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A Comparison of Posthypnotic Amnesia and the Simulation of Amnesia through Brain Injury

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Abstract

Although the phenomenon of posthypnotic amnesia has been invoked in many applied contexts, its academic status remains unclear. This paper examines the claim that hypnotic amnesia and amnesia due to brain injury may share similarities in that, in both, implicit memory is spared. Hypnotically susceptible participants given an hypnotic suggestion for amnesia were compared to untreated controls and participants simulating amnesia on two memory tests, fragment completion and the coin in the hand test. As brain injured patients with amnesia typically perform better than simulators on these tests, it has been proposed that both may be useful for the detection of malingering in clinical contexts. On both tests, participants of high and medium hypnotic susceptibility performed similarly to simulators showing deficits in implicit memory not typically shown by brain injured patients. It is concluded that the results are most compatible with a response suppression account of hypnotic amnesia.
Key words: posthypnotic amnesia, brain injury, simulation, memory.

Resumen

Aunque el fenómeno de la amnesia posthipnótica se ha invocado en diferentes contextos, su situación académica aún está poco clara. Este estudio examina la asunción exagerada de que la amnesia hipnótica y la amnesia debida a una lesión cerebral comparten similitudes en la memoria implícita. Se compararon sujetos sugestionables, que recibieron una sugestión de amnesia, con un grupo control que no recibió intervención y un grupo de simulación en dos pruebas de memoria, finalización de fragmentos y el test de la moneda en la mano. Ya que los pacientes con lesiones cerebrales generalmente realizan mejor estas pruebas que los simuladores, se ha propuesto que estas pruebas pueden ser útiles para la detección de fingimiento en el contexto clínico. En ambos tests, los participantes de alta y media susceptibilidad hipnótica, mostraron semejanzas con los simuladores, manifestando déficits en la memoria implícita que no es habitual en los pacientes con lesiones cerebrales. Se concluye que estos resultados son acordes con una supresión de la respuesta informada en la amnesia hipnótica.
Palabras clave: amesia posthipnótica, lesión cerebral, simulación, amnesia.

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Since the early days of hypnosis claims have been made that, in a variety of situations, people who have been hypnotised and given suggestions for amnesia can be made amnesic for what they have done or what has happened to them. For example, it has been alleged that a hypnotised person given a suggestion for amnesia may commit a crime, including murder, and afterwards remain unaware that he or she has done so, or may be a victim of rape without his or her knowledge (Laurence and Perry, 1988; Gibson, 1992; Mottahedin, 1992). However, insight into these cases is made difficult by the fact that, within the academic literature, the issue of whether people can be made amnesic against their will remains unresolved.

In a typical laboratory demonstration of suggested posthypnotic amnesia, before or during hypnosis, participants are given a series of suggestions to perform, or a list of items to remember. During hypnosis they are then given a suggestion that, when they 'wake-up', they will find it difficult to remember what has happened or what they learned, until they hear reversal cue from the hypnotist such as, 'now you can remember everything'. In general, experimental results show that many subjects will show an initial decrement in recall and recognition which is subsequently dissipated by the reversal cue; moreover, this 'amnesia reversal' is not simply a consequence of repeated retrieval attempts (see for example, Bowers, 1983; Coe, 1989; Cooper, 1972; Kihlstrom and Evans, 1976; McConkey and Sheehan, 1981; McConkey, Sheehan and Cross, 1980; Nace, Orne and Hammer, 1974; Williamson, Johnson and Ericksen, 1965).

According to the dissociationist interpretation of hypnosis, suggested hypnotic amnesia occurs because the forgotten material is dissociated from awareness, and cannot be accessed until the hypnotist issues the signal (reversal cue) for normal control to be resumed. Moreover, because executive control over memory is largely or entirely bypassed in susceptible individuals under hypnosis, this temporary dissociation is allegedly so profound that, until a reversal cue is given by the hypnotist, hypnotised participants cannot access the forgotten material no matter how hard they try (Bowers, 1983; Bowers and Woody, 1996; Evans, 1991; Hilgard, 1986; Kihlstrom, 1978, 1983; Kihlstrom, Evans, Orne and Orne, 1980; Sheehan and McConkey, 1982). In contrast, other theorists have argued that hypnotic amnesia is primarily a consequence of volitional strategies in response to task demands such as distraction, divided attention, and voluntarily withholding responses to give the appearance of amnesia until the experimental demands (the reversal cue) indicate otherwise (Coe, 1978, 1989; Spanos, 1986, 1991; Wagstaff, 1977, 1981, 1986, 1991).

