

DELAYED MEMORIES OF
CHILD ABUSE: PART II:
AN OVERVIEW OF RESEARCH
FINDINGS RELEVANT TO
UNDERSTANDING THEIR
RELIABILITY AND
SUGGESTIBILITY

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ABSTRACT

This article reviews data from four areas of memory research which are clinically relevant to understanding the reliability and suggestibility of delayed memories of abuse in dissociative disorder patients. Research supports the suggestibility of eyewitness memory for non-dramatic events, but not for personally experienced trauma. Hypnosis has been found to increase memory suggestibility and confidence in correct and incorrect memories in laboratory studies, while the accuracy of hypnotically recalled memories in psychotherapy have been highly supported by corroboration. High hypnotizability, however, appears more important than hypnosis in producing laboratory pseudomemories. Autobiographical memory research indicates that the reliability of adulthood memories prior to age three is uncertain, but some traumatic memories from age two persist. Accurate behavioral memories of trauma may persist when verbal ones are absent. Interview techniques greatly affect memory suggestibility, with free recall producing the least suggestibility. Therapists can minimize memory distortions by educating patients about memory reliability, using open-ended questions, avoiding hypnotic recall, using active memory source monitoring, and supportively exploring the reliability of emerging memories.

INTRODUCTION

In the recent debate over the validity of delayed memories of childhood abuse (memories which were unavailable and were later recalled), critics have questioned whether people can completely "forget" memories of abuse. Believing that amnesia for such trauma is rare, they have charged that delayed memories represent the suggestions of overly enthusiastic therapists rather than historical recollections.

This debate has often been characterized more by impassioned anecdotes than by examination of scientific research

on memory and abuse. Fortunately, it has resulted in some comprehensive overviews of memory from the disciplines of cognitive psychology (Lindsay & Read, 1994), experimental child psychology (Ceci & Bruck, 1993), and experimental adult psychology (Loftus, 1993). While such reviews have generally reflected the viewpoints of non-clinician experimentalists, they have helped bring this body of research to the attention of therapists working with delayed memories. The more recent reviews come from clinicians who are addressing literature on trauma and memory (Koss, Tromp, & Tharan, 1995; van der Hart & Nijenhuis, 1995).

The purpose of this article and the companion paper in this journal (Bowman, 1996a) is to acquaint clinicians with research findings which are relevant to dealing with delayed memories of abuse in dissociative disorder patients. This paper addresses studies of memory reliability and suggestibility which are relevant to working with dissociative disorders. This is not a comprehensive overview of memory literature, but a clinician's guide to the major clinically relevant findings.

Studies of memories in clinical or general populations of abused persons provide the most direct data on the reliability (i.e., corroborable accuracy) of abuse memories but say almost nothing about their suggestibility. This paper addresses another type of research on memory – laboratory studies of memory suggestibility. These studies do not use abused persons, and thus, shed only indirect light on recovered memories of abuse. Still, they give us important information about the general consistency and suggestibility of memory. To deal skillfully with delayed memories, it is important for dissociative disorder clinicians to have a firm grasp of the major findings of this research.

The memory research literature is too vast to be covered in detail in this article. I will summarize it by presenting conclusions from four areas of memory research that are relevant to clinical work with adult dissociative disorder patients. These studies answer the question: What factors may affect the reliability and suggestibility of abuse memories? In reading these studies, keep in mind that most were conducted in contrived (laboratory) situations and nearly always utilized college students as subjects. Literature on the reliability of child witnesses (summarized by Ceci & Bruck, 1993) is not included in this review.

HYPNOSIS AND MEMORY

Dissociative disorder (DD) patients are a highly hypnotizable group (Bliss, 1984; Frischolz, 1985). Many DD patients slip into and out of formal hypnotic trances easily and spontaneously and are often unaware that they have entered a trance. Thus, the literature on the reliability of memory during hypnosis is relevant to their treatment. This literature is also the basis for criticisms of using hypnosis to retrieve delayed memories.

The research literature on the suggestibility of memory during hypnotic induction began in 1888 with Bernheim's (1888/1973) report of memory creation in highly hypnotizable subjects. Modern studies have utilized two basic designs to study memory and hypnosis as illustrated in the following two studies.

Laurence and Perry (1983) demonstrated how hypnotized subjects can be induced to create a completely fantasized memory solely from suggestion. They hypnotized 27 subjects and age-regressed them to a night during the previous week during which the subjects had said they slept soundly without awakening. The hypnotist then suggested that they were awakened by a noise. Those who reported hearing the noise were asked to describe it.

Seventeen subjects (63%) reported hearing the noise during hypnosis. When interviewed after hypnosis had ended, 13 subjects (48%) still believed the noise had occurred during that night. When told that the noise was not real, but had been suggested by the hypnotist, six subjects (22%) still were unequivocally certain that they had really heard a noise that night. This study demonstrates how a memory can be created *de novo*. The hypnotist did not suggest what type of sound, but the subjects used their imagination to create memories of a variety of sounds.

A more common research design involves distortion of memory for eyewitness events. A classic example is W.H. Putnam's (1979) study in which 16 subjects were shown a videotape of a car-bicycle accident. Half were then questioned about the details of the accident while in hypnosis and half were asked the same questions in the waking state. Some questions were leading ones that suggested memory errors. For instance, no auto license plate was visible in the videotape, but subjects were asked if they saw *the* license plate, as opposed to *a* license plate. Even these subtle changes of wording produced a substantial effect in memory distortion. Some hypnotic subjects even offered partial descriptions of the license plate number.

Putnam found that subjects in hypnosis made significantly more memory errors with leading questions than waking subjects. This study demonstrated the increased suggestibility of memory with hypnosis and leading questions. Numerous other studies have used this design of an eyewitness event followed by variations in interview technique and suggestiveness, delays in questioning, behavior of the inter-

viewer, ratings of memory confidence, social demand expectations during the experiment, and types of recall that are tested (free recall, structured recall, etc.). What do studies such as these tell us?

First, for over 60 years (Stalnaker & Riddle, 1932), studies have found that subjects in hypnosis report more accurate and more inaccurate information than waking subjects. Thus, the increased *amount* of information obtained with hypnosis should not be mistaken for increased *accuracy* of memory. Hypnotic interviews have not been shown to produce more accurate eyewitness recall than non-hypnotic interviews.

