

FANTASY PRONENESS AND HYPNOTIZABILITY: ANOTHER LOOK

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Abstract

It has long been theorized that individuals who spend a great deal of time engaged in fantasy and report profound imaginative involvements are highly hypnotizable (see Wilson and Barber, 1981, 1983a). To test this hypothesized link, we administered the Inventory of Childhood Memories and Imaginings (ICMI), the Short Imaginal Processes Inventory (SIPI), a measure of daydreaming frequency and the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) to 506 undergraduate students in Study 1. In Study 2, a separate sample of 534 college students completed the ICMI and the HGSHS:A. Across the studies, we obtained a small positive correlation between our measures of fantasy proneness and hypnotizability. Results showed that highly hypnotizable individuals, compared with those who are less hypnotizable, do not spend a great deal of their waking lives engaged in fantasy or daydreaming. Copyright © 2008 British Society of Experimental & Clinical Hypnosis. Published by John Wiley & Sons, Ltd.

In a groundbreaking research programme, J.R. Hilgard (1965, 1970) elaborated the construct of imaginative involvement as a central dimension underlying hypnotic responsiveness. Her intensive interview study was designed to predict hypnotic responsiveness in advance of hypnosis. Her research revealed that good hypnotic subjects were more likely to report a longstanding history of imaginative involvements in sensory experiences, reading and the dramatic arts than persons who were not good hypnotic subjects.

Closely allied to the concept of imaginative involvement is the construct of 'absorption' (Tellegen and Atkinson, 1974). Absorption refers to the capacity for absorbed and self-altering attention that is presumed to represent an essential component of hypnotizability. Research supportive of the dual constructs of absorption and imaginative involvement derives from early studies using inventories that documented an association between hypnotic susceptibility and imaginative involvements characterized by deep absorption and concentration, pleasure and loss of awareness of external reality (Shor, Orne and O'Connell, 1962; Lee-Teng, 1965; Hilgard, 1979). Studies of more recent vintage (see de Groh, 1989; Council, Kirsch and Grant, 1996) using scales specifically designed to measure 'absorption' have also provided confirmatory data, documenting a modest association ($r = 0.21\text{--}0.4$) between hypnotic susceptibility and absorption when the tests are administered in the same experimental context.

Wilson and Barber (1981, 1983a) proposed a third and related construct – ‘fantasy proneness.’ These investigators discovered a fascinating group of individuals alternately described as ‘fantasy-prone persons,’ ‘fantasizers’ and ‘fantasy addicts’ among the excellent hypnotic subjects they interviewed. Fantasizers reported frequent, intensive fantasizing when engaged in non-demanding tasks and, similar to Hilgard’s (1979) subjects, reported a longstanding history of imaginative involvement in reading, play activities and mystical/religious experiences.

In an intensive interview study, Lynn and Rhue (1986) determined that so-called ‘fantasy-prone persons’ who scored in the upper 4% of the population on the Inventory of Childhood Memories and Imaginings (ICMI: Wilson and Barber, 1983b), could be distinguished from less fantasy-prone subjects on measures of absorption, imagination, hypnotizability and creativity, with social desirability used as a covariate. Fantasizers were found to be more hypnotizable than participants who scored in the lowest 4% on the ICMI and those who scored in the middle range. Nearly 80% of fantasizers scored in the high hypnotizable range. Nevertheless, fantasy proneness was a less than perfect predictor of hypnotizability: medium and low fantasy-prone persons were comparable in terms of hypnotic responsivity. On balance, these results were compatible with the findings of Hilgard (1979), Wilson and Barber (1981) and Shor et al.’s (1962) findings that scores on an inventory of naturally occurring ‘hypnotic-like’ experiences predicted hypnotizability, especially in the ‘deeper’ region of the hypnotizability continuum.

In a second study, Rhue and Lynn (1989) found that fantasy-prone individuals could be distinguished from less fantasy-prone persons in terms of hypnotic responsivity, insofar as fantasizers were more hypnotizable than nonfantasizers. Rhue and Lynn also succeeded in replicating another aspect of their earlier findings: The modest correlations in the range of $r = 0.25$ to 0.30 between hypnotizability and fantasy proneness were highly similar across studies.