As evidence in support of the latter interpretation, it has been noted that whilst hypnotically amnesic participants will readily show temporary deficits in recall and recognition, performance on measures of memory such as savings in relearning and proactive and retroactive inhibition remains relatively unimpaired (Barber, 1969; Gregg, 1979; Kihlstrom, 1985, 1998; Wagstaff, 1981). According to a response suppression interpretation, these findings occur because suggestions for hypnotic amnesia only work on those aspects of memory that are amenable to deliberate conscious suppression or are obvious to the subject in terms of task demands (Wagstaff, 1981). For instance, if one were attempting to respond to task demands, it would be relatively easy to voluntarily

inhibit responses on a simple recall or recognition task, but one would only be likely to inhibit savings on relearning if one were aware of the effect, and it would be extremely difficult to inhibit proactive and retroactive interference effects even if one were aware of them.

However, dissociationists such as Kihlstrom (1998) have argued that these results do not indicate that amnesic participants are employing any kind of conscious suppression; they simply attest to a dissociation between two kinds of memory in hypnosis. Thus hypnotic suggestions for amnesia only operate on those aspects of memory that entail conscious recollection, i.e. *explicit memory*, and spare more *implicit memory* processes that do not entail conscious recollection. To illustrate the point, Kihlstrom (1998) notes that dissociations between explicit and implicit memory processes have been found outside hypnosis in neurological patients with brain injury who cannot recall words that have been presented to them, but show an increased likelihood of producing those items when they are asked to complete a stem or fragment with the first word that comes to mind. In fact, typically these patients will deny having encountered the words earlier, at the same time as they are showing clear evidence of learning (Baddeley, 1994).

Another approach to the issue of whether hypnotic amnesia reflects voluntary suppression, therefore, might be to examine the effects of hypnotic amnesia suggestions on tasks that allegedly tap implicit memory, but are amenable to voluntary inhibition. In fact, the fragment completion task described by Kihlstrom above is one such task (see Tulving, Schacter and Stark, 1982). According to the dissociationist view, if participants are given a list of words to learn, followed by a suggestion for amnesia, when given fragments of the words on list to complete, they should perform significantly above a control baseline consisting of fragments of words not previously seen; i.e. show a priming effect. Another task that is potentially amenable to voluntary inhibition, but on which brain damaged patients do well, is the coin in the hand task; this requires participants to remember in which hand, right or left, a coin has been placed. As patients with amnesia as a result of brain injury show virtually no deficits on this task (Kapur, 1994), presumably, according to the disscociationist perspective, the same should be the case for hypnotically amnesic participants. Significantly, both of these tasks have proposed as possible measures of malingering in the applied clinical context; i.e. to detect those claiming to have memory disorders. Thus, unlike patients with amnesia as a result of brain damage, individuals instructed to simulate clinical amnesia show little or no priming on the fragment completion task, and show clear deficits on the coin in the hand task (Blaxton, 1992; Graf, Squire and Mandler, 1984; Horton, Smith, Barghout, and Connolly, 1992; Kapur, 1994).

Given these considerations, the aim the present study was to test the hypothesis, derived from dissociation theory, and counter to the response suppression view, that participants given an hypnotic suggestion for amnesia will perform better than a group simulating amnesia, and similar to untreated controls, on the fragment completion and coin in the hand tasks.

Method

Subjects

The participants were 60 students and recent graduates from various disciplines at the University of Liverpool. None had received any teaching on hypnosis.

