TITLE:	AUSTRALIAN JOURNAL OF CLINICAL AND EXPERIMENTAL HYPNOSIS
PUBLISHER:	Sydney University Press for the Australian Society for Clinical and Experimental Hypnosis: Sydney
VOLUME/ISSUE/PAGES:	26/1 10-18
DATE:	1998
AUTHOR OF ARTICLE:	Barnier, A.J., & McConkey, K.M.
TITLE OF ARTICLE:	POSTHYPNOTIC SUGGESTION, AMNESIA, AND HYPNOTISABILITY
ISSN:	0156-0417

Australian Journal of Clinical and Experimental Hypnosis
Vol. 26, No. 1, 1998, pp. 10–18

POST-HYPNOTIC SUGGESTION, AMNESIA, AND HYPNOTISABILITY

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We present an analysis of post-hypnotic responding for a large sample of Australian students ($N = 4,753$) who completed the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A). This analysis examined the relationships among post-hypnotic suggestion, amnesia, and hypnotisability. Also, it explored the relationship with hypnotisability of other selected HGSHS:A items that were similar to post-hypnotic suggestion and amnesia, but differed in terms of the time of their administration and testing. Consistent with theoretical accounts, post-hypnotic suggestion was a relatively difficult item that was associated with amnesia in the case of some individuals. However, contrary to these accounts, post-hypnotic responding was not exclusive to these subjects and was not necessarily associated with amnesia. The findings are discussed in terms of specific factors that may influence behaviour and experience in response to a post-hypnotic suggestion.

Post-hypnotic suggestion is especially interesting because it is performed in a setting that may be temporally, physically, and socially separate from the setting in which the suggestion was administered. It has been of enduring interest not only because of its theoretical importance, but also because of its potential

The research reported in this paper was supported in part by a grant from the Australian Research Council to Kevin M. McConkey. Amanda Barnier was supported by an Australian Postgraduate Award. We are grateful to Bernadette Bibb, Richard Bryant, Sandra Hejtmanek, Jason Noble, Natalie Watson, and Heather Wilton for assistance in data collection.
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utility in the clinical setting. Post-hypnotic suggestions usually involve instructing hypnotised subjects to have a particular experience and/or show a particular behaviour after hypnosis when they are exposed to a signal or cue. The post-hypnotic suggestions reported in the literature have ranged from simple, benign responses such as scratching an ear (Orne, Sheehan, & Evans, 1968) to complex, multifaceted, and unusual responses such as hallucinating a gipsy and a dancing American bear (Liégeois, 1889). Post-hypnotic suggestion has usually been seen as a very difficult hypnotic phenomenon to experience. Hilgard (1965), for instance, argued that "true" post-hypnotic responding is exclusive to high hypnotisable individuals, and Sheehan and Orne (1968) stated that "the most effective post-hypnotic response occurs in those subjects who have an outstanding aptitude for trance" (p. 219). Although such comments convey that only the most talented hypnotic subjects can respond successfully to a post-hypnotic suggestion, there has been relatively little formal investigation of the relationship between post-hypnotic suggestion and hypnotisability.

Because the suggestion for amnesia is typically administered during hypnosis and because amnesia is typically tested after hypnosis, there has been a general view that post-hypnotic amnesia is a specific instance of post-hypnotic suggestion. Moreover, there has been one view that amnesia (whether suggested explicitly or implicitly during hypnosis) is typically associated with subjects' responses to post-hypnotic suggestions. For instance, some accounts of post-hypnotic suggestion have argued that amnesia covers the source of post-hypnotic behaviour and inhibits resistance to the suggested response (Hilgard, 1965; Sheehan & Orne, 1968; Weitzenhoffer, 1957). However, other accounts have argued that amnesia for the suggestion is not necessary and that its presence does not change the quality of post-hypnotic behaviour (Barber, 1962; Edwards, 1965; Fisher, 1955; Marcus, Hill, & Keegan, 1945). These arguments notwithstanding, there has been relatively little formal investigation of the relationship between post-hypnotic suggestion and amnesia.

