Cognitive Underpinnings of Recovered Memories of Childhood Abuse

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Abstract Recent research on recovered memories of childhood sexual abuse has shown that there are at least two types of recovered memory experiences: those that are gradually recovered within the context of suggestive therapy and those that are spontaneously recovered, without extensive prompting or explicit attempts to reconstruct the past. These recovered memory experiences have different origins, with people who recover memories through suggestive therapy being more prone to forming false memories, and with people who report spontaneously recovered memories being more prone to forgetting prior instances of remembering. Additionally, the two types of recovered memory experiences are linked to differences in corroborative evidence, implying that memories recovered spontaneously, outside of suggestive therapy, are more likely to correspond to genuine abuse events. This chapter highlights the background of the recovered memory debate, summarizes recent studies with individuals reporting recovered memory experiences and points towards applications in the justice system and in clinical practice.

Keywords Cognitive mechanisms • False memories • Recovered memory • Suppression

Can people forget an emotionally traumatic event such as childhood sexual abuse (CSA)? Is it possible that such memories are being blocked from consciousness and is it possible that we might recall them many years later? In the past decade, this issue has led to a controversy within the fields of psychology and psychiatry, with the veracity of such recovered memories often being a reason for discussion (for a review, see e.g., Brewin, 2007; McNally & Geraerts, 2009). On one side of this debate, there are scholars who claim that the most traumatic memories can be

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blocked from awareness (e.g., Brown, Scheflin, & Hammond, 1998). On the other side of the debate are researchers who have long studied the fallibility of memory and who state that traumatic memories are imprinted in memory and are very rarely forgotten. Also, they point out that there are clear reasons to be cautious in interpreting recovered memories (e.g., Ceci & Loftus, 1994; Kihlstrom, 2004; McNally, 2003). That is, when people remember, they may engage in reconstructing an experience, thereby adding details to a memory that may not have taken place. Additionally, people sometimes confuse the source of their memories. For example, events that were seen in a movie, heard in a story or even imagined may be confused with events that have truly happened. Such confusion is especially dangerous when people enter certain forms of therapy aimed at recovering memories. The use of therapeutic techniques as hypnosis, guided imagery, dream interpretation, and other suggestive treatments may create a situation in which it may be difficult for a person to distinguish fact from fiction (Loftus & Davis, 2006).

Unlike most controversies in psychology, this one has spread far beyond the clinic and laboratory: It has influenced legislation and outcomes in civil suits and criminal trials (Geraerts, Raymaekers, & Merckelbach, 2008). Famous cases of recovered memory have received intense media attention because of their legal implications. Also, fictionalized cases often appear in films or books with a recovered memory as a main plot device. For example, the popular book by Nicci French, *The Memory Game* (1997), describes how the main character Jane Crane recovers memories from her childhood, instigated by suggestive techniques of her therapist. Based on these memories Crane falsely accuses her father in law of having committed a murder. Clearly, stories such as this one influence people's opinion about the veracity of recovered memories and the contribution of therapy.

The purpose of this chapter is to discuss how cognitive studies on forgetting and false memories are relevant to the debate surrounding recovered memories. In particular, recent research examining the cognitive functioning of people reporting recovered CSA memories will be reviewed. This line of research encourages the assumption of a balanced view of recovered memories: Recovered memories are not all true or all false. Instead, one should inspect the context of recovery and the cognitive mechanism involved in a recovered memory in order to evaluate its veracity.

Forgetting

Although it sounds counterintuitive to most people, it is helpful to forget. For instance, without a way of screening out our unwanted thoughts and memories, we would be overwhelmed by all of the information surrounding us. As a result, people are motivated to forget. Motivated forgetting refers to the idea that not all of our forgetting is haphazard but may instead be related to our motives and intentions. Psychologists have studied this phenomenon with a method known as the directed forgetting procedure, in which participants are instructed to forget recently encoded materials.

Directed Forgetting

There are two variants of the directed forgetting procedure, and each targets somewhat different psychological processes (for reviews, see Anderson, 2005; Golding, 2005). In a typical procedure of *item method directed forgetting*, subjects view a series of words, to be encoded for a later memory test. Immediately following each word, subjects receive an instruction to either continue to remember the word, or to forget it. After completion of the list, subjects are given a test of all to-be-remembered *and* to-be-forgotten words. The typical result in this paradigm is that final test performance for to-be-forgotten words is significantly impaired, relative to to-be-remembered items, which are recalled quite well. This result may be due to an encoding deficit for to-be-forgotten words. Subjects may rehearse the words until they receive an instruction to either remember or forget the word. At this point, they either terminate encoding and rehearsal when having received an instruction to forget, or continue to rehearse the word when instructed to remember the word (Basden, Basden, & Gargano, 1993).