Whereas the overall relation between fantasy proneness and hypnotizability coincided across the above two studies, Rhue and Lynn (1989) failed to confirm their earlier finding that high fantasy-prone participants are more hypnotizable than medium fantasy-prone subjects. Rather, they concluded that low fantasizers were distinctly less hypnotizable than either medium or high fantasizers, a finding also reported by Council and Huff (1990).

The present studies were designed to further examine the question of whether highly hypnotizable persons are more fantasy prone than are less hypnotizable individuals. In our first study, which was based on data mined from a much larger investigation, we were able to identify a group of participants who scored in the very highest range on both the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A: Shor and Orne, 1962) and the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C: Weitzenhoffer and Hilgard, 1962). Examining the ICMI responses among these so-called *hypnotic virtuosos* provides a good test of Wilson and Barber’s (1981, 1983a) claim that high hypnotizability and extreme fantasy proneness overlap to a significant extent. In addition to investigating individuals scoring at the very highest level of hypnotizability, we contrasted single screened groups of high, medium and low hypnotizable participants’ reports of fantasy proneness. Further, given that the constructs of fantasy and daydreaming are difficult to distinguish (see Klinger and Cox, 1987; see also Lynn and Sivec, 1992), we included qualitative and quantitative measures of daydreaming in our first study. Study 2 focused exclusively on the relation between hypnotizability and fantasy proneness and served as a replication of Study 1.

Study 1

Participants

A total of 506 undergraduate students attending Ohio University participated in this study. Students received course extra credit for their participation.

Measures

Inventory of Childhood Memories and Imaginings (ICMI: Wilson and Barber, 1983b)

The ICMI is a 52-item, self-report inventory assessing imaginative experiences during childhood. Items assess childhood beliefs of make-believe (e.g. believing in elves or fairies), vividly reliving past events and imagining things to the point that they seemed real. Lynn and Rhue (1986) reported that the ICMI correlated in the $r = 0.67$ – 0.81 range with the Tellegen Absorption Scale (Tellegen, 1976) and in the $r = 0.30$ s with the Creative Imagination Scale (Wilson and Barber, 1983b) and the Betts Vividness of Imagery Scale (Sheehan, 1967). The reliability coefficient across 1337 participants, aged 8–19 years, was $r = 0.87$.

Short Imaginal Processes Inventory (SIPI: Huba, Singer, Aneshensel and Antrobus, 1982)

The SIPI is a 45-item, self-report measure of daydreaming, fantasy and non-directed thought. The items on the SIPI were derived from the Imaginal Processes Inventory (IPI: Singer and Antrobus, 1970) and form three scales: positive-constructive daydreaming (PCD), guilt-fear of failure, (GFF) and poor attentional control (PAC). High scores on the PCD scale correspond to a belief that daydreams are worthwhile, stimulating and helpful to problem solving. High scores on the GFF scale are associated with the belief that daydreams can be frightening (e.g. not able to finish a job) and depressing (e.g. failing loved ones). High scorers on the PAC scale endorse items describing mind-wandering, easily becoming bored, distractibility and drifting thoughts. Huba (1980) summarized the psychometric properties of the IPI and reported adequate levels of internal consistency (e.g. alpha coefficients ranged between 0.7 and 0.9 across the individual IPI scales).

Daydream Frequency Scale (DFS)

The DFS, taken from the Imaginal Processes Inventory (Singer and Antrobus, 1970), is a 12-item scale assessing the frequency and nature of daydreaming across a variety of settings (e.g. 'I lose myself in active daydreaming many different times during the day'). Responses on a 5-point scale are summed across items and higher scores indicate more frequent daydreaming.

Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A: Shor and Orne, 1962)

The HGSHS:A is a 12-item standardized measure of hypnotic responsiveness. The scale consists of both motor (e.g. imagine a force attracting outstretched hands toward each other) and cognitive (e.g. imagine a fly buzzing around your head) suggestions. Responsiveness is determined via self-report. The HGSHS:A has adequate test-retest reliability ($r > 0.80$; Bowers, 1981). In the present study, the HGSHS:A was administered live to groups of participants ranging in size from 20 to 65 participants.