In this article, we explore these issues in a heuristic way by analysing the performance of subjects on the most widely used standardised assessment of hypnotisability, which includes items of post-hypnotic suggestion and amnesia, and by taking advantage of a large amount of normative data. Specifically, we present an analysis of the responses of a large sample of subjects who completed the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962). The HGSHS:A is a particularly valuable instrument for considering hypnotic phenomena because of the variety of items that it contains and because of the number of normative samples that are available across time and countries since the original normative work (Shor & Orne, 1963; for instance, see Bongartz, 1985; Coe, 1964; Lamas, del Valle-Inclan, & Blanco, 1989; Laurence & Perry, 1982; McConkey, Barnier, Maccallum, & Bishop, 1996; Sheehan & McConkey, 1979; Zachariae, Sommerlund, & Molay, 1996).

In summary, our aim was to examine the relationships among post-hypnotic suggestion, amnesia, and hypnotisability. We were interested in who responds to a post-hypnotic suggestion, the response similarities and differences in post-hypnotic suggestion and amnesia, and whether amnesia is associated with responding to post-hypnotic suggestion. Moreover, we were interested in using the data to raise some issues that are not explicit in the literature on post-hypnotic suggestion, but that we believe need to be considered if the field is going to develop an account of post-hypnotic suggestion that is theoretically coherent and practically useful.

METHOD

Subjects

Four thousand, seven hundred and fifty-three (1,310 male and 3,443 female) individuals who ranged in age from 17 to 73 years (M = 22.24, SD = 7.77), and who were undergraduate psychology students at Macquarie University in the years 1985 to 1992, voluntarily participated in the testing in return for research credit of one hour.

Procedure

The procedure was described and subjects were informed that they were free to withdraw their participation at any time without penalty. The tape-recorded standardised version of the HGSHS:A (Shor & Orne, 1962) was administered. The induction procedure was followed by the 12 test items: head falling, eye closure, hand lowering, arm immobilisation, finger lock, arm rigidity, hands moving, communication inhibition, hallucination, eye catalepsy, post-hypnotic suggestion, and amnesia. The post-hypnotic suggestion involved telling subjects that after they were awakened from hypnosis they would hear a tapping noise and that they would then reach down and touch their left ankle. The amnesia suggestion involved telling subjects that after they were awakened from hypnosis they would not be able to recall anything that had occurred during the session until the experimenter said "Now you can remember everything." Although amnesia was a global suggestion in the sense that it targeted all of the events of the hypnosis session (rather than the post-hypnotic suggestion specifically), it was administered at the same time as the post-hypnotic suggestion.

Scoring

Scoring of responses to the test items followed the standard procedure described by Shor and Orne (1962), with the exception of the amnesia item; scoring for this item followed the procedure recommended by Kihlstrom and Register (1984). For items 1 to 11, a pass (score = 1) was awarded if responses met the

behavioural criterion for the suggestion; a fail (score = 0) was awarded for responses not meeting this criterion. For post-hypnotic suggestion, subjects were scored positively if they estimated that an onlooker would have observed them reach down and touch their left ankle or make any partial movement to do so. For amnesia, scoring followed Kihlstrom and Register's (1984) recommendation that a "reversibility" criterion be used to score amnesia, since the loss and recovery of memory more nearly reflects the theoretical basis of the amnesia suggestion. Specifically, participants were awarded a score of "1" if they recalled fewer than four items on the first test of recall, and also recalled two or more items on the second test of recall following the signal to remember. The scores were summed to yield a HGSHS:A score in the range 0 to 12.

RESULTS AND DISCUSSION

Subjects in our sample had a mean HGSHS:A score of 6.28 (SD = 2.64), which fell within the distribution of mean scores of previous normative samples of the HGSHS:A (for review, see McConkey, et al., 1996).[1] Further, the distribution of HGSHS:A scores was consistent with those reported in these previous samples; in our sample, 16% of individuals scored in the low hypnotisability range (0–3), 72% scored in the medium range (4–9), and 12% scored in the high range (10–12).