Materials and Procedure

Participants were randomly assigned to three conditions (20 in each), control, hypnosis and simulation. For the fragment completion task, 32 words were chosen from the list produced by Tulving, Schacter and Stark (1982). The words were randomly split into two groups of 16 (list A and list B). The words on list A were inkwell, copycat, allegory, behaviour, vicarage, spatula, rhombus, twilight, ideology, cupcake, knapsack, caravans, chimney, taffeta, lithium and lectern. The words on list B were: asbestos, bullock, membrane, operetta, antique, granary, peroxide, bourbon, plankton, estuary, flannel, mystery, bassoon, climate, sapphire, and dinosaur. Half of the participants in each group received the words from list A as targets, and half received the words from list B as targets.

Participants in the control condition were instructed as follows: 'This is an experiment about memory. You will be asked to participate in two tests. First I will hand you 16 words presented on flashcards. Please read through the words carefully making sure that you pronounce them aloud in your head, before moving on to the next word'. The words from one of these lists were presented to participants on white 6 by 4 inch cards in uppercase at a rate of 1 word every 3s. Following the presentation of the words, participants were presented with taped music for 10 min. This was followed by the fragment completion task; for this participants were handed a sheet of paper containing 32 fragments. The 32 items contained fragments of all of the words from lists A and B (for example IN W L for 'inkwell'). Participants were then instructed as follows. 'The first test is the fragment completion test. Please fill in as many of these fragments as you can by filling in the missing letters to produce a word. You should fill in the first word that you can think of which will fit'. They were also told to spend no more than 15s on a fragment if they could not solve it and that they could complete the fragments in any order.

Following the fragment completion task, participants were handed a further sheet of paper on which two boxes were presented; they were then instructed as follows. 'The final test is the coin in the hand test. I will show you a coin in one of my hands, and ask you to make a mental note of whether it is in my left or right hand. Will you then please close your eyes and count backwards from ten to zero. When you reach zero, will you please open your eyes and mark down on the box in front of you whether the coin was situated in my left or my right hand'. Participants were duly given 10 trials on this task, they were also instructed to make a mark in the box on every trial even if the response was a guess.

Participants in the simulation group treated identically to the control group, except that, after the 10 min music interval, they received the following simulation instruction.

'When you participate in the following tests, I would like you to perform as if you had amnesia. Imagine that you have had an accident at work, and if you can successfully convince me that you have a severe memory impairment, you will receive substantial financial compensation'.

Participants in the hypnosis were also treated identically to the control group except, at the beginning, they were also told that they would receive a simple hypnotic induction procedure. They were then given the initial 16 word presentation and told that there was a piece of paper and pen in front of them so that they could respond to the requests on the tape. They were presented with a taped standardised hypnotic induction procedure, slightly modified, from the hypnotic induction procedure for the Barber Suggestibility Scale (Barber, 1969). This is approximately 10 minutes in length and contains suggestions for relaxation, sleep and entry into 'hypnosis'. Towards the end of the tape' participants were required to report their level of 'hypnotic depth' using the Long Stanford Scale (Tart, 1970), which asks them to indicate on a scale of 0 to 10 how 'hypnotised' they feel (where 0 indicates awake and alert, 1 a borderline state, 2 lightly hypnotised, 5 quite deeply hypnotised, 8 or 9 very hypnotised, and 10 very deeply hypnotised and able to do about anything suggested). They were then given the following suggestion for post hypnotic amnesia. 'In a moment I am going to ask you to wake up. However, when you wake up, although you will be wide awake, you will be suffering from amnesia which has caused your memory to become severely impaired, This amnesia will last for the duration of the two tests'. They were also told that their memory would be perfectly normal when they hear the words 'now you can remember everything'. Following this, they were given instructions to wake-up from hypnosis, and to complete the two memory tasks. Following the completion of both tasks, the amnesia suggestion was cancelled.

After the experiment all participants were debriefed and thanked for their participation. All participants in the hypnosis condition knew that hypnosis was to be used in the experiment and had freely consented to being hypnotised.