Second, hypnosis often enhances the confidence subjects have in their memories, regardless of whether the memories are accurate. For instance, Laurence, Nadon, Nogrady, and Perry (1986) tested highly hypnotizable subjects about the confidence of their memories of night noises as described above (Laurence & Perry, 1983). They found that subjects were significantly more confident of the accuracy of both right and wrong answers during hypnosis than they had been before hypnosis. Some studies, however (for example, Barnier & McConkey, 1992) have not found differences in confidence between subjects in and out of hypnosis. Of concern to clinicians are studies (for example, Sheehan, Statham, & Graham, 1991a) that find that persons who do and do not produce pseudomemories in response to hypnotic suggestions do not differ in their confidence in their memories. Fortunately, confidence in pseudomemories produced by highly hypnotizable persons in hypnosis appears to break down outside of hypnosis if critical questioning is employed (Spanos, Gwynn, Comer, Baltruweit, & de Groh, 1989).

Third, subjects who try to recall events in a waking state and then in a hypnotic state cannot always distinguish memories retrieved prior to hypnosis and during hypnosis (Whitehouse, Orne, Orne, & Dinges, 1991). In other words, once hypnosis has been used to retrieve memories, subjects may not be able to distinguish what they did and did not remember prior to hypnosis. This may make it more difficult to distinguish always-remembered events from those recovered during hypnosis. Since some hypnotically recovered memories may be less reliable, the task of assessing the accuracy of memory also may become more difficult after hypnosis has been used.

Fourth, hypnotic suggestions during age regression can cause fabricated memories which can be produced in response to even indirect suggestions by the hypnotist. For example, Spanos, Menary, Gabora, DuBreuil, & Dewhirst (1991) studied persons who reported prior lives when given hypnotic age-regression suggestions. Some subjects who were asked about the childhood of their prior life were told that children in past eras had frequently been abused. These subjects reported significantly higher levels of prior life childhood abuse than subjects to whom no remark about abuse had been made. Other studies of past life regressions are discussed in Spanos, Burgess, & Burgess (1994).

TABLE 1
How Frequently are False Hypnotic Suggestions Reported as Memories During or After Laboratory Hypnosis?

	Subjects Reporting Pseudomemories		Hypnotizability of Subjects
	During Hypnosis	After Hypnosis	
Laurence & Perry, 1983	63%	48%	High
Labelle & Perry, 1986		45%	High
		30%	Medium
		0%	Low
McCann & Sheehan, 1988	70%		High
	45%		Mixed
	20%		Low
Labelle et al., 1990	50%	34%	Mixed groups
		45%	High
		46%	Medium
		0%	Low
Sheehan et al., 1991a*	63%		High
	34%		Medium
	20%		Low

* Testing of a false suggestion of a visual item (a robber's mask). Data on auditory items were different.

Fifth, hypnotic age regression does not overcome the amnesia associated with early life. Nash's (1987) review of 80 studies concluded that hypnotic age regression does not increase accuracy of childhood recall or involve a literal return to earlier psychological or physiological levels of functioning. Equally convincing portrayals of changed age are given by subjects regressed to childhood and by hypnotic age progression to above age 70 (Rubenstein & Newman, 1954). Studies of autobiographical memory (see below) imply that abuse memories produced during hypnotic age regression to a time before age two to three are likely not historical but are imaginative confabulation in response to the patient's or therapist's expectations.

Sixth, the effect of hypnosis on the reliability of memo-

ry depends on the type of questions which are asked. The reliability of free recall eyewitness reports (asking for unprompted memory descriptions, such as "Tell me what you saw on the videotape") is least affected by being in hypnosis or having heard false suggestions during hypnosis (Spanos et al., 1989). Structured hypnotic recall (being asked specific questions such as: "Was the bank robber wearing a mask?") produces more false memory reports than free recall (Sheehan et al., 1991 a,b). And, of course, leading questions produce the most errors during hypnosis (Spanos et al., 1989). Thus, any interview technique other than free recall appears to increase the likelihood of memory errors in hypnosis.

Seventh, as noted in the study of night sounds (Laurence

& Perry, 1983), not all pseudomemories reported in response to suggestive questioning during hypnosis persist after hypnosis. When Spanos et al. (1989) used gentle questioning that asked subjects to be critical of their memories, many subjects gave up their false memory reports. Harsh questioning that would have caused subjects to lose face resulted in the fewest subjects giving up their pseudomemories. This suggests that supportive but perceptive questioning about memories may be helpful in minimizing retention of memory errors that began in hypnosis.

Eighth, pseudomemories reported during hypnosis are not necessarily believed by the subject, nor do they replace the original memory. When questioned after hypnosis, some subjects report that hypnotic suggestions confused their memories, so they reported memories suggested to them by the hypnotist because they trusted the hypnotist's authority (Spanos et al., 1989; Barnier & McConkey, 1992). This is, of course, a warning to therapists to be aware of the power of our perceived authority if we make suggestive remarks during hypnosis. McCann & Sheehan (1988) confronted subjects with a videotape that they had viewed and with audiotapes of their inaccurate memory reports of the videotape. When asked to explain the discrepancy, they acted like they had two coexisting but different memory processes: they recognized which version of the videotape was the one they had seen, and they also continued to insist on the veracity of their pseudomemory. The implication is that hypnotic suggestions may alter memory but they don't erase memories of the original event.

Ninth, the evidence from the above laboratory studies is at odds with evidence from memories recovered by actual abuse victims during psychotherapy. Kluft (1995) reported on corroborating evidence reported by 19 of 34 patients he treated for DID. Evidence was not necessarily seen by the author. Of 13 patients whose corroborated memories were recovered ones, eleven (85%) had recovered these memories in therapy using hypnosis. Thus, hypnotically recovered memories in a carefully conducted therapy can be accurate.

As the above study shows, more than hypnosis is involved in pseudomemory production. Despite all the reports of higher rates of memory errors with hypnosis, some carefully controlled studies have found no difference in memory accuracy between hypnotic and waking subjects (McCann & Sheehan, 1988; Barnier & McConkey, 1992). In addition, Spanos et al. (1989) found that asking leading questions without hypnosis produced as many errors as using imagery (such as asking subjects to imagine zooming in on an aspect of a scene) during hypnosis. These contradictory findings can be explained by the next factor in memory reliability – that of hypnotizability.

