed an alcohol-placebo paradigm of non-hypnotic suggestibility. Participants were asked to drink what they believed was an alcoholic beverage. In fact the beverage contained only a small amount of alcohol. They were subsequently asked to report any subjective changes they experienced that might actually be produced by alcohol, such as feelings of sluggishness and blurred vision. The results were subjected to the spectral analysis technique reported by Balthazard and Woody (1992) as a test of the two-factor theory of hypnosis. Spectral analysis compares biserial correlations for each susceptibility test item with item difficulty. According to two-factor theory, ability or trait variables, such as absorption, predict response to difficult items on the hypnotic susceptibility test, whereas situational variables, such as compliance, predict response to easier items. Items are defined as easy or hard based on the proportion of subjects who pass each item successfully. The easier items include “hand lowering” and “hands moving apart,” whereas “amnesia” and the “fly hallucination” are among the harder items. Woody et al. (1997) showed that alterations in subjective experience induced by the alcohol-placebo paradigm were differentially correlated with the easiest items on the Harvard Group Scale (HGSHS:A). Although these data are not directly comparable with the earlier results of Miller (1980), and Graham & Greene (1981), they seem somewhat divergent.

To the extent that subjects who are highly susceptible to hypnosis score
positively across the spectrum of susceptibility tests, whereas low susceptibility subjects
tend to pass only the easier items, the findings of Woody et al. (1997) reflect most
heavily the responses of low susceptible individuals. In both the Miller (1980), and
Graham and Greene (1981) experiments, subjects who scored low on the Harvard Group
Scale (HGS:HS:SA) showed little tendency to respond to the syllable task, or to make
alumni contributions, whereas scores for these dependent measures were high for
subjects who scored high in hypnotic susceptibility. In the Graham and Greene (1981)
study, for example, only 19% of graduates who scored low in hypnotic susceptibility
made alumni contributions, whereas 48% of highly susceptible graduates were
contributors. To the extent that alumni contributions represent a non-hypnotic form of
compliance to the College’s repeated solicitations for donations, these results conflict
with those of Woody et al. (1997).

**Hypnotic Susceptibility and Student Participation: The Present Study**

The present study examines the connection between hypnotic susceptibility
and another indicator of social behavior in a real-life setting: student participation in
college activities. To the extent that student participation represents a form of compliance
to suggestions given in a social setting, the findings may contribute to the debate
concerning whether hypnosis is best understood in terms of a general factor of
suggestibility, or in terms of separate social and psychological cognitive factors.

**Method**

The Muhlenberg College Longitudinal Study of Hypnotic Susceptibility tested
approximately 2000 college students for hypnotic susceptibility, under standardized
conditions, over a period of 30 years that began in 1970. The test used was the Harvard
Group Scale of Hypnotic Susceptibility: Form A (Shor & Orne, 1962). In this study,
scores for 458 of those students, who were tested during the first two decades of the
study, were correlated to each student’s degree of participation in student activities.
There were 193 males and 265 females. Participation in all cases was voluntary and all
subjects understood that test results might later be used for research purposes. The
number of students tested per year averaged about 25 but varied from a low of 7 (1988),
to a high of 69 (1984). Students who were tested for hypnotizability during the year 1983
were excluded from the analysis because activity participation data were unavailable for
that year. Because the hypnotic susceptibility test was primarily administered during
introductory psychology courses, most subjects were tested in their first or second
years of college.

Hypnotic susceptibility test scores were compared with each student’s degree
of participation in campus activities as recorded in the college yearbook for the year in
which the student graduated. Activities included: sports, such as basketball and football;
religious groups, such as Hillel and the Newman Society; social organizations, such as
sororities, fraternities, and clubs; and student government. Participation scores were a
simple count of the number of activities listed for each student in the yearbook directory.

**Results**

Subjects were classified as low, moderate, or high in hypnotic susceptibility
according to the criteria used by Weitzenhoffer and E.R. Hilgard (1959) in establishing
the norms for the Stanford Hypnotic Susceptibility Scale, Forms A and B. The mean student participation scores for the low, moderate, and high HGSHS:A groups were 2.96, 3.77, and 4.12 activities respectively. An analysis of variance of participation scores using gender and level of hypnotic susceptibility as independent variables revealed significant effects, with an alpha level of .05, for both level of hypnotic susceptibility, $F(2, 458) = 7.87, p < .001$, and gender $F(1, 458) = 5.01, p < .03$. On average, female students participated in more activities than males, but there was no significant interaction between gender and hypnotizability. Using the combined data for males and females, mean participation scores for the three levels of hypnotic susceptibility were compared by means of $t$ tests. The difference in mean participation scores between low susceptible and moderate susceptible subjects was significant, $t(291) = 3.00, p = .003$. The difference between low and high susceptible subjects was also significant, $t(301) = 3.86, p < .001$, but the difference between the moderate and high susceptibility groups was not significant, $t(318) = 1.22, p = .222$. A coefficient of correlation was calculated between HGSHS:A scores and student participation scores. The correlation was significant ($r = .18, p < .001$). Biserial correlations were calculated for each HGSHS:A item with participation scores, and the correlations were ranked according to item difficulty in the manner described by Balthazard and Woody (1992). The results, presented in Table 1 and Figure 1, showed a positive relationship between participation in student activities and the easier items on the susceptibility scale.