Stanford Hypnotic Susceptibility Scale, Form C (Weitzenhoffer and Hilgard, 1962)

A small number of participants (see below) were also screened with the SHSS:C. The SHSS:C is a 12-item, individually administered, standardized measure of hypnotic ability. Compared with the HGSHS:A, the SHSS:C contains more cognitive items and is considered to be the more difficult scale. Correlations between the HGSHS:A and the SHSS:C have been reported in $r = 0.60$ (Bentler and Roberts, 1963; Evans and Schmeidler, 1966).

Procedure

Participants signed up for and attended a single-session hypnosis experiment. Prior to the administration of the HGSHS:A, participants completed the questionnaires in a fixed order (i.e. SIPI, ICMI, DFS).

By cross-referencing individuals in our study with those who participated in a subsequent study conducted at Ohio University involving the administration of the SCHSS:C scale, we were able to identify twelve participants in our data set who scored 11 or 12 on the HGSHS:A and, in the subsequent study, scored in the 11–12 range on the SHSS:C.

Results

Preliminary analysis and HGSHS:A grouping

We first compared the responses from 39 participants who scored 11 or 12 on the HGSHS:A with the 12 participants who scored 11 or 12 on both the HGSHS:A and the SHSS:C. No differences were found across the three scales of the SIPI, the ICMI or the DFS. Due to the comparability of responses among participants screened twice and participants scoring 11 or 12 on the HGSHS:A alone, we combined these groups (*very high* group) and compared them with students scoring 9–10 (*high*), 4–8 (*medium*) and 0–3 (*low*) on the HGSHS:A. A total of 51 participants scored within the *very high* range and 54 scored within the *low* range on the HGSHS:A. We randomly selected participants within the *medium* and *high* groups to approximate the number of participants within the other groups. The analyses involving groups were based on a total of 211 participants (73 male, 128 female).

Primary analyses

We conducted a 4 (group) $\times$ 2 (sex) $\times$ 5 (measures) multivariate analysis of variance (MANOVA). The Sex $\times$ Group interaction and the main effect for participants' sex were not significant. We obtained a main effect for group membership, $F(18, 600) = 2.04$, $p < 0.01$. Univariate analyses revealed significant group differences on the ICMI, $F(3, 203) = 10.05$, $p < 0.001$. Newman-Keuls pairwise comparison tests indicated that those who scored *very high* on the HGSHS:A endorsed more items on the ICMI than either the *low* or *medium* groups. The *high* hypnotizable group also scored significantly higher than the *low* hypnotizable group. Tests on mean differences across the remaining measures failed to differ by group (see Table 1).

We also examined the frequency of scoring in the upper 4% on the ICMI – the cutoff defined by Wilson and Barber for the *fantasy-prone subject* – among our *very high* group of participants. In our sample, 4.2% of participants scored a 38 or higher on the ICMI. Using this value as a minimum score, we found that only 2 out of 12 (16.67%) participants who scored in the *very high* ranges on both the HGSHS:A and the SHSS:C scored within

Table 1. Means and standard deviations across measures by HGSHS:A grouping

HGSHS:A Score	Label	Positive-constructive daydreaming	Guilt and fear-of-failure daydreaming	Poor attentional control	ICMI	DFS
11–12	<i>very high</i>	58.33 (7.01)	37.53 (9.61)	49.53 (8.42)	28.98 (6.90) ^{a,b}	39.14 (9.70)
9–10	<i>high</i>	57.52 (8.44)	38.40 (8.03)	47.83 (9.09)	26.75 (6.26) ^c	38.77 (6.48)
4–8	<i>medium</i>	55.94 (7.61)	36.33 (10.46)	49.57 (9.57)	24.30 (6.25) ^b	35.94 (8.94)
0–3	<i>low</i>	55.00 (6.91)	37.63 (9.08)	50.00 (9.11)	22.24 (7.05) ^{a,c}	36.61 (9.39)

Means with the same superscript significantly differed from one another, $p < 0.01$.