HYPNOTIZABILITY AND MEMORY

Early studies of memory and hypnosis either used only highly hypnotizable subjects or a mixture of those with different levels of hypnotizability. When the hypnotizability of subjects was controlled, some significant differences in their memory reliability during hypnosis emerged. Table 1 shows the results of some studies in which subjects witnessed an event and then were given false memory suggestions during hypnosis. Memory was then tested during and shortly after hypnosis to see how well the pseudomemories persisted.

These studies clearly indicate that as hypnotizability increases, so does the likelihood of a pseudomemory being reported in the laboratory during and after hypnosis. The studies in Table 1 and others (Spanos & McLean, 1985-86; McConkey, Labelle, Bibb, & Bryant, 1990; Sheehan et al., 1991b) show that 30% to 80% of moderately or highly hypnotizable normal subjects will create pseudomemories during laboratory hypnosis in response to suggestions. Only 24% to 34% of them will retain these memories shortly after hypnosis has ended.

Several studies were specifically designed to test if hypnosis or hypnotizability was responsible for the production of pseudomemories (McConkey et al., 1990; Barnier & McConkey, 1992). When high and low hypnotizable groups were tested in and out of hypnosis, each group had no difference in the production of pseudomemories between hypnosis and waking states. More high than low hypnotizable subjects reported pseudomemories, regardless of whether they were in hypnosis or were waking.

The most important conclusions of these studies are:

1. High hypnotizability is a more important factor than hypnotic induction in producing laboratory reports of suggested pseudomemories.
2. High hypnotizability and hypnosis combine to produce the highest rates of pseudomemories.

A recent study of abused women that measured use of absorption ability (an analogue of hypnotizability) and use of imagination found that those with earlier childhood abuse used significantly more fantasy than those abused after age seven (Bryant, 1995). Abused subjects also used significantly more fantasy than non-abused control women. Thus, DD patients, with their early abuse histories and high hypnotizability, may use more fantasy. Studies of fantasy in normal highly hypnotizable subjects may help us understand DD patients' memory processes.

Wilson and Barber (1982) studied 27 highly hypnotizable psychologically normal women, 26 of whom were "fantasy prone personalities" (FPP's) – people who fantasize vividly during a large part of their waking experience. They were compared with a control group of less hypnotizable women.

As children, FPP's truly believed that they became the characters of the books they read, or that their dolls or toys were actually alive. Controls merely pretended these things.

All FPP's experienced their fantasies with hallucinatory vividness in all sensory modalities. Two-thirds of them could do this with their eyes open. In 70%, the visual hallucinations of fantasies interfered with driving a vehicle. Their fantasies and memories seemed located outside their heads. In 96%, memories were relived in a hallucinatory way (similar to flashbacks). Eighty-five percent tended to confuse memories of their fantasies with their life memories. Ninety-two percent of FPP's had experienced changes in body functions because of fantasies. This included orgasm in 75%, symptoms of physical illnesses in 73%, and body temperature changes in sixty-five percent. Their emotional reactions to their fantasies and to life events were equally intense. Frequent vivid hypnagogic or hypnopompic hallucinations occurred in sixty-four percent.

The fantasies of these highly hypnotizable women resemble the flashbacks and "body memories" of DD patients. The difficulty which these normal women had in sorting out hallucinatory fantasy from actual memories is a caution to therapists in dealing with what appear to be vivid memories in DD patients. Vividly experienced material, complete with intense emotion and bodily sensations is not a guarantee that historical material is being remembered. This is especially true when hypnosis is employed. Interview technique with such patients needs to be rigorously non-suggestive and memories should be approached with neutrality.

EARLY AUTOBIOGRAPHICAL MEMORY ACCURACY

The reliability of returned memories of early childhood trauma is limited by the offset of "infantile amnesia" – the inability to remember experiences from the first few years of life. Thus, acquaintance with the autobiographical memory literature is necessary in order to assess the reliability of extremely early abuse memories.

Many studies of the offset of childhood amnesia asked normal adults to date their earliest memories (Kihlstrom & Harackiewicz, 1982; Dudycha & Dudycha, 1941). On the average, earliest memories recalled by adults were age three and a half years, but the accuracy of their *reported* age during these memories is not always known. The few studies of early memories of important or traumatic events may be a better guide to the age at which abuse memories may first be retained.

Adults' memories of the birth of a sibling drop off steeply below age 3.5 years but some subjects can remember births at age two (Sheingold & Tenney, 1982; Usher & Neisser, 1993). Usher & Neisser (1993) studied college students' memories of a possibly traumatic experience – hospitalizations before age five. Their mothers provided verification of memory accuracy. Hospitalization was remembered by no

one below age two, by about 60% of those age two, and by more than 80% of those ages three to five. Mothers felt that 61% of the details of the memories were accurate and 12% were inaccurate. The ability to recall the event was greater when the emotions associated with the event were also recalled, regardless of whether the emotions were pleasant or unpleasant.

Terr's (1988) work on memories of 20 children who had experienced a variety of documented traumas before age five years provides data from populations with experiences similar to those reported by DD patients. Terr found that full verbal recall of trauma before age 36 months was rare (2 of 11 subjects), but two-thirds of children ages 36 to 58 months had full verbal recall. Spot (partial or vague) verbal memories existed in three of eleven children traumatized before age 36 months. Accuracy of verbal memories did not correlate with age or with single versus repeated events. Verbal memories were generally accurate but could undergo defensive additions and deletions later in childhood. Single episodes of early trauma were better verbally recalled than repeated ones (Terr, 1988; 1991).

Terr found that *behavioral* memories were virtually universal (18 of 20 subjects), were accurate to the documented details of the traumas, were independent of the presence of verbal memories, and were seen in children exposed to trauma before age 12 months. She concluded that ages 28 to 36 months is a cut-off point for retaining full verbal memories of trauma, but that behavioral memories can be established at any age.

The major conclusions from studies of the childhood recollections of adults and children are that age three to four is usually the earliest period of life remembered. More stressful events may be remembered from age two, but accurate adult (verbal) memories from before age two have not been reliably demonstrated. Experiences from ages three to four seem to be forgotten at higher rates than events after age five. There is no evidence that childhood or adulthood events associated with negative emotions are better remembered than other emotion-arousing events, but events that trigger emotions seem to be better remembered than other events. Bizarre events seemed to be remembered more accurately by children but routine events appear to blur together into a script memory of how things usually occur (Pillemer & White, 1989).