Results

For the following analyses participants in the hypnosis group were divided into two groups on the basis of their hypnotic depth scores. Those scoring 2 or below (where 2 indicates 'lightly hypnotised') were classified as 'low susceptibles' ($n = 11$; $M = 1.45$; $SD = .52$), and those scoring 3 or above (where 5 indicates 'quite strongly and deeply hypnotised') were classified as 'high/medium' susceptibles' ($n = 9$; $M = 3.89$; $SD = .78$).

Table 1 summarises performance on the fragment completion and coin in the hand tasks. Scores on the fragment completion task were analysed using a two-way mixed ANOVA (group X target/baseline). This showed a significant main effect for groups, $F(3,56) = 159.49$ ($p < .0001$). Post hoc Tukey tests showed that the control group performed significantly better than all of the other groups which did not differ significantly from each other. Also, when the groups were combined significantly more target than

baseline items were completed, $F(1,56) = 74.84$ ($p < .0001$).

Most important, however, the group X target/baseline interaction was significant, $|F(3,56) = 28.44$ ($p < .0001$). Post hoc Tukey tests ($p < .05$) on the Target items showed that the control group completed more target items than the other groups which did not

	Target	Baseline	Target-Baseline	Coin in Hand
Control	10.75 (1.91)	5.85 (2.08)	4.90 (1.94)	9.90 (.31)
Simulators	4.60 (1.53)	2.80 (1.43)	1.80 (2.07)	5.45 (1.88)
Hypnosis Low	5.81 (1.66)	4.36 (1.96)	1.45 (1.51)	8.46 (2.01)
Hypnosis High/Medium	4.44 (1.01)	3.88 (.93)	,56 (1.23)	6.78 (2.04)
Total	6.85 (3.24)	4.27 (2.11)	2.58 (2.47)	7.68 (2.45)

Table 1 Mean performance on the target, baseline and target – baseline items on the fragment completion task, and mean scores on the coin in the hand task (SD's in brackets; Low and High/ Medium indicate hypnotic susceptibility).

differ significantly from each other. Post hoc Tukey tests on the baseline items showed that the control group completed more items than the other groups except the low susceptibility hypnosis group which did not differ significantly from any of the other conditions. Further univariate F tests ($F < .05$) showed that all groups completed significantly more target than baseline fragments (i.e. showed priming) except the high/ medium hypnosis group. A one-way ANOVA on the target minus baseline scores showed a significant main effect, $F(3,56) = 16.95$ ($p <.0001$). Post hoc Tukey tests showed that the control group showed a greater target/baseline change than the other groups which did not differ significantly from each other. To summarise, compared to the controls, both simulators and high/medium hypnotisable participants showed comparable significant decrements on all measures.

A one-way ANOVA on the coin in the hand task showed a significant main effect for group, $F(1,56) = 27.661$ ($p < .0001$). Post hoc Tukey tests showed that the control group performed better than the other groups, and the low susceptibility hypnosis group performed better than the simulators. Once again, therefore, both simulators and high/ medium hypnotisable participants performed particularly poorly compared to the controls.

Discussion

The results of the present study run counter to the view that in hypnotic amnesia involves the operation of dissociative processes similar to those found in amnesic participants with brain injury. On the whole, the high/medium susceptibility hypnosis group, given a suggestion for amnesia, behaved like simulators showing equivalent decrements on both target and baseline measures on the fragment completion task. In fact, the high/medium group actually showed no evidence of priming at all as determined by target–baseline differences. In contrast, Blaxton (1992) and Graf, Squire and Mandler (1984) have shown normal performance by patients with amnesia on implicit memory involving word stem and fragment completion[2].

However, according to Hanley, Baker and Ledson (1999), the coin-in the hand task is probably the better task to identify those attempting to fake amnesia through brain injury. Hanley et al. (1998) found that only one of 20 patients with profound memory deficits through brain injury failed to score greater than chance on the coin in the hand test, and 17 produced a perfect performance. Kapur (1994) also showed perfect performance on this task by five patients who were amnesic through brain injury. In the present study, the high/medium hypnotisable group, like the simulators, performed badly on this task; only two high/medium susceptibles and two simulators scored greater than chance ($p < .05$), and difference between the two groups was not significant in this respect (n.s. $p > .56$, Fisher Exact test). Two simulators and one of the most susceptible hypnotic participants (5 on the LSS) actually achieved a score approaching below chance performance ($p < .055$). Only one high/medium susceptible performed perfectly on coin in the hand the task, but this same subject showed an extremely poor performance on the baseline and target items of the fragment completion task, recording only three items for each, and thus showing no difference in scores between baseline and target items.

