

BRIEF REPORT

REVERSING AND BREACHING POSTHYPNOTIC AMNESIA AND HYPNOTICALLY CREATED PSEUDOMEMORIES

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ABSTRACT

A procedure was devised to investigate whether hypnotically created pseudomemories and posthypnotic amnesia are influenced by subjects' deliberate attempts to enact the hypnotic role. Results indicated that hypnotic pseudomemories, like posthypnotic amnesia, can be reversed or eliminated when subjects are given a previously suggested retrieval cue, and amnesia and pseudomemory are highly correlated. Moreover, both can be significantly reduced, or breached, if, before being tested for amnesia and pseudomemory, hypnotic subjects are given an opportunity to describe their previous hypnotic responses as the result of roleplaying rather than being in a trance. It is concluded that voluntary strategies may play an important part in both hypnotic amnesia and hypnotically created pseudomemories; however, the study should be repeated on a group of very highly responsive subjects.

INTRODUCTION

According to one interpretation, suggested posthypnotic amnesia occurs because the forgotten material is dissociated from awareness behind an 'amnesic barrier', and cannot be accessed until the hypnotist issues the signal for normal control to be resumed. It has further been argued that for many subjects this temporary dissociation is allegedly so profound that, until a reversal cue is given by the hypnotist, subjects cannot access the forgotten material no matter how hard they try (Bowers, 1983; Evans, 1991; Hilgard, 1986; Kihlstrom, 1978, 1983; Kihlstrom, Evans, Orne & Orne, 1980). In contrast, others have argued that posthypnotic amnesia is primarily a consequence of volitional strategies in response to task demands such as distraction, inattention, and voluntarily withholding responses (Coe, 1978, 1989; Coe & Sarbin, 1991; Spanos, 1986, 1991; Wagstaff, 1977, 1981, 1986, 1991).

But if reversible posthypnotic amnesia is largely a volitional response then one might expect that exhortations to be honest and try hard to remember might be successful in breaching the amnesia. However, attempts to breach amnesia in this way have only been partially successful, and leave a significant proportion of subjects maintaining amnesia until the reversal cue is given. Even techniques such as presenting subjects with a videotape of their actions, and rigging them up to a lie detector have been of only limited effectiveness (Bowers, 1966; Coe, 1989; Howard & Coe, 1980; Kihlstrom *et al.*, 1980; McConkey & Sheehan, 1981; McConkey, Sheehan & Cross, 1980).

One of the main difficulties, however, with the standard breaching paradigms is that they attempt to dissipate the 'amnesia' *after* subjects have already committed themselves to, and therefore shown an investment in, displaying amnesia. To avoid this problem, Wagstaff (1977) used a design in which one group of subjects was given an opportunity to say they were 'roleplaying' rather than in a 'trance', before the first test for amnesia (i.e., before they had committed themselves to appearing amnesic), and another group was not. The results showed that whilst a proportion of the latter group displayed amnesia in the usual way, none of those in the former group showed evidence of amnesia; they recalled as many items before the reversal cue as did the other group after the cue. This would appear to provide some support for the idea that voluntary strategies may be involved in hypnotic amnesia, but as yet there have been no published attempts to replicate this now rather old finding.

Not only has hypnosis been associated with suggested amnesia, but also suggested pseudomemory. According to some, unlike hypnotic amnesia, which normally is reversible, these hypnotically induced pseudomemories are often assumed to permanent, irreversible, memory distortions (Diamond, 1980; Orne, 1979; Orne, Soskis, Dinges & Orne, 1984; Laurence & Perry, 1983). However, the possibility exists that hypnotically created pseudomemories may also be influenced by voluntary strategies to imagine and report the suggested events (see for instance, Spanos & McLean, 1986; Spanos, Gwynn, Cromer, Baltruweit & de Groh, 1989). If the latter is the case, perhaps hypnotically created pseudomemories might, like amnesia, be (1) reversed using a suitable, previously suggested cue, and (2) significantly reduced if hypnotic subjects were to be given an opportunity, before reporting, to label or interpret their experiences as role-enactment rather than being in a hypnotic trance or state. Moreover, if both hypnotic amnesia and pseudomemory share a common voluntary component, perhaps they will correlate. The aim of the present study was to examine these possibilities.

METHOD

Subjects

The subjects were 43 students from various disciplines and employees at the University of Liverpool. None had received any teaching on hypnosis. Unlike in many previous studies, subjects were not screened beforehand for a propensity for posthypnotic amnesia or pseudomemory; this was essential to ensure that subjects had not previously socially committed themselves to displaying these phenomena.