Cognitive developmental changes appear to explain much of early childhood amnesia, which may be related to the immaturity of the hippocampus. Terr believes that the cut-off age for full verbal memory is related to the ability to construct grammatically ordered phrases and to the brain's growth spurt about age three. Early memory does appear limited by inadequate verbal expression; memory reports by children below age two are usually highly structured by the promptings of adults. Pillemer & White's (1989) overview of the literature concluded that children seem to have a dual

memory system. From birth onward, behavioral and affective memories exist which are initially poorly organized and evoked by situations (seeing a familiar person) or affects. As language develops, a second language-based memory system emerges. This system's memories can be retrieved intentionally. Most researchers have concluded that memory is socially constructed as children learn from adults how to form memory and describe memory narratives.

Fictitious early memories can be created by suggestion and by hearing family stories. A famous case is Piaget who had a vivid "memory" of his own non-existent early kidnapping because of hearing numerous family stories about it. When he was grown, his nurse admitted faking the story but his vivid memories persisted (Piaget, 1962). Similarly, Terr (1988) reported a similar false verbal memory in one of her 20 subjects who appeared to have no memory of an early and often discussed family trauma.

Loftus (1993) and Hyman et al. (1995) reported on the creation of memory reports in 25% of children and 20-25% of college students after persistent attempts by their family to persuade them of non-existent familiar types of childhood autobiographical events (being lost in a mall, spilling punch at a wedding). The persistence and detail involved in Loftus' and colleagues' suggestive efforts appear to far outstrip the alleged efforts of therapists to convince patients that they were abused. Still, these accounts point to the power of persuasion and fantasy in creating detailed recollections.

The 'lost in the mall' study has been cited by critics of recovered memory as evidence that abuse memories can be created de novo by therapists. However, this finding of implanted memory reports probably does not generalize to unpleasant or unfamiliar events which are more similar to child abuse than a memory of being lost. When Pezdek (1995) conducted a memory implantation experiment with late adolescents she found that 15% reported false memories of being lost in a mall, but none could be induced by family members to falsely remember being given an enema. While memories can be implanted, care must be used in generalizing from benign memories to ones similar to child abuse.

Since DD patients at times report very early recollections or recollections in which sensory information is more prominent than verbal narratives, it is important to know if abuse memories can survive the transition to verbal memory organization. There is little data on this, but Hewitt (1995) recently described two cases of pre-verbal sexual abuse at ages two years one month and two years seven months. The abuse caused noticeable symptoms at the time the abuse occurred, but the children were unable to report the abuse until ages four and six. It appears that pre-verbal abuse memories can survive the transition to language use, but their fate in later years is unknown.

Overall, the literature on autobiographical memory of normal childhood indicates that therapists should be cautious about the accuracy of memories from before age three. Memories from before age two are unlikely to be historical,

but at times can be accurate, although not very detailed. Verbal recollections from before age one are very unlikely to be actual memories. This literature indicates that behavioral memories of early trauma persist, regardless of the presence of verbal memories. "Body memories" may represent a form of early non-verbal memory but they also can be part of the fantasies of highly hypnotizable persons. Research literature does not shed light on the persistence of early dissociated memories.

OTHER FACTORS AFFECTING MEMORY RELIABILITY

Source Monitoring and Reality Monitoring.

Have you ever related a news item to a friend only to learn that it was your friend who gave you the news in the first place? This is an example of *source misattribution* – forgetting the source of a memory and attributing it to another source. If you had paid better attention to where you learned the news you would have been engaging in *source monitoring*.

In numerous laboratory studies of memory, some subjects have incorporated information suggested after an eyewitness event (usually slides or a videotape) into their memory of the event. Some subjects continue to report having seen the suggested items even after being told that the items were only suggested to them (see Belli & Loftus, 1994, for a review of source monitoring studies). People can also mix up memories of visual and auditory information. For example, Intraub and Hoffman (1992) showed pictures to subjects and read paragraphs of information to them. Some paragraphs were about the pictures and others were about events for which there were no pictures. When tested later, 38% of adults claimed to have seen photos of events that they had only heard about in the paragraphs. When asked to identify the photos they had seen, 29% of subjects identified photos of information they had only heard about.

The ability to determine if information originated externally or internally (as in imagination) is called *reality monitoring* (Johnson, 1988). Studies of adults and children indicate that as many as 39% of adults confuse memories of simple acts that they imagined doing with things they actually did (Anderson, 1984). Before late childhood, children are more likely than adults to be unable to distinguish events they imagined or actually performed (Foley & Johnson, 1985; Lindsay, Johnson, & Kwon, 1991). However, neither adults nor children are likely to confuse what they imagined doing and what they actually saw other people do. Using imagination to rehearse events results in more likelihood that they will be confused with real events, probably because imaginative rehearsal involves visualization that causes imagined events to be more vivid, and thus more like real memories.

Active source monitoring reduces memory errors when material is suggested to people after an event (Lindsay & Johnson, 1989). This includes actively asking subjects to try

to remember the source of the memory – was it personally seen, experienced, described by someone else, suggested, fantasized, dreamed, or from hypnosis? Examining the details of memories may help distinguish those from internal and external sources since memories of experienced events are richer in sights, sounds, and visualization of spatial relationship than imagined events. Imagined events include more thinking and reflecting, but dreams tend to lack such cognitive aspects (Johnson, Foley, Suengas, & Raye, 1988). Johnson et al. (1988) found that people determine the source of events based on the quality of the details of a memory. This explains how rehearsed or perceptually detailed fantasies (such as those of Wilson & Barber's highly hypnotizable subjects) can be mistaken for memories.

One problem with the studies on source and reality monitoring of memories is the bland nature of the research events. Tracing a picture onto paper is a completely different experience from the terror of a child's rape, so there is no guarantee that the sources of abuse recollections will be as easily mistaken as those of laboratory events. Nevertheless, this literature implies that therapists should avoid asking people to guess or tell a story about what might have happened to them. Similarly, imaginative visualization (including zooming in on scenes during hypnosis) to fill in the details of an incomplete memory may contribute to memory errors. Certainly, this literature implies that we should routinely help our patients actively examine the quality and source of their memories.

Social Demands and Compliance

It is well known that research subjects often defer to the implied authority of experimenters, cooperating even to the point of administering painful shocks to other persons. When events are suggested in laboratory tests on memory, memory errors arise partly from a desire to comply with the authoritative person who makes the suggestions. Barnier & McConkey (1992) found that when an experimenter appeared to end the test and informally asked subjects about their memories, reports of suggested false memories dropped. In another study, when subjects were tested in the lab and then telephoned the next day, pseudomemory reports dropped from 50-80% to 5-13% (McConkey, Labelle, Bibb, & Bryant, 1990). Highly hypnotizable subjects, in particular, appear sensitive to the subtle expectations of interviewers.