Nevertheless, any disconfirmation of the dissociationist position on hypnosis inevitably invites the question as to whether were sufficient numbers of participants adequately hypnotised to manifest the hypothesised effects (i.e. no deficits in implicit memory performance). It could, for example, be argued that if we had gone on testing, we might have come across a small number of extremely susceptible participants who might differ in their responses to those selected here. However, the indications are that, if we had managed to find a sample of participants who were considerably more susceptible then any in the present sample, our results would have been more, rather than less, exaggerated. For example, the Pearson's correlations between hypnotic depth and the target, target minus baseline, and coin in the hand conditions were negative and significant (-.64, -.49, and -.54, respectively, $p < .03$). In other words, the higher the individual's level of hypnotic susceptibility, the more his or her performance approximated to that of a simulator, and the less it resembled a non-amnesic control subject or a brain injured amnesic patient.

Perhaps a more pertinent question concerns the extent to which our results could be deemed supportive of the voluntary suppression hypothesis. Given the similarity of the responses of the hypnotised and simulating participants, the results seem to be compatible with the voluntary suppression hypothesis and fit with a variety of other findings

supportive of this view. For example, Coe (1989) has reported that not only do a significant number of supposedly hypnotically amnesic participants subsequently admit that they were deliberately withholding responses, but amnesia can be breached in almost all cases if participants are asked to be honest, rigged up to a lie detector, and shown a videotape of their performance. Moreover, in studies by Wagstaff (1977) and Wagstaff and Frost (1996) participants were given an amnesia suggestion, but, before being asked to recall, they were given an opportunity to say they were roleplaying rather than in a 'trance'. When this procedure was used, hypnotic 'amnesia' disappeared completely.

However, there may still be other plausible interpretations of the present findings. It has been argued that although cognitive effort may be involved in responding to hypnotic suggestions, during hypnosis the control and experience of employing this effort are dissociated from awareness (Crawford, 1996; Hilgard and Hilgard, 1983). It could be argued, therefore, from a dissociationist perspective that, when given suggestions for analgesia, hypnotic participants employ strategies such as attention diversion, but the decision to use, and the effort involved in using, such strategies are somehow dissociated from awareness; hence the amnesia is experienced as involuntary. The difficulty with this explanation, however, is that it still fails to account for why priming did not occur in the high/medium susceptibility group. Studies that have looked at the effects of attention division on memory have typically found that perceptual implicit memory tests, such as fragment completion priming, are unaffected by reduced or divided attention even at encoding (Clays, Isingrini and Haerty, 2000; Mulligan, 1998; Schmitter-Edgecombe, 1996). In fact, a number of studies have shown that the withdrawal of attention at the time of retrieval has little if any effect on memory performance in general (Baddeley, Lewis, Eldridge and Thomson, 1984; Anderson, Craik and Naveh-Benjamin, 1998; Naveh-Benjamin, Craik, Perrettea and Tonev, 2000). To the best of our knowledge no-one has yet suggested to that participants may deliberately withhold responses whilst being unaware of doing so, for this would surely be an oxymoron.

In sum, the present results seem to be more compatible with a response suppression interpretation of hypnotic amnesia than one based on dissociation. Consequently, assuming the present results can be generalised, one might reasonably conclude that it may be misleading to draw parallels between suggested hypnotic amnesia and amnesia in brain damaged patients, and that legal professionals and clinicians should remain cautious about claims by individuals that they cannot remember what happened to them specifically as a result of hypnotic suggestion[3]. However, even if these conclusions are eventually shown to need modification, it could still be argued that the fragment completion and coin in the hand tasks might potentially be useful as a means of identifying those individuals who may be prone to exaggerate amnesia following hypnosis, especially if the tests are used in combination.