Materials and Procedure

Subjects were assigned arbitrarily to two conditions, 'roleplay' (N = 21) and 'standard' (N = 22), and were tested in small groups. Subjects in both conditions were given a standard hypnotic induction procedure from Barber (1969), followed by eight items from the Stanford Hypnotic Susceptibility Scale: Form A (Weitzenhoffer & Hilgard, 1959); the items were hand lowering, arm immobilization, finger lock, arm rigidity, moving hands together, fly hallucination and eye catalepsy. They were then given the SSHS:A amnesia suggestion, which suggests that, when they wake up, they will have difficulty remembering what they were told to do until they hear the reversal cue words, but this was modified by adding the following pseudomemory instruction:

You will remember nothing of what has happened until I say to you the words, 'Now you can remember what really happened'. However, you will find that something very interesting will happen. Whilst you will forget everything that has actually happened, you will remember very clearly performing the following eight actions instead. So remain perfectly still, and listen carefully to the following eight actions you will remember performing.

Eight actions (pseudomemories) were then described to them; these were being unable to open a clenched fist, lifting their left leg off the floor, licking their lips, having their index finger stuck to their nose, conducting an orchestra, stroking a cat in their lap, scratching their elbow, and putting their hands on their head. Following these actions they were told:

So you will forget what you really did, and remember performing these eight actions, until I say the words, 'Now you can remember what really happened'.

Subjects were then given the induction termination instructions. To minimize experimenter bias, all these instructions were administered on audiotape. It can be noted that hypnotic susceptibility is not adversely affected by taped instructions (Hilgard & Tart, 1966).

Up to this point, therefore, all subjects had been treated identically. However, subjects in the roleplay group were then given the following 'roleplaying' instruction, slightly modified from Wagstaff (1977), summarizing a sociocognitive view of hypnosis:

It has been shown experimentally that if subjects are given the procedure that has just been administered to you, and they follow the instructions closely, they may feel relaxed and drowsy, and even rather odd, but such experiences are commonly reported by people who have simply been told to relax, breathe deeply and keep their eyes closed for 10 minutes. Indeed, upon further questioning many subjects report that they felt they were sort of role playing, rather than being in a hypnotic trance. Roleplaying is not a term that applies in any derogatory sense; it just describes the subject's determined attempts to experience a hypnotic state, and think and imagine along with the suggestions. However, whilst subjects may feel that they have become very relaxed, they do not feel they have achieved a *real* hypnotic state. I am interested in knowing how many people here feel that they weren't in a true trance, rather they were just relaxed and thinking and imagining along with the suggestions. So please put up your hand if you felt you weren't actually in a hypnotic trance.

This instruction was given by a different experimenter from the one whose voice appeared on the induction. Subjects in both groups then received the same 16 item recognition test, which consisted of a random mix of the eight original SHSS:A items and the eight pseudomemory items. Subjects were required to tick those items they remembered performing. Following this, all subjects were given, on tape, the amnesia/pseudomemory reversal cue, 'Now you can remember what really happened'. This was followed by a second recognition test, identical to the first. Subjects in the standard condition were then given the same roleplaying instruction.

RESULTS

The mean SHSS:A scores (excluding the amnesia item) passed by the role-play and standard groups were 3.48 (S.D. = 2.16; range 0–7), and 3.60 (S.D. = 1.83; range 0–7); these means did not differ significantly.

The SHSS:A items recognized by each subject were analysed using a 2×2 mixed GLM ANOVA (Groups \times Recognition Trials). The main effects for Groups and Trials failed to reach significance, however, there was a significant Groups \times Trials interaction, $F(1,41) = 5.03$, $P < 0.031$. Further F-tests for simple effects ($P < 0.05$) showed that the standard group recognized significantly fewer items on the first recognition trial ($M = 5.81$; S.D. = 2.15; range 0–8), than on the second, i.e., after the reversal cue ($M = 6.64$; S.D. = 1.36; range 4–8). However, the recognition scores for the roleplay group for the first ($M = 6.95$; S.D. = 1.28; range 4–8), and second ($M = 6.86$; S.D. = 1.42; range 4–8) trials were not significantly different. Moreover, whilst the standard group recognized significantly fewer items than the roleplay group before the reversal cue, there was no significant difference between the recognition scores of the two groups when tested after the reversal cue.

As Bowers (1983) has emphasized, 'one of the distinguishing characteristics of suggested posthypnotic amnesia is that it is reversible; the person can recover the forgotten material' (p. 41). It is notable, therefore that eight (36%) of the standard group displayed amnesia reversibility by recognizing more items on the second trial than on the first, whereas none of the roleplay group showed this effect ($P < 0.005$, Fisher's Exact Test).

The pseudomemory items recognized by each subject were also analysed using a 2×2 mixed GLM ANOVA (Groups \times Recognition Trial). Although much of the pseudomemory data would appear to offend the normality assumption of the parametric ANOVA, with fixed levels of the independent variables, as here, the ANOVA is not sensitive to violations of the assumption of normality (Shavelson, 1988). The main effects for groups failed to reach significance. However, when the groups were combined, significantly more items were recognized *before* the reversal cue ($M = 0.60$; S.D. = 1.45; range 0–7) than *after* ($M = 0.19$; S.D. = 0.45; range 0–2), $F(1,41) = 5.28$, $P < 0.03$.