Studies of college students and of children show that they often tell interviewers what they think the interviewer wants to hear. This is particularly true of children who tend to view adults as knowledgeable and credible (Ceci & Bruck, 1993). Critics of recovered memories point out that if therapists (who are perceived as having authority) convey an expectation that abuse lies beneath a patient's symptoms, this may influence the production of recollections of abuse. While therapists need to create a situation where any subject may

be broached in therapy, this literature implies we should be careful about verbal and non-verbal expectations of a particular outcome. Since severe dissociative disorders are overwhelmingly associated with abuse histories, we must strike a balance between suggestiveness and educating patients about known causes for their illnesses.

The Interviewer's Beliefs and Attitudes

Implicit demands for compliance in a therapy situation are likely related to the beliefs of the therapist, which, in turn, influence the style and content of interviews. Can this affect the accuracy of memory reports?

Petit, Fegan, and Howie (unpublished 1990, quoted in Ceci & Bruck, 1993) gave adult interviewers accurate information, inaccurate information, and no information about a staged event that had been witnessed by three and five-year-old children. The adults were instructed to interview the children to find out what happened and were told to avoid using leading questions. Despite this, 30% of all questions were leading and half were misleading. Interviewers with inaccurate information about the event used four to five times as many misleading questions as other interviewers. They also obtained the most inaccurate information from the children.

While the data from this experiment cannot be applied strictly to interviews with adults, they point to the role of mistaken assumptions in generating leading questions – and leading questions are notorious for affecting memory reports. The implication for therapists is that suspicions about the presence of abuse should not become assumptions. If abuse is suspected, it should trigger robust self-monitoring of interview techniques to avoid suggestiveness or the creation of implicit demands that an abuse history be produced.

One possible attitude for an interviewer is skepticism. What affects might this have on the reliability of memory reports? Spanos et al. (1989) tested this by interviewing subjects who had seen a videotape of a robbery and a subsequent misleading videotape of another person (who was not the robber) being arrested. The latter was designed to tempt them to misidentify this person as the robber. After subjects identified the robber from a group of mug shots, cross-examination interviews attempted to get subjects to change their minds about which suspect they chose. The cross examination reduced memory errors (i.e., having picked the wrong mug shot) the most in subjects who had initially been interviewed with hypnosis or with guided imagery. Two types of cross examiner attitudes were compared: a stringent interview that more harshly challenged the subject's veracity, and a gentle one that allowed the subject to change the mug shot identification without feeling shamed. The gentle interview was the most effective in causing subjects to give up false mug shot identifications. Similar experiments with children are reviewed in Ceci & Bruck (1993).

These studies indicate that memory errors produced by hypnosis or leading questions do not always persist, and that

a supportively skeptical attitude can minimize maintenance of such errors. For therapists, this can mean informing patients of the unreliability of memory and mutually exploring the credibility of the memory in a supportive way. Clearly, harsh skepticism of memories is neither therapeutic nor technically helpful.

Interview Techniques

The most basic rule of psychiatric interviewing – avoiding leading questions – stems from awareness that leading questions elicit inaccurate information. As discussed above, hypnosis often compounds the error-inducing effect of leading questions, but as Spanos et al. (1989) found, leading questions alone can be as effective as imagery alone or hypnotic imagery in eliciting pseudomemories. Do interview techniques other than leading questions and imagery diminish the reliability of memory reports?

When Moston (1987) asked subjects the same question twice in an interview, accurate responses dropped from 69% to 54%. The accuracy of young children was most affected, dropping by 21% compared to a drop of 9-16% for older children and adults.

Repeating open-ended questions (essentially free recall) is least problematic. Numerous laboratory studies have found that free-recall is the type of verbal inquiry least distorted by hypnosis. When hypnotic pseudomemories are induced in highly hypnotizable subjects, subsequent interviews in the waking state produce the least memory errors with recognition (10%), more with free-recall (17%), and yet more with specific non-leading questions (32%), (Sheehan et al., 1991a,b). Unfortunately, the most accurate memory testing technique, recognition, is rarely available to persons with delayed abuse memories.

Poole and White (1991) studied the effects of repeated questions on eyewitness memory reports in children and adults. Subjects were asked the same open-ended and yes-no questions three times in the same interview and again in another interview. Repeating open-ended questions or yes-no questions within and across interviews rarely resulted in inaccuracies (6% each for children above age five and for adults) or retractions, even when the questions were repeated a total of six times. Asking adults the same questions in the second interview one week later resulted in more total and more accurate information than was obtained in the first interview.

The finer details of how questions are worded can also affect the reliability of laboratory memory reports. The leading questions in Putnam's (1979) eyewitness study simply used "the" as opposed to "a" in asking about what was seen. Changing this one word significantly increased hypnosis-associated memory errors. Similarly, the choice of adjectives or verbs can affect the reliability of memory reports. Loftus and Palmer (1974) asked subjects questions about the speed of a car in a film of an accident, using the words "hit" and

"smashed" to describe the collision. The word "smashed" resulted in higher estimations of speed and more (erroneous) claims of having seen broken glass.

The critical question for dissociative disorder clinicians is whether highly hypnotizable DD patients and persons recovering from childhood abuse are more susceptible to memory errors than laboratory populations. No studies have addressed this with DD patients, but Leavitt (in press) compared the suggestibility of women inpatients who were not abused with inpatients who had solely recovered memories of childhood sexual abuse. Using the Gudjonsson Suggestibility Scale, Leavitt found that the recovered memory group scored lower on suggestibility than the other patients, and were in the low range of suggestibility for the general population. Of critical importance, suggestibility did not correlate with DES scores, indicating that persons with higher levels of dissociation are automatically more suggestible.

The Passage of Time

The dimming of memory with time is a well-known fact in normal populations. Accordingly, critics have raised questions about the accuracy of detailed memories of abuse that return after decades. Since it is difficult to study long-delayed or dissociated trauma memories in the laboratory, it is not known exactly how much they deteriorate in vividness or detail.