Notes

1. There are a number of other scales of hypnotic susceptibility are in common use, in particular, the SHSS (Stanford Hypnotic Susceptibility Scale), Forms A, B and C, the HGSHS (Harvard

Group Scale of Hypnotic Susceptibility), the SPS (Stanford Profile Scale), versions 1 and 2, and the induction version of the BSS (Barber Suggestibility Scale). According to data presented by Tart (1970), the correlations between undeliberated LSS reports (i.e. without instructions to deliberate) and the behavioural and experiential scores of the SHSS:C are .61 and .79 respectively. The latter is actually fractionally greater than the correlation found between the SHSS:C behavioural and experiential components, which is .77. When one further considers that typical correlations between the SHSS:C, and, for example, the SPS1 and 2, the HGSHS, and the BSS are .71, .72, .59 and .58, respectively, the LSS would appear to be at least as valid a measure of susceptibility as many other measures in common use (see Bowers, 1983, for a review). However, suggestion based scales such as the SHSS Forms and HGSHS have long been criticised because they confound hypnotic susceptibility per se with non-hypnotic, or 'waking' suggestibility (Bowers, 1983; Council, 1999; Kirsch and Braffman, 1999; Wagstaff, 1998; Weitzenhoffer, 1980). A number of researchers have argued, therefore, that the LSS provides a purer measure of hypnotic susceptibility, or 'tranceability' (Tart, 1970; Bowers, 1983; Wagstaff, 1998). The LSS also has another advantage; because of the time involved in administering the standard suggestion based scales, the standard procedure in most experiments employing hypnosis has been to screen participants on the basis of one or more measure and then on a future occasion, 'rehypnotise' them and conduct the experiment without any assessment of their susceptibility at the time of the experiment. The LSS, however, measures hypnotic susceptibility at the time of testing, and therefore provides a more precise estimate.

2. More recently, Hanley, Baker and Ledson (1999) found impaired performance on a fragment completion task for amnesic patients with brain injury. Hanley et al. gave two main reasons why their results are discrepant from other studies. First, their patients were of low intellectual ability compared to controls, and second, unlike in previous studies of brain injury and here, all participants were given instructions that informed them that there was a relationship between the word fragments and the words they had already seen, thus increasing the contribution of explicit memory. However, even so, as a group, unlike the high/medium susceptibles here, their patients still showed a significant priming effect.

3. Given the cognitive resources involved in attending to hypnosis procedures it would not be surprising if there were some normal memory impairment of recall due to encoding failure (Mulligan, 1998; Schmitter-Edgecombe, 1996); however, here we are referring to claims of memory loss specifically as a result of suggestions for amnesia

REFERENCES

Anderson, N.D., Craik, F.I.M. and Naveh-Benjamin (1998). The attentional demands of encoding and retrieval in younger and older adults: 1. Evidence from divided attention costs. *Psychology and ageing*, 13, 405-423.

Baddeley, A. (1994). Memory. In A.M. Colman (Ed.) *Companion encyclopedia of psychology* (pp. 281-301). New York: Routledge.

Baddeley, A., Lewis, V., Eldridge, M. and Thomson, N. (1984). Attention and retrieval from long term memory. *Journal of Experimental Psychology: General, 113*, 541-555.

Barber, T.X. (1969). *Hypnosis: A Scientific Approach*, New York: Van Nostrand.

Blaxton, T.A. (1992). Dissociations among memory measures in memory impaired subjects. Evidence for a processing account of memory. *Memory and Cognition, 20*, 549-562.

Bowers, K.S. (1983). *Hypnosis for the Seriously Curious*, New York: Norton.

Bowers, K.S. and Woody, E.Z. (1996). Hypnotic amnesia and the paradox of intentional forgetting. *Journal of Abnormal Psychology, 105*, 381-390.

Clarys, D., Isingrini, M. and Haerty, A, (2000). Effects of attentional load and ageing on word-stem and word-fragment implicit tasks. *European Journal of Cognitive Psychology, 12*, 395-412.