We were interested in the relationship between post-hypnotic suggestion and hypnotisability and in how it compared with the relationship between amnesia and hypnotisability. Figure 1 presents the percentage of subjects who passed post-hypnotic suggestion and amnesia across the total score distribution, less the post-hypnotic suggestion and amnesia items, respectively. One thousand two hundred and twenty-nine (26%) subjects passed post-hypnotic suggestion. Those subjects who passed post-hypnotic suggestion ($M = 6.67$, $SD = 2.52$) had higher total scores (less post-hypnotic suggestion) than those who failed ($M = 5.79$, $SD = 2.52$), $t(4751) = 10.60$, $p < .001$. The correlation between post-hypnotic suggestion and total score (less post-hypnotic suggestion) was significant but modest, $r = .15$ ($p < .001$). Although approximately 35% to 55% of high hypnotisable subjects responded to post-hypnotic suggestion, around 15% to 30% of low and medium hypnotisable subjects also responded; in other words, response to post-hypnotic suggestion was not exclusive to high hypnotisable subjects.

Nine hundred and thirty-nine (20%) subjects passed amnesia. As with post-hypnotic suggestion, those subjects who passed amnesia ($M = 7.38$, $SD = 2.12$) had higher total scores (less amnesia) than those who failed ($M = 5.78$, $SD = 2.50$), $t(4751) = 18.37$, $p < .001$. The correlation between amnesia and total score (less amnesia) was significant but moderate ($r = .26$, $p < .001$). Although approximately 25% to 50% of high hypnotisable subjects responded to amnesia, around 5% to 20% of low and medium hypnotisable subjects also responded; in other words, response to amnesia was not exclusive to high hypnotisable

subjects. In comparison with post-hypnotic suggestion, however, fewer subjects overall responded to amnesia and this decreased level of responding was especially the case in the lower range of hypnotisability. Although these findings are generally consistent with the view that post-hypnotic suggestion is a difficult hypnotic item (Hilgard, 1965; Sheehan & Orne, 1968), the findings also point to the potential for low and medium hypnotisable subjects to respond successfully to a post-hypnotic suggestion.

Of the subjects who passed post-hypnotic suggestion, 308 (25%) also passed amnesia; the correlation between post-hypnotic suggestion and amnesia was significant but very modest, $r = .08$ ($p < .001$). To explore this relationship further, we calculated a total score (range = 0–10) that omitted subjects' responses to both post-hypnotic suggestion and amnesia. Overall, subjects who passed both post-hypnotic suggestion and amnesia ($N = 308$, 25%; $M = 7.52$, $SD = 1.89$) had significantly higher total scores than those who passed post-hypnotic suggestion and failed amnesia ($N = 921$, 75%; $M = 6.05$, $SD = 2.36$), $t(1227) = 11.02$, $p < .001$. Although those who passed both post-hypnotic suggestion and amnesia were more hypnotisable than those who did not, a more complicated pattern emerged when these data were considered in detail. In particular, high hypnotisable subjects who passed both post-hypnotic suggestion and amnesia ($N = 178$, 53%; $M = 8.85$, $SD = 0.79$) had significantly lower total scores than those who passed post-hypnotic suggestion and failed amnesia ($N = 155$, 47%; $M = 9.31$, $SD = 0.46$), $t(331) = 6.59$, $p < .001$; this finding is somewhat counterintuitive and inconsistent with theoretical comments by, for instance, Hilgard (1965) and Sheehan and Orne (1968). Specifically, this finding indicates that amnesia is not necessary for post-hypnotic responding. However, it should be acknowledged that the amnesia item was a global suggestion, and did not specifically target the post-hypnotic suggestion. Nevertheless, other work (Barnier & McConkey, 1997) that has compared post-hypnotic suggestion with or without specific accompanying amnesia has found no difference in the response of subjects. Taken together, these findings imply that amnesia is not central to post-hypnotic responding.