Since flashback memories are often delayed and/or traumatic memories, studies of their accuracy may shed light on the accuracy of delayed child abuse memories that return in the form of flashbacks. Frankel's (1994) review of 55 articles on flashbacks concluded that the content of flashbacks includes memories and imagination. For example, Grunert et al. (1988) found that 60% of flashbacks in persons with hand injuries depicted an injury which was worse than the one the patient had suffered. In PTSD patients, Rainey et al. (1987) found lactate-induced flashbacks with historically impossible content. Thus, time-delayed memories that return as vivid flashbacks are not necessarily accurate.

Since critics of delayed memories believe that the persistence of delayed abuse memories is the product of therapist persuasion, it is useful to know if laboratory-induced pseudomemories persist over time. Unfortunately, laboratory studies of memory rarely utilize long follow-up periods (i.e., greater than several weeks), so little helpful data exist.

Sheehan, Statham, and Jamieson (1991b) tested subjects two weeks after inducing pseudomemories (with and without hypnosis) for a video of a bank robbery. While pseudomemories persisted, their frequency was markedly reduced (from 35-50% just after the suggestions were made to 2-32% of subjects two weeks later). They persisted extremely poorly with video recognition testing (less than 3% of subjects), and were most frequent in highly hypnotizable persons who had been hypnotized. Testing memory with structured questions resulted in more persistence of pseudomemory reports

than was found with free recall. Without reinforcement, some pseudomemories of bland events persist, but this literature does not shed light on pseudomemories over longer periods or those which are reinforced by suggestions in subsequent sessions. Use of open-ended questions and avoidance of hypnotic memory recall can minimize persistence of pseudomemories if they arise in therapy.

CONCLUSIONS

What Memory Research Does Not Tell Us

Research on memory has many limitations. Laboratory studies of memory reliability and suggestibility vastly outnumber in vivo studies but have rarely studied traumatic or stressful events. When they have involved traumatic material, it has not been personally experienced trauma. Most studies have tested peripheral rather than central memory events and seldom have tested memory more than two weeks after an event. Ninety-two percent of eyewitness studies conducted between 1974 and 1982 involved simulated events and college students (Koss et al., 1995). Few studies involve trauma victims or delayed memories. Only one prospective study of delayed memories of corroborated abuse has been conducted (Williams, 1994). Thus, the applicability of laboratory memory studies to delayed abuse memories is quite uncertain. Laboratory research has not shed much light on the general accuracy or suggestibility of *delayed* memories of trauma, nor has it told us how to distinguish between accurate and inaccurate memories.

What Memory Research Does Tell Us

Given the above caveats, what can this research teach clinicians working with dissociative disorder patients? Studies on hypnosis and memory provide considerable cautions about its use for memory recovery. In non-traumatized subjects, hypnosis results in more true and more false memories and boosts the confidence of the subject in both types of memory. Highly hypnotizable subjects, such as those with dissociative disorders, are most likely to report pseudomemories with laboratory hypnosis. Hypnosis appears to impair source monitoring by lowering the criteria that subjects use for reporting a perception as a memory and blurring distinctions between hypnotic and pre-hypnotic information. Memory during laboratory hypnotic age regression appears highly susceptible to even mild suggestions, and this technique does not overcome infantile amnesia. When hypnosis is used, free recall distorts memory reports the least.

Although high rates of pseudomemories produced in laboratory hypnosis studies are a warning to clinicians to be careful about believing the accuracy of hypnotic memories, we should also be aware that these data are the product of suggestive interviews by interviewers who were probably viewed by subjects as knowing the correct answers to recently viewed eyewitness material. While therapists are seen as authorita-

tive, they are also usually understood not to know the "correct answer" about the details of their patients' childhoods. Also, Kluft's 1995 study indicates that hypnotically assisted memories in therapy are frequently corroborated. Hypnotic pseudomemories involve compliance with the hypnotist but are not always believed by subjects and generally do not persist in the presence of discerning questioning. Hypnotic memory research does not indicate that all forms of therapeutic hypnosis are problematic, but certainly discourages age regression or hypnosis for memory recovery.

Studies (McConkey et al., 1990; Barnier & McConkey, 1992) indicate that high hypnotizability is a more important factor than hypnotic induction in producing reports of suggested pseudomemories. The vivid fantasies in some highly hypnotizable subjects are not easily distinguishable from memories. These data imply that dissociative disorder therapists need to help highly hypnotizable patients monitor the source and accuracy of their often vivid internal images. Patients should be educated about the possibility of mistaking fantasies and dreams for memories.

Autobiographical memory research indicates that the reliability of adulthood memories prior to age three is uncertain. More stressful events may be remembered from age two, but accurate adult memories from before age two have not been reliably demonstrated. Because early events that triggered emotions seem to be better remembered than other events, trauma memories from before age three may be better retained than general studies of autobiographical memory would indicate. Certainly more research is needed in corroboration of early abuse memories. Autobiographical pseudomemories can be created in response to detailed and persistent suggestions. This implies that the therapist should be particularly careful about making positive suggestions to patients that they were abused as children. Research supports a division of memory into early behavioral memories and later verbal ones. "Body memories" may represent early non-verbal memory or activation of somato-sensory aspects of memory stored in the right frontal lobe (Rauch et al., 1996), but they also can be part of the fantasies of highly hypnotizable persons. They should not, in and of themselves, be considered more accurate than verbal memories.

Certainly, research supports the concept that ordinary eyewitness memory is suggestible. However, the few studies of emotionally charged personal experiences have found them resistant to suggestion (Cutshall & Yuille, 1992). Research has not yet directly addressed the suggestibility of delayed memories of abuse. Ordinary memory appears more suggestible when people are encouraged to imagine participation in events, and when no efforts are made to help them clarify the source of their memories. Memory is suggestible when there is a desire or implicit demand for compliance with the interviewer, when an interviewer has perceived authority, and when the interviewer has a particular belief about what happened. Interviewer bias may influence

memory by contributing to leading questions. These studies suggest that the positive transferences of therapy, combined with a belief that abuse is the sure cause of some symptoms, may lead to memory errors.

Research indicates that memory suggestibility in non-clinical populations can be minimized by careful adherence to open-ended questions, attention to the fine details of question wording, gentle skepticism about memory productions, and use of source monitoring questions to help patients identify the source of their memories. Harsh skepticism appears quite unhelpful in correcting memory errors.