Crawford, H.J. (1996). Cerebral brain dynamics of mental imagery: Evidence and issues for hypnosis. In R.G. Kunzendorf, N.P. Spanos and B.J. Wallace (Eds.), *Hypnosis and imagination* (pp. 253-282). New York: Baywood.

Coe, W.C. (1978). The credibility of posthypnotic amnesia: A contextualist's view. *International Journal of Clinical and Experimental Hypnosis, 26*, 281-286.

Coe, W.C. (1989). Posthypnotic amnesia: Theory and Research, in Spanos, N.P. and Chaves, J.F. (Eds.), *Hypnosis: The cognitive Behavioral Perspective* (pp.110-148), Buffalo, N.Y.: Prometheus.

Cooper, L.M. (1972). Hypnotic amnesia. In E. Fromm and R.E. Shor (Eds.), *Hypnosis: Research developments and perspectives* (pp. 217-252). Chicago: Aldine-Atherton.

Council, J.R. (1999). Measures of hypnotic responding. In I. Kirsch, A. Capafons, E. Cardena-Buela, and S.Amigo (eds.) *Clinical hypnosis and self-regulation therapy: A cognitive-behavioral perspective* (pp. 119-141*)*. Washington DC: American Psychological Association.

Evans, F.J. (1991). Hypnotisability: Individual differences in dissociation and the flexible control of psychological processes. In S.J. Lynn and J.W. Rhue (eds.), *Theories of hypnosis: Current models and perspectives*, (pp. 144-168). New York: Guilford Press,

Gibson, H.B. (1992). A recent case of a man charged for rape and other sexual offences, *Contemporary Hypnosis, 9*, 139-148.

Graf, P., Squire, L.R., and Mandler, G. (1984). The information that amnesics do not forget. *Journal of Experimental Psychology: Human Learning and Memory, 10*, 164-178.

Gregg, V. (1979). Posthypnotic amnesia and general memory theory. *Bulletin of the British Society of Experimental and Clinical Hypnosis*, *2*, 11-14.

Hanley, J.R. , Baker, G.A. and Ledson, S. (1999). Detecting the faking of amnesia: A comparison of the effectiveness of three different techniques for distinguishing simulators from patients with amnesia. *Journal of Clinical and Experimental Neuropsychology, 21*, 56-69.

Hilgard, E.R. (1986). *Divided Consciousness: Multiple Controls in Human Thought and Action*, New York: Wiley.

Hilgard, E.R. and Hilgard, J.R. (1983). *Hypnosis in the relief of pain*. Los Altos, Calif: William Kaufmann.

Horton, K.D., Smith, S.A. Barghout, N.K. and Connolly. D.A. (1992). The use of indirect memory tests to assess malingered amnesia: A study of metamemory. *Journal of Experimental Psychology: General*, *121*, 326-351.

Howard, M.L. and Coe, W.C. (1980). The effects of context and participants' perceived control in breaching posthypnotic amnesia. *Journal of Personality*, 48, 342-359.

Kapur, N. (1994). The coin in the hand test: A new bedside test for the detection of malingering inpatients with suspected memory disorder. *Journal of Neurology, neurosurgery and psychiatry, 57*, 385-386.

Kihlstrom, J.F. (1978). Context and cognition in posthypnotic amnesia. *International Journal of Clinical and Experimental Hypnosis, 26*, 246-257.

Kihlstrom, J.F. (1985). Posthypnotic amnesia and the dissociation of memory. In G.H. Bower (Ed.), *The psychology of learning and motivation* (pp. 131-178). New York: Academic Press.

Kihlstrom, J.F. (1998). Dissociations and dissociation theory in hypnosis: Comment on Kirsch and Lynn (1998). *Psychological Bulletin, 123*, 186-191.

Kihlstrom, J.F. and Evans, F.J. (1976). Recovery of memory after posthypnotic amnesia, *Journal of Abnormal Psychology*, 85, 564-569.

Kihlstrom, J.F., Evans, F.J., Orne, E.C., and Orne, M.T. (1980). Attempting to breach posthypnotic amnesia, *Journal of Abnormal Psychology*, *89*, 603-616.