In contrast to the item method, *list method directed forgetting* presents the forget instruction halfway through the list. The instruction is unexpected and therefore subjects are likely to continue their best efforts to encode the words right until the forget instruction is given. A final test is then given and subjects are asked to disregard the earlier instruction to forget, and to remember as much as they can. In this procedure, it is unlikely that subjects rely on a strategy in which they do not encode the words in the first part of the list. That is, they do not receive any mention that they will have to forget anything until the entire first half of the list has been presented, and therefore have every apparent motive to encode items as effectively as possible. The results from this list method suggest that this procedure does not rely on motivated encoding deficits, but rather a retrieval deficit (Basden et al., 1993). Consistent with this idea, list method directed forgetting effects typically disappear when recognition memory is tested, showing that forgotten items remain intact in memory. Accordingly, this method shows that when people are no longer inclined to remember recently encountered and well-encoded events, they can intentionally lower the accessibility of those events.

Is there any evidence that such processes can be engaged to forget emotional experiences? Amanda Barnier and co-workers (2007) examined this issue by exploring whether subjects would show directed forgetting of recently recalled autobiographical memories. They asked subjects to generate a personal memory in response to 24 different cue words. The cue words were designed to elicit neutral, positive and negative autobiographical memories. Importantly, after the first 12-item word list was presented, subjects either received an instruction to forget the previous items as being simply practice, or that they should remember them, as they might be asked to recall the memories later on. Subjects then generated another 12 memories in response to 12 new cue words. Next, subjects were asked to mention all of the memories that they had generated in both lists. In several experiments, Barnier et al. found solid directed forgetting effects. These effects occurred for neutral, positive

as well as for negative memories. Hence, it seems that directed forgetting effects can take place for autobiographical memories.

Several studies have begun to investigate directed forgetting in people with post-traumatic stress disorder (for a review, see Geraerts & McNally, 2008), as well as recovered memories of abuse (this chapter). Also, several other paradigms have been developed to examine how people attempt to push unwanted memories out of awareness (see Anderson & Huddleston, 2012, this volume).

Repressive Coping

Research on motivated forgetting has shown that people are able to push unwanted memories out of mind. Interestingly, some people are so skilled at pushing memories out of mind, that they are especially good at forgetting unhappy experiences. So-called "repressors" tend to recall fewer negative events from their lives (Myers & Brewin, 1994) and report low levels of anxiety and stress, even when physiological measures indicate strong emotional reactions to a certain person or situation. Myers and colleagues (Myers, Brewin, & Power, 1998) examined whether repressors are skilled at inhibiting retrieval by using a directed forgetting procedure in which subjects had to study pleasant or unpleasant words. Results showed that repressors were more adept than nonrepressors at using retrieval inhibition to block recall of recently studied unpleasant words, even though there were no differences between the two groups in blocking recall of pleasant words.

Repressors have also been found to be superior to nonrepressors in intentionally suppressing personal emotional events from their past. Barnier, Levin, and Maher (2004) made use of a thought suppression paradigm (see Wegner, Schneider, Carter, & White, 1987) to examine this issue. Repressors and nonrepressors were instructed to identify a recent event that made them either proud or embarrassed during an imagining period. After this period, they were told either to avoid thinking about this event or to think of anything at all. Finally, in the expression period, subjects were instructed to think of anything. Subjects monitored occurrence of the target thought throughout these periods. For the proud event, all subjects avoided target thoughts when instructed to suppress them. However, for the embarrassing event, repressors reported fewer thoughts than nonrepressors, even when *not* instructed to suppress them. Moreover, regardless of instructions, repressors did not show an increase in thoughts related to the embarrassing event after having suppressed this event, an effect that is typically found in this task (i.e., the post-suppression rebound effect). It seems like repressors are natural suppressors, skilled in avoiding negative thoughts about an embarrassing event. But does such a repressive coping style come with a cost? May natural repressors experience more unwanted intrusions in the days after having intentionally avoided such thoughts?

My colleagues and I (Geraerts, Merckelbach, Jelicic, & Smeets, 2006) examined this issue by instructing repressors to keep a 7-day diary reporting their positive and negative intrusions, after having suppressed these intrusions in the lab, similar to the

study of Barnier and colleagues. Repressors showed fewer negative intrusions than nonrepressors in the laboratory session. Over the 7-day period, however, they reported the *highest* number of negative intrusions. These results seem to suggest that repressive coping might indeed be adaptive in the short run, leading to fewer unwanted thoughts. In the long run, though, having a repressive coping style seems maladaptive, increasing the frequency of intrusions even more. Recently, research in my laboratory also found that repressors show overgeneral memories for negative autobiographical events. That is, when asked to retrieve a negative memory, repressors are not able to list specific details of the events, relative to nonrepressors, and relative to the retrieval of positive events (Geraerts, Dritschel, Kreplin, Rasmussen, & Waddington, 2010). This overgeneral retrieval style has been linked to depressive symptoms as well (Williams et al., 2007). Clearly, these findings seem to suggest that a repressive coping style is *not* the most sensible way for coping with emotionally negative events.