RECOMMENDATIONS FOR CLINICIANS

In light of these studies, my recommendations to clinicians are: Keeping in mind that corroboration is the only reliable way to distinguish accurate and inaccurate memories, collect collateral data (medical, mental health, legal, and other records) that might help you evaluate the accuracy of memory reports. As soon as the patient's clinical situation permits, encourage your dissociative disorder patients to seek corroboration of abuse. Be aware of the influence of positive transference and your own verbal and non-verbal expectations on memory suggestibility. A good way to do this is to carefully monitor your own interview technique to maximize open-ended questions (tape a session every several months and listen as if you were supervising yourself). In the absence of trauma memories, monitor yourself to avoid conveying verbal or non-verbal expectations of a traumatic cause for symptoms.

Avoid reinforcing the accuracy of hypnotic (or other memories) unless you have corroboration. Patients often push us to resolve their ambivalence about their memories by asking us to tell them that we believe the memories. Such a request is often presented in terms of pressure that we prove our trustworthiness and care for the patient by acquiescing. This is better managed by discussing this on a process level. Ultimately, patient autonomy is better served by patients deciding whether to believe their memories.

Early in therapy (or as soon as possible with established patients), educate your patients about the vagaries of memory so they come to expect mutual critical evaluation of emerging memories. Discussing this ahead of time diminishes the all-too-ready sense of not being believed when memories are examined after they have arisen. Ask your patients to carefully evaluate the source, quality of details, and internal consistency of their memory productions. Routinely ask whether the memory is something they had always known or is a new one. Ask how the memory arose, paying attention to whether dreams or twilight sleep states were involved (implying less reliability). Listen to memories with an open but intellectually critical attitude.

When possible, avoid hypnotic memory recall, especially with age regression. If hypnosis is used, monitor your inter-

view technique strictly to maximize free recall and minimize leading questions. Approach very early memories with cautious neutrality, educating your patients on the limits of autobiographical memory. Be alert for patients slipping into spontaneous trances; they may be more likely to make memory errors and may be more suggestible during these times. Don't assume that flashbacks, vivid memories, or "body memories" automatically represent historical reality. Don't mistake a patient's confidence in a memory for accuracy. Above all, with humility and compassion, educate your patients about memory. After all, they are the ones who ultimately must decide the veracity of their own productions. ■

REFERENCES

- Anderson, R.E. (1984). Did I do it or did I just imagine doing it? *Journal of Experimental Psychology: General*, 113, 594-613.
- Barnier, A.J., & McConkey, K.M. (1992). Reports of real and false memories: The relevance of hypnosis, hypnotizability and context of memories. *Journal of Abnormal Psychology*, 101, 521-527.
- Bernheim, H. (1888/1973). *Hypnosis and suggestion in psychotherapy*. New York: Aronson.
- Belli, R.F., & Loftus, E.F. (1994). Recovered memories of childhood abuse: A source monitoring perspective. In S.J. Lynn & J.W. Rhue (Eds.) *Dissociation. Clinical and theoretical perspectives* (pp. 415-433). New York: Guilford Press.
- Bliss, E.L. (1984). Spontaneous self-hypnosis in multiple personality disorder. *Psychiatric Clinics of North America* 7:135-148.
- Bowman, E.S. (1995a). Delayed memories of child abuse: Part I: An overview of research findings on forgetting, remembering, and corroborating trauma. *DISSOCIATION*, 8, 4.
- Bryant, R.A. (1995). Fantasy proneness, reported childhood abuse, and the relevance of reported abuse onset. *International Journal of Clinical and Experimental Hypnosis*, 43, 184-193.
- Ceci, S.J., & Bruck M. (1993). Suggestibility of the child witness: A historical review and synthesis. *Psychological Bulletin*, 113, 403-439.
- Cutshall, J., & Yuille, J.C. (1992). Field studies of eyewitness memory of actual crimes. In E. Winograd & U. Neisser (Eds.), *Affect and accuracy in recall: Studies of "flashbulb" memories* (pp. 97-124). New York: Cambridge University Press.
- Dudchya, G.G., & Dudchya, M.M. (1941). Childhood memories: A review of the literature. *Psychological Bulletin*, 4, 517-518.
- Foley, M.A., & Johnson, M.K. (1985). Confusions between memories for performed and imagined actions: A developmental comparison. *Child Development*, 56, 1145-1155.