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Item Difficulty</th>
<th>Biserial Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Lowering</td>
<td>0.84</td>
<td>0.13</td>
</tr>
<tr>
<td>Hands Moving Together</td>
<td>0.76</td>
<td>0.16</td>
</tr>
<tr>
<td>Eye Closure</td>
<td>0.72</td>
<td>0.09</td>
</tr>
<tr>
<td>Head Lowering</td>
<td>0.83</td>
<td>0.08</td>
</tr>
<tr>
<td>Finger Lock</td>
<td>0.65</td>
<td>0.25</td>
</tr>
<tr>
<td>Arm Rigidity</td>
<td>0.51</td>
<td>0.15</td>
</tr>
<tr>
<td>Eye Catalepsy</td>
<td>0.50</td>
<td>0.08</td>
</tr>
<tr>
<td>Communication Inhibition</td>
<td>0.47</td>
<td>0.16</td>
</tr>
<tr>
<td>Arm Immobilization</td>
<td>0.42</td>
<td>0.13</td>
</tr>
<tr>
<td>Amnesia</td>
<td>0.34</td>
<td>0.04</td>
</tr>
<tr>
<td>Hallucination</td>
<td>0.27</td>
<td>0.09</td>
</tr>
<tr>
<td>Post-hypnotic Suggestion</td>
<td>0.27</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Note:* Suggestions are listed in order of increasing difficulty.
Figure 1: Spectral analysis of hypnotic performance with regard to participation in activities

Latent Correlation (Biserial)

0.30
0.25
0.20
0.15
0.10
0.05
0.00

0.00 0.25 0.50 0.75 1.00

Item Difficulty (proportion of passing responses)

a = head falling; b = eye closure; c = hand lowering; d = arm immobilization; e = finger lock; f = arm rigidity; g = hands moving together; h = communication inhibition; i = fly hallucination; j = eye catalepsy; k = post-hypnotic suggestion; l = amnesia

Figure 2: Spectral analysis of hypnotic performance with regard to participation in activities for participants scoring in the Medium and High range

Latent Correlation (Biserial)

0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15

0.00 0.25 0.50 0.75 1.00

Item Difficulty (Proportion of passing responses)

a = head falling; b = eye closure; c = hand lowering; d = arm immobilization; e = finger lock; f = arm rigidity; g = hands moving together; h = communication inhibition; i = fly hallucination; j = eye catalepsy; k = post-hypnotic suggestion; l = amnesia
To the extent that participation scores reflect a form of compliance comparable to variables used in other studies, the results are in the direction predicted by two-factor theory. The analysis of variance revealed that the primary effect in this study was caused by the low susceptible group ($N = 140$) being less likely to participate in student activities than either the moderate or high susceptibility groups. One might argue that, for all practical purposes, low susceptible subjects do not respond to hypnosis. Indeed Orne (1979) argued for the use of low susceptible subjects as non-hypnotizable simulators to control for the effects of demand characteristics in hypnosis research. Consequently, a spectral analysis was performed for only those 318 subjects who were moderately to highly susceptible to hypnosis. The results showed no relationship at all between student participation scores and item difficulty for those subjects (Figure 2).

Discussion

Hypnotic Susceptibility and Social Activity

The results suggest that willingness to participate in social activities may be related to an individual’s susceptibility to hypnosis. When combined with previous results (Graham & Greene, 1981) the present findings reveal that a single group test of hypnotic susceptibility can predict not only an important level of social functioning during the college years, but also compliance to persuasive appeals for as long as ten years after college. Contrary to earlier studies (Eysenck & Furneaux, 1945; Stukat, 1958; Moore, 1964), the results support a link between susceptibility to hypnosis and compliance to indirect suggestions in everyday life.

One Factor, or Two Factor?

To the extent that participation scores reflect students’ compliance with social demands, in a manner similar to compliance variables used in other studies, the results may also contribute to the one-factor, two-factor debate. The spectral analysis presented in Figure 1 shows a positive relationship between item difficulty and biserial correlations of participation scores with HGSHS:A items in the direction predicted by two-factor theory. If one takes the view, however, that the term hypnosis is applied most appropriately to the responses of those who score at least moderately well on tests of hypnotic susceptibility, the results are less clear. The spectral analysis presented in Figure 2, performed only with subjects who scored in the moderate to high range in susceptibility, showed no relationship of participation scores with item difficulty. While it is true that excluding the low susceptible subjects restricted the range of the analysis, the ANOVA and subsequent tests for differences between the low, moderate, and high susceptibility groups, revealed that the major finding was that low susceptible subjects responded differently from the other two groups. In other words, subjects who were at least moderately susceptible to hypnosis showed no relationship between the participation measure and item difficulty. Apparent relationships between hypnotic susceptibility and other variables may be primarily the result of differences between low susceptibility individuals, and everybody else. The results may have clinical significance. It is possible that the apparent effectiveness of hypnosis in some studies that involve clinical variables may be the result not of hypnosis as such, but of the lack
of effect of suggestion on individuals who are not hypnotizable. Future research should further examine the unique contribution of low susceptible subjects to hypnosis theory and research.

References