In addition to comparing the relationship of the HGSHS:A items of post-hypnotic suggestion and amnesia to hypnotisability, we were interested in examining the relationship with hypnotisability of other selected items that were similar to post-hypnotic suggestion and amnesia in various ways, but were administered and tested during hypnosis rather than administered during and tested after hypnosis. We chose the HGSHS:A items of hands moving and hallucination. Hands moving is an ideomotor item in which subjects are told that their hands are moving together; it is similar to post-hypnotic suggestion in the sense that the experience and response required involve a simple physical movement. In our sample, 3,765 (79%) subjects passed hands moving. Hallucination is a cognitive item in which subjects are told that they will experience a fly buzzing around them; it is similar to amnesia in the sense that the experience is an internal one, and it is similar to post-hypnotic suggestion in the sense that it is assessed in terms of whether a simple physical movement occurs.

In our sample, 1,176 (25%) subjects passed hallucination. Figure 2 presents the percentage of subjects who passed post-hypnotic suggestion, amnesia, hands moving, and hallucination across the total score distribution (less, for each, the score for the relevant item). This figure illustrates the relative similarity in response pattern of hallucination with post-hypnotic suggestion and amnesia, and the substantial dissimilarity of hands moving with post-hypnotic suggestion and amnesia. This is consistent with the findings of analyses of the HGSHS:A and other scales of hypnotisability (e.g., Hilgard, 1965; McConkey et al., 1996; McConkey, Sheehan, & Law, 1980), but it also raises a number of issues that have not been considered explicitly in the literature.

First, given that the types of movement involved in hands moving and post-hypnotic suggestion are reasonably similar, then why are the response patterns so different? If, for instance, post-hypnotic suggestion was administered and tested during hypnosis, rather than administered during and tested after hypnosis, would the response pattern be more similar to that of hand moving or to that of post-hypnotic suggestion? Other research of ours (Barnier & McConkey, in press a) indicates that high hypnotisable subjects are more likely to respond to an item administered and tested during hypnosis than the same item administered during and tested after hypnosis. Second, given that post-hypnotic suggestion and hallucination are both cognitive items and are both assessed in terms of whether a simple physical movement occurs, then why do more subjects in the low to medium range of hypnotisability pass post-hypnotic suggestion? Is this because a suggested action (e.g., touching an ankle) is less difficult than a suggested desire (e.g., experiencing a fly buzzing), regardless of how they are behaviourally assessed? Other work that we have conducted (Barnier & McConkey, 1996) indicates that a behaviourally focused suggestion leads to a different pattern of response than an experientially focused suggestion. Third, given that the response pattern for post-hypnotic suggestion, amnesia, and hallucination are, for the most part, similar (which is consistent with factor analytic studies of the HGSHS:A; for example, see McConkey et al., 1996; McConkey et al., 1980; Peters, Dhanens, Lundy, & Landy, 1974), then why do almost twice as many low hypnotisable subjects pass post-hypnotic suggestion than pass hallucination or amnesia? We believe that the scoring criteria for each suggestion may influence response at this end of the distribution. Of these suggestions, post-hypnotic suggestion could be said to have the least strict response criterion; response is scored for any complete or partial movement consistent with the suggestion. In contrast, the response criterion for both amnesia (i.e., the loss and recovery of memory) and hallucination (i.e., an observable acknowledgment of the hallucinatory experience) are more strict. Other research of ours (Barnier & McConkey, 1996, in press b) indicates that "technically correct" or complete responses should be differentiated from incomplete or partial responses, and that the criterion for response is a critical factor in determining how researchers think about various hypnotic phenomena.