- Frankel, F.H. (1994). The concept of flashbacks in historical perspective. *International Journal of Clinical and Experimental Hypnosis*, 42, 321-336.
- Frischolz, E.J. (1985). The relationship among dissociation, hypnosis, and child abuse in the development of multiple personality disorder. In Kluft, R.P. (Ed.), *Childhood antecedents of multiple personality disorder* (pp. 100-126). Washington, DC: American Psychiatric Association Press.
- Grunert, B.K., Devine, C.A., Matloub, H.S., Sanger, J.R., & Yousif, N.J. (1988). Flashbacks after traumatic hand injuries: Prognostic indicators. *Journal of Hand Surgery*, 13A, 125-127.
- Hewitt, S.K. (1995). Preverbal sexual abuse: What two children report in later years. *Child Abuse and Neglect*, 18, 821-826.
- Hyman I.E., Husban T.H., & Billings F.J. (1995). False memories of childhood experiences. *Applied Cognitive Psychology* 9:181-197.
- Intraub, H., & Hoffman, J.E. (1992). Reading and visual memory: Remembering scenes that were never seen. *American Journal of Psychology*, 105, 101-114.
- Johnson, M.K. (1988). Reality monitoring: An experimental phenomenological approach. *Journal of Experimental Psychology: General*, 117, 390-394.
- Johnson, M.K., Foley, M.A., Suengas, A.G., & Raye, C.L. (1988). Phenomenal characteristics of memories for perceived and imagined autobiographical events. *Journal of Experimental Psychology: General*, 117, 371-376.
- Kihlstrom, J.F., & Harackiewicz, J.M. (1982). The earliest recollection: A new survey. *Journal of Personality*, 50, 134-148.
- Kluft, R.P. (1995). The confirmation and disconfirmation of memories of abuse in DID patients: A naturalistic clinical study. *DISSOCIATION*, 8:253-258.
- Koss, M.P., Tromp, S., & Tharan, M. (1995). Traumatic memories: Empirical foundations, forensic and clinical implications. *Clinical Psychology: Science and Practice*, 2:111-132.
- Labelle, L., Laurence, J.R., Nadon, R., & Perry, C. (1990). Hypnotizability, preference for an imagic cognitive style, and memory creation in hypnosis. *Journal of Abnormal Psychology*, 99, 322-228.
- Labelle, L., & Perry, C.W. (1986). Pseudomemory creation in hypnosis. Paper presented at the annual convention of the American Psychological Association, Washington, D.C. Cited in Sheehan, P.W., et al. (1991). Ambiguity in suggestion and the occurrence of pseudomemory in the hypnotic setting. *Australian Journal of Clinical and Experimental Hypnosis*, 19, 1-18.
- Laurence, J.R., Nadon, R., Nogrady, H., & Perry, C. (1986). Duality, dissociation, and memory creation in highly hypnotizable subjects. *International Journal of Clinical and Experimental Hypnosis*, 34, 295-310.
- Laurence, J.R., & Perry, C. (1983). Hypnotically created memory among highly hypnotizable subjects. *Science*, 222, 523-524.
- Leavitt, F. (in press). False attribution of suggestibility to explain recovered memory of childhood sexual abuse following extended amnesia. *Child Abuse and Neglect*.
- Lindsay, D.S., & Johnson, M.K. (1989). The eyewitness suggestibility effect and memory for source. *Memory and Cognition*, 17, 349-358.
- Lindsay, D.S., Johnson, M.K., & Kwon, P. (1991). Developmental changes in memory source monitoring. *Journal of Experimental Child Psychology*, 52, 297-318.
- Loftus, E.F. (1993). The reality of repressed memories. *American Psychologist*, 48, 517-537.
- Loftus, E.F., & Palmer, J.C. (1974). Reconstruction of automobile accident destruction: An example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior*, 13, 585-589.
- McCann, T., & Sheehan, P.W. (1988). Hypnotically induced pseudomemories - sampling their conditions among hypnotizable subjects. *Journal of Personality and Social Psychology*, 54, 339-346.
- McConkey, K.M., Labelle, L., Bibb, B.C., & Bryant, R.A. (1990). Hypnosis and suggested pseudomemory: The relevance of test context. *Australian Journal of Psychology*, 42, 197-205.
- Moston, S. (1987). The suggestibility of children in interview studies. *First Language*, 7, 67-78.
- Nash, M. (1987). What, if anything, is regressed about hypnotic age regression? A review of the empirical literature. *Psychological Bulletin*, 102, 42-52.
- Pezdek, K. (1995, November). *What types of false childhood memories are not likely to be suggestively planted?* Paper presented at the meeting to the psychonomic society, Los Angeles.
- Piaget, J. (1962). *Plays, dreams and imitation in childhood*. New York: Norton.
- Pillemer, D.B., & White, S.H. (1989). Childhood events recalled by children and adults. *Advances in Child Development and Behavior*, 21, 297-340.
- Poole, D.A., & White, L.T. (1991). Effects of question repetition on the eyewitness testimony of children and adults. *Developmental Psychology*, 27, 975-986.
- Putnam, W.H. (1979). Hypnosis and distortions in eyewitness memory. *International Journal of Clinical and Experimental Hypnosis*, 27, 437-478.

- Rainey, J.M., Aleem, A., Ortiz, A., Argon, V., Pohl, R., & Berchou, R. (1987). A laboratory procedure for the induction of flashbacks. *American Journal of Psychiatry*, 144, 1317-1319.
- Rauch, S.L., van der Kolk, B.A., Fiesler, R.E., Alpert, N.M., Orr, S.P., Savage, C.R., Fischman, A.J., Jenike, M.A., & Pitman, R.K. (1996). A symptom provocation study of post-traumatic stress disorder using positron emission tomography and script-driven imagery. *Archives of General Psychiatry*, 53, 380-387.
- Rubenstein, R., & Newman, R. (April 1954). The living out of "future" experiences under hypnosis. *Science*, 119, 472-473.
- Sheehan, P.W., Statham, D., & Jamieson, G.A. (1991a). Pseudomemory effects over time in the hypnotic setting. *Journal of Abnormal Psychology*, 100, 39-44.
- Sheehan, P.W., Statham, D., & Jamieson, G.A. (1991b). Pseudomemory effects and their relationship to level of susceptibility to hypnosis and state instruction. *Journal of Personality and Social Psychology*, 60, 130-137.
- Sheingold, K., & Tenney, Y.J. (1982). Memory for a salient childhood event. In U. Neisser (Ed.), *Memory observed* (pp. 201-212). New York: Freeman.
- Spanos, N.P., Burgess, C.A., & Burgess, M.F. (1994). Past-life identities, UFO abductions, and Satanic ritual abuse: The social construction of memories. *International Journal of Clinical and Experimental Hypnosis*, 42, 433-446.
- Spanos, N.P., Gwynn, M.I., Comer, S.L., Baltruweit, W.J., & de Groh, M. (1989). Are hypnotically induced pseudomemories resistant to cross-examination? *Law and Human Behavior*, 13, 271-289.
- Spanos, N.P., & McLean, J. (1985-86). Hypnotically created pseudomemories: Memory distortions or reporting biases? *British Journal of Experimental and Clinical Hypnosis*, 3, 55-159.
- Spanos, N.P., Menary, E., Gabora, N.J., DuBreuil, S.C., & Dewhirst, B. (1991). Secondary identity enactments during hypnotic past-life regression: A sociocognitive perspective. *Journal of Personality and Social Psychology*, 61, 308-320.
- Stalnaker, J.M., & Riddle, E.E. (1932). The effects of hypnosis on long-delayed recall. *Journal of General Psychology*, 6, 429-440.
- Terr, L. (1988). What happens to early memories of trauma? A study of twenty children under age five at the time of documented traumatic events. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27, 96-104.
- Terr, L. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry*, 148, 10-20.
- Usher, J.A., & Neisser, U. (1993). Childhood amnesia in the beginnings of memory for four early life events. *Journal of Experimental Psychology: General*, 2, 155-165.
- Van der Hart, O., & Nijenhuis, E. (1995). Amnesia for traumatic experiences. *Hypnos*, 22, 73-86.
- Whitehouse, W.G., Orne, E.C., Orne, M.T., & Dinges, D.F. (1991). Distinguishing the source of memories reported during prior waking and hypnotic recall attempts. *Applied Cognitive Psychology*, 5, 51-59.
- Williams, L.M. (1994). Recall of childhood trauma: A prospective study of women's memories of child sexual abuse. *Journal of Consulting and Clinical Psychology*, 62, 1167-1176.
- Wilson, S.C., & Barber, T.X. (1982). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A.A. Sheikh, (Ed.), *Imagery: Current theory, research, and applications* (pp. 340-387). New York: Wiley & Sons.