Table 2. Intercorrelations among the 3 Factors of the SIPI, the HGSHS:A, ICMI and Daydreaming Frequency Scale (DFS)

	Positive-constructive daydreaming	Guilt and fear-of-failure daydreaming	Poor attentional control	HGSHS:A	ICMI
Guilt and fear of failure	0.06				
Poor attentional control	−0.04	0.33**			
HGSHS:A	0.18**	0.03	0.01		
ICMI	0.46**	0.24**	0.05	0.29**	
DFS	0.35**	0.29**	0.27**	0.12**	0.47**

** $p < 0.01$; $N = 506$.

the *fantasy-prone* range on the ICMI. A similar percentage of *very high* participants (i.e. 5/39; 12.82%) who were screened with only the HGSHS:A scored as *fantasy-prone* on the ICMI.

Finally, we calculated Person Product Moment correlations across the various measures included in this investigation among all 506 participants (Table 2).

Study 2

Participants

A total of 534 participants (267 male, 267 female) completed the ICMI and then the HGSHS:A in a single assessment session. Participants ($M_{\text{age}} = 20.43$; $SD = 4.89$) were undergraduate students at The Ohio State University, Lima and received course extra credit for their participation. In our second study, the HGSHS:A was administered via tape recorder.

Results

Using the criterion cutoffs from study 1, we created four hypnotizability groups. To examine ICMI scores as a function of group membership, a 4 (group) $\times$ 2 (sex) analysis of variance (ANOVA) was conducted. The Sex $\times$ Group interaction was not significant. We obtained a main effect for group status, $F(3, 526) = 13.66$, $p < 0.001$. The *very high* and *high* hypnotizability groups endorsed more items on the ICMI than either the *medium*

Table 3. ICMI means and standard deviations by HGSHS:A grouping (Study 2)

HGSHS:A Score	Label	ICMI
11–12	<i>very high</i>	29.30 (6.69) ^{a,b}
9–10	<i>high</i>	27.05 (7.60) ^{c,d}
4–8	<i>medium</i>	24.28 (7.95) ^{a,c,e}
0–3	<i>low</i>	21.60 (7.44) ^{b,d,e}

Note: Means with the same superscript significantly differed from one another. The *very high* and *high* groups differed from the *low* group at the $p < 0.01$ level. All other significant comparisons were at the $p < 0.05$ level.

($ps < 0.05$) or the *low* hypnotizability groups ($ps < 0.01$). Participants in the *medium* group scored higher on the ICMI than *low* group participants ($p < 0.05$). There were no significant differences between the *very high* and *high* groups. Mean ICMI scores and group comparisons are listed in Table 3. Scores on the ICMI also differed by gender, $F(1, 526) = 9.61, p > 0.01$. Collapsing across groups, female participants ($M = 25.90$; $SD = 7.55$) scored higher on the ICMI relative to male participants ($M = 22.82$; $SD = 8.08$).

We also examined the group frequency of scoring in the very top range of the ICMI using the cutoff score of 38 described in Study 1.¹ Four of the 27 participants (14.8%) in the *very high* range on the HGSHS:A scored a minimum of 38 on the ICMI. Eleven out of the 100 participants (11.0%) in the *high* group, 17 out of 270 (6.3%) in the *medium* group and only 1 out of 37 (0.7%) participants in the *low* group on the HGSHS:A scored at or above 38 on the ICMI.

Lastly, we obtained a significant correlation between scores on the HGSHS:A and the ICMI, $r = 0.28, p < 0.01$. The scatterplot of ICMI scores and HGSHS:A scores suggested that the correlation between two variables reflected a positive linear relationship.

Discussion

Results from our two studies show that greater responsiveness to hypnotic suggestions is indeed associated with higher ICMI scores. However, the overall correlation between the HGSHS:A and the ICMI was modest across the two studies (i.e. $r = 0.29$ and $r = 0.28$, respectively). The administration of the HGSHS:A in either a live or taped format did not meaningfully affect the relation between hypnotizability and fantasy proneness. We found that the majority of subjects who scored at the extreme end of the hypnotizability failed to conform to the profile of the fantasy-prone subject, as defined by scoring in the upper 4 to 5% of the distribution on the ICMI. In fact, only two of our 12 subjects (16.66%) who scored in the virtuoso range on both the HGSHS:A and the SHSS:C scored as *fantasizers* on the ICMI. A comparable frequency (13% and 15% across Study 1 and Study 2, respectively) of *very high* hypnotizable participants who scored an 11 or 12 on the HGSHS:A alone, scored as *fantasizers*. Our results fail to support Wilson and Barber's (1981, 1983a) observation that high hypnotic responsiveness and fantasy proneness are strongly associated, at least not within a college student population.