Figure 1: Percentage Response to Post-Hypnotic Suggestion and Amnesia Across the Total Score Distribution

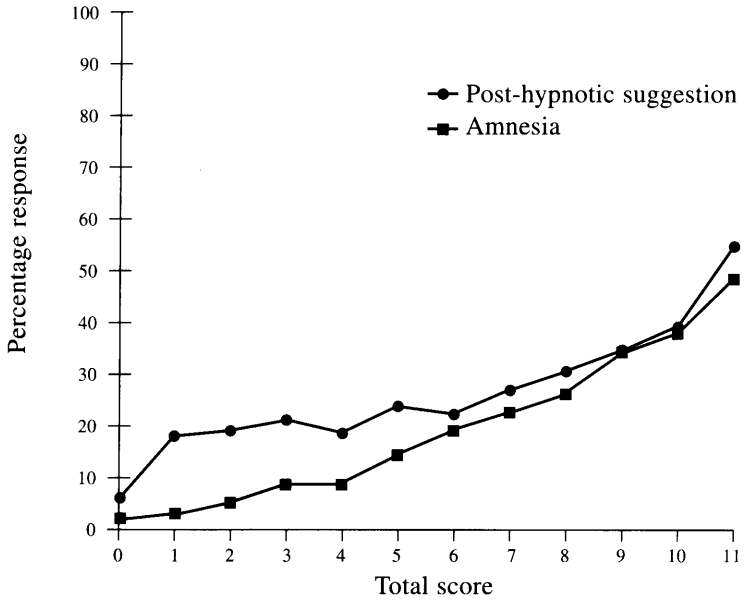
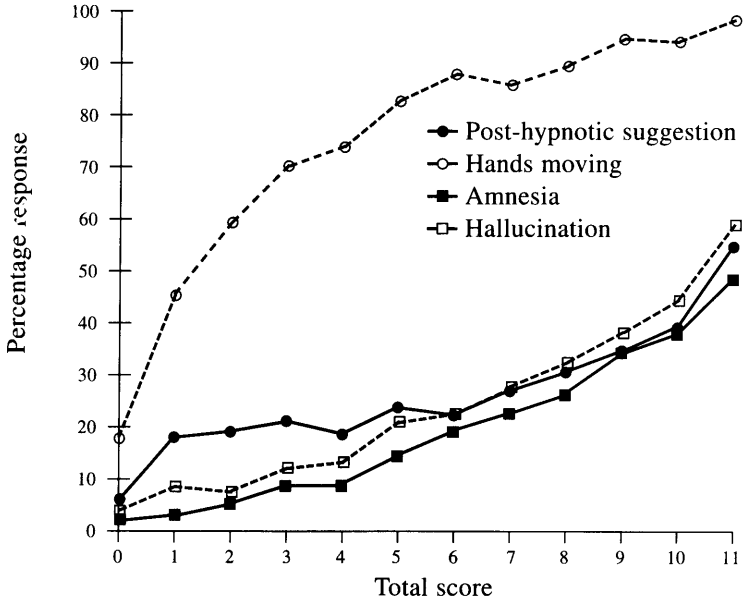


Figure 2: Percentage Response to Post-Hypnotic Suggestion (PHS), Amnesia, Hands Moving, and Hallucination Across the Total Score Distribution



CONCLUDING COMMENT

Our examination of these data underscores that post-hypnotic suggestion is a relatively difficult item that is passed predominantly by those with high hypnotic ability. Also, for some individuals, it is associated with amnesia. However, post-hypnotic responding is not exclusive to high hypnotisable subjects and it is not dependent upon amnesia. Moreover, the finding that some low hypnotisable subjects may respond to a post-hypnotic suggestion implies that different subjects may respond for different reasons. Importantly, our comparison of post-hypnotic suggestion with other selected HGSHS:A items suggests that post-hypnotic responding may be influenced by factors such as the nature of the suggested task, when the suggestion is administered and tested, and how responding is scored. Overall, the development of a full theoretical and practical account of post-hypnotic suggestion will depend upon an understanding of how these factors influence responding at both the level of observable behaviour and the level of subjective experience.

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[1] To check the reliability of our analyses, the sample was randomly split into two sub-samples and the analyses were cross-validated (*N* Sub-sample 1 = 2,390; *N* Sub-sample 2 = 2,363); the pattern of results was identical across these sub-samples. Thus, the results are presented for the entire sample.