Kirsch, I. and Braffman, W. (1999). Correlates of hypnotisability: The first empirical study. *Contemporary Hypnosis, 16*, 224-230.

Laurence, J.R. and Perry, C.W. (1988). *Hypnosis, will and memory: A psycho-legal history*, New York: Guilford.

McConkey, K.M., and Sheehan, P.W. (1981). The impact of videotape playback of hypnotic events on posthypnotic amnesia, *Journal of Abnormal Psychology*, *90*, 46-54.

McConkey, K.M., Sheehan, P.W. and Cross, D.G. (1980). Posthypnotic amnesia: Seeing is not remembering, *British Journal of Social and Clinical Psychology*, *19*, 99-107.

Mottahedin, I. (1992). Was hypnosis involved in the Nelson case? *Contemporary Hypnosis*, *9*, 158.

Mulligan, N.W. (1998). The role of attention during encoding in implicit and explicit memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *24*, 27-47.

Nace, E.P., Orne, M.T., and Hammer, A.G. (1974). Posthypnotic amnesia as an active process: The reversibility of amnesia, *Archives of General Psychiatry*, *31*, 257-260.

Naveh-Benjamin, M., Craik, F.I.M., Perretta, J.G. and Tonev , S.T. (2000). The effects of divided attention on encoding and retrieval processes: The resiliency of retrieval processes. *Quarterly Journal of Experimental Psychology*, 609-625.

Schmitter-Edgecombe, M. (1996). The effects of divided attention on implicit and explicit memory performance. *Journal of the International Neuropsychological Society, 2*..111-125.

Sheehan, P.W. and McConkey, K.M. (1982). *Hypnosis and Experience: The Exploration of phenomena and Process*, Hillsdale: Erlbaum Associates.

Spanos, N.P. (1986). Hypnotic behavior: A social psychological interpretation of amnesia, analgesia, and 'trance logic', *The Behavioral and Brain Sciences*, 9, 449-502.

Spanos, N.P., 1991, A sociocognitive approach to hypnosis. In Lynn, S.J. and Rhue, J.W. (Eds.), *Theories of hypnosis: Current models and perspectives* (pp. 324-361), New York: Guilford.

Spanos, N.P., Radtke, H.L. and Bertrand, L.D. (1985). Hypnotic amnesia as a strategic enactment: Breaching amnesia in highly susceptible participants. *Journal of Personality and Social Psychology*, *47*, 1155-1169.

Tart, C.T. (1970). Self-report scales of hypnotic depth. *International Journal of Experimental and Clinical Hypnosis, 18*, 105-125.

Tulving, E., Schacter, D.L. and Stark, H.A. (1982). Priming effects in word fragment completion are independent of recognition memory. *Journal of Experimental Psychology: Learning, Memory and Cognition, 8*, 336-342.

Wagstaff, G.F. (1977). An experimental study of compliance and post-hypnotic amnesia, *British Journal of Social and Clinical Psychology*, *16*, 225-228.

Wagstaff, G.F. (1981). *Hypnosis, Compliance, and Belief*, Brighton: Harvester/ New York: St Martin's Press.

Wagstaff, G.F. (1986). Hypnosis as compliance and belief: A sociocognitive view, In Naish, P.L.N. (Ed.), *What is Hypnosis?* (pp. 59-84). Philadelphia: Open University Press.

Wagstaff, G.F. (1991). Compliance, belief and semantics in hypnosis: A nonstate, sociocognitive perspective, (in) Lynn, S.J. and Rhue, J.W. (eds.), *Theories of hypnosis: Current models and perspectives* (pp. 362-398). New York: Guilford.

Wagstaff, G.F. and Frost, R. (1996). Reversing and breaching posthypnotic amnesia and hypnotically created pseudomemories, *Contemporary Hypnosis*, *13*, 191-197.

Weitzenhoffer, A.M. (1980). Hypnotic susceptibility revisited. *American Journal of Clinical Hypnosis*, *22*, 130-146.

Williamson, J.A., Johnson, H.J., and Ericksen, C.W. (1965). Some characteristics of posthypnotic amnesia. *Journal of Abnormal Psychology*, *70*, 123-131.

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