Across both of our studies, our *very high* and *high* hypnotizable groups did not significantly differ on the ICMI. However, the trend was for higher hypnotizability to be associated with higher ICMI scores. Average ICMI scores from the *medium* hypnotizable

group were significantly higher than the *low* group in the second but not the first study. An inspection of the group scores across both studies, coupled with an examination of the scatterplot of ICMI and HGSHS:A scores, suggests that the ICMI and the HGSHS:A are linearly associated, albeit much less strongly than suggested by Wilson and Barber (1981, 1983a).

Our findings do not support Wilson and Barber's (1981) assertion that highly hypnotizable individuals uniquely spend a great deal of their waking life fantasizing or daydreaming. Reports of frequency of daydreaming did not significantly differ across groups. The correlation between the DFS and the HGSHS:A was significant but very small (i.e. $r = 0.12$). Hypnotizability level was not related to guilty-dysphoric daydreaming or daydreaming characterized by mind-wandering. Whereas no significant group differences were detected, we did obtain a small correlation between positive-constructive daydreaming and HGSHS:A scores (i.e. $r = 0.18$).

It is interesting to note that the ICMI correlated fairly moderately with all of our measures, with the exception of the *poor-attentional control* factor of the SIPI. Given that the ICMI correlated with both the *positive-constructive daydreaming* factor and the *guilt and fear-of-failure daydreaming* factor of the SIPI suggests that the ICMI is tapping a heterogeneous set of fantasy and daydreaming items. Unlike the ICMI, the HGSHS:A did not correlate with the *guilt and fear-of-failure* factor of the SIPI. Hypnotizability scores were associated with *positive-constructive daydreaming*, although, again, only at a small magnitude. In our second study, we found female participants to score higher, on average, on the ICMI relative to male participants. This finding is consistent with a small advantage for female scoring higher than male participants on measures of hypnotizability (Gibson, 1977).

In their original study on fantasy proneness and hypnotizability, Lynn and Rhue (1986) reported that a large majority (i.e. 80%) of high fantasy prone individuals were highly hypnotizable. In contrast, results from Rhue and Lynn (1989) and Council and Huff (1990) suggested that this association was much weaker and that scores on the ICMI were indistinguishable between high and medium hypnotizables. The disparity in outcomes across these studies might be attributable to the fact that in the first study (Lynn and Rhue, 1986) subjects participated in an intensive 10-hour research project and were dually screened for fantasy proneness with an interview and with the ICMI. Accordingly, these test conditions might have established context-based demand characteristics for reporting imaginative involvements in conjunction with high hypnotizability. In fact, a sizable body of evidence suggests that context-based demands can moderate the relation of absorption and imagination and hypnotizability (see Council et al., 1996). In contrast, Rhue and Lynn's (1989) second study and the Council and Huff (1990) study were single-session experiments in which subjects were screened only with the ICMI. Our results support the conclusion of these latter studies in that when the ICMI is the sole assessment measure, high fantasy proneness is a very imperfect indicator of high hypnotizability.

We found that individuals who responded to few or none of the hypnotic suggestions on the HGSHS:A rarely endorsed a large number of items on the ICMI. Additionally, less than 15% of those who scored within our two highest ranges on the HGSHS:A scored as *fantasy prone* on the ICMI. This conclusion is consistent with de Groh's (1989) review of the literature that indicated that participants with low levels of imagery vividness failed to test as highly hypnotizable and knowledge that an individual reports vivid imagery is of little predictive value. Clearly, a certain level of imaginative involvement and engagement in suggested events may be necessary to successfully respond to a variety of hypnotic suggestions, at least in the absence of special motivating instructions

or conditions. A history of profound imaginative involvements in no way guarantees successful hypnotic responding, however, just as the ability to respond to a multiplicity of suggestions in no way implies profound imaginative involvements in everyday life.

Note

- 1 A minimum score of 38 on the ICMI was recorded for 5.4% of participants in Study 2.

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