There was also a significant Groups \times Trials interaction, $F(1,41) = 6.59$, $P < 0.015$. Further F-tests for simple effects ($P < 0.05$) showed that the standard group recognized significantly more pseudomemory items on the first recognition trial ($M = 1.05$; S.D. = 1.91; range 0–7), than on the second, i.e., after the reversal cue ($M = 0.18$; S.D. = 0.36; range 0–1). The pseudomemory recognition scores for the roleplay group for the first ($M = 0.14$; S.D. = 0.35; range 0–1), and second ($M = 0.19$; S.D. = 0.51; range 0–2) trials were not significantly different. Also, whilst the roleplay group recognized significantly more items than the standard group *before* the reversal cue, there was no significant difference between the pseudomemory recognition scores of the two groups when tested *after* the reversal cue.

Again, as an alternative way of describing the data, seven (32%) of the standard group displayed pseudomemory reversibility by recognizing fewer items on the second trial than on the first; *none* of the roleplay group showed this effect ($P < 0.01$, Fisher's Exact Test).

Mean reversibility scores were also calculated by subtracting each subject's score on the second trial from the subject's score on the first for the amnesia and pseudomemory items. The mean amnesia reversibility score of the standard group ($M = 0.81$; S.D. = 1.81) was significantly greater than that of the roleplay group ($M = -0.10$; S.D. = 1.61), $F(1,41) = 6.59$, $P < 0.015$; and the mean pseudomemory reversibility score of the standard group ($M = 0.81$; S.D. = 1.81) was significantly greater than that of the roleplay group ($M = 0.10$; S.D. = 1.61), $F(1,41) = 6.59$, $P < 0.015$. The Pearson's correlation between the two sets of reversibility scores was -0.78 ($P < 0.001$); indicating that the more subjects displayed hypnotic amnesia, the more likely they were also to display pseudomemory.

DISCUSSION

These results appear to further replicate Wagstaff's (1977) previous finding that hypnotic amnesia can virtually be eliminated when subjects are given an opportunity to describe their experiences as a role-enactment. However, they also suggest that hypnotically created pseudomemories can not only be significantly reversed on cue, but may be significantly reduced when the context allows the subject to abandon the role of the subject who has pseudomemories. Moreover, hypnotic amnesia and pseudomemory, as measured here, are highly and significantly correlated. There is some tentative support, therefore, for the view that voluntary, strategic role-enactment may be very influential in at least some forms of hypnotic amnesia and pseudomemory.

The most obvious objection to the present results, however, is that insufficient subjects were hypnotized enough to exhibit profound amnesia or pseudomemory. There is indeed an obvious case for attempting to replicate the results on a more limited sample of extremely hypnotically responsive subjects, but the trends in the data do not suggest that low hypnotic responsiveness was a particular problem. Seven subjects (approximately one-third) in each group scored positively on more than half of the SSHS:A items. Although the amnesia scores were based on a *recognition* test and would generally be higher than scores expected on the basis of the usual SHSS:A *recall* test for amnesia (for examples see McConkey & Sheehan, 1981; McConkey *et al.*, 1980), nevertheless, it can be noted that six subjects in the standard group initially recognized only four or fewer items (range 0–4), compared with only one subject (who scored 4) in the roleplay group ($P < 0.055$, Fisher's Exact test). Also, although on average responsiveness to the pseudomemory items was not very impressive, it can be noted that initially five subjects in the standard group recognized two or more pseudomemory items (range 2–7), whereas no subject in the roleplay group did ($P < 0.03$, Fisher's Exact test).

It could conceivably be argued that the roleplay instruction itself somehow acted as a release cue. However, if so, it is necessary to explain why, if subjects are genuinely trying hard but unsuccessfully to recognize the information, asking them to say whether they were roleplaying should carry more significance as a reversal cue than exhortations to be honest, try hard to remember, and not to withhold information; none of which has been reported as being effective in reversing amnesia (Bowers, 1983; Kihlstrom *et al.*, 1980).

It is notable that the roleplaying instruction was apparently not effective in eliminating all reports of pseudomemory. Three subjects in the roleplay group, and four in the standard group continued to show pseudomemory after the release signal. However, six of these subjects incorrectly recognized only one item, and this was the same item for all subjects, i.e., 'being unable to open a fist'. Arguably this was very similar to the SSHS:A scale item that requires subjects to make a fist before finding their arm is rigid, and thus may have reflected a genuine ambiguity in the items, rather than a true 'pseudomemory'.

In sum, the present results seem to support other findings, which suggest that reports of both posthypnotic amnesia and hypnotically created pseudomemories may reflect, or at least be greatly influenced by, subjects' deliberate, strategic attempts to enact the role of the 'hypnotized' subject (for example, McCann & Sheehan, 1987; Murrey, Cross & Whipple, 1992; Spanos, 1986; Spanos & McLean, 1986; Spanos *et al.*, 1989). Nevertheless, it would seem important to assess whether these findings will occur with extremely responsive subjects, and with

other materials. One of the problems with using conventional measures of amnesia, as here, is that they confound amnesia with experience. It would be worthwhile, therefore, repeating the study with materials that are independent of the susceptibility measures.

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