False Memories

It is clear from the research described above that people can forget unwanted memories. Besides forgetting, people sometimes come up with details that never happened to them. Indeed, memory more closely resembles a synthesis of experiences than a replay of a videotape (Schacter, 2001). In the most dramatic instance, people may even come to believe memories of experiences that never occurred to them. In some cases these false memories pertain to traumatic events, such as childhood abuse.

At first sight, the idea that someone would remember a traumatic experience that has never occurred seems rather unlikely. Yet, people have recollected all sorts of unlikely events. To name just a few examples: Individuals claim to have recovered memories of satanic ritual abuse (Scott, 2001), previous lives (Geraerts, Wanmaker, & Dijkstra, 2011; Meyersburg, Bogdan, Gallo, & McNally, 2009), and even abduction by space aliens (Clancy, 2005). Most of these memories have surfaced with the encouragement of mental health professionals.

Types of False Memory Paradigms

The controversy regarding the possibility of such false memories, especially memories of CSA, has sparked great interest in memory distortion among cognitive psychologists. These psychologists have conducted at least three types of relevant studies. The first began to appear before the debate over false memories, whereas the other two emerged in response to it. The first type of study relates to how misinformation given to subjects after they witness an event may distort their memory for details of the event. Studies of Elizabeth Loftus have shown that giving witnesses misleading information after an event can distort their memory reports of that event.

The so-called *misinformation effect* occurs when subjects believe having seen items that were misleadingly suggested (for a review, see Loftus, 2005).

The second type of false memory study involves the creation of false memories of having encountered certain stimuli. A study by Henry Roediger and Kathleen McDermott (1995) inspired considerable research on this type of false memory. Reviving a task introduced by James Deese (1959), they conducted a study that involved what has come to be known as the Deese-Roediger-McDermott (DRM) paradigm. Their work showed that it is surprisingly easy to create false memories among college students in the laboratory. In their experiments, subjects studied a list of words that are strong semantic associates of a word not presented on the list – the *critical lure*. This lure captures the gist of the entire list. For example, one list contained words related to the topic of sleep, such as *bed*, *rest*, *awake*, *tired*, and *dream*. However, the word *sleep* was not mentioned. Roediger and McDermott tested whether subjects would "remember" having heard words that had been only suggested, not presented (i.e., the critical lures), like *sleep*. Intriguingly, on subsequent tests, many of their subjects falsely recalled and recognized having seen these critical lures. Subsequent DRM studies have shown how easily false memories develop in the laboratory and how long lasting they can be in a variety of subject populations (for a review, see Gallo, 2006).

The third type of false memory study examined whether it is possible to implant false autobiographical memories. Researchers have falsely suggested to people that they had experienced a childhood event when in fact it never happened. Examples include being lost in a shopping mall for an extended period of time, being hospitalized overnight, and spilling a punch bowl at a family wedding (Hyman, Husband, & Billings, 1995; Loftus & Pickrell, 1995). In each of these studies a significant minority of subjects came to accept all or part of the suggestion. Interestingly, highly emotional false events have been suggested as well: People have been persuaded that they experienced awful events as children, such as almost having drowned (Heaps & Nash, 2001) or having been a victim of a vicious animal attack (Porter, Yuille, & Lehman, 1999). Taken together, these studies show the power of this type of suggestion. It has led many subjects to believe or sometimes even remember in detail events that did not occur. Across many studies that now have used this procedure, about 30% of subjects on average have created either partial or complete false memories (Lindsay, Hagen, Read, Wade, & Garry, 2004).

Another witty technique for planting false memories involves the use of fake photographs (Wade, Garry, Read, & Lindsay, 2002). Wade and colleagues showed subjects a doctored photograph consisting of a real photograph of the subject and a relative pasted into a prototype photograph of a hot-air balloon. Importantly, family members confirmed that the event never occurred. By the end of the experiment, consisting of three interviews, about 50% of the subjects had partially or clearly remembered the false hot-air balloon ride.

These studies and many more like them clearly show that people can develop false beliefs and memories for events that did not happen to them. But might such false beliefs and memories have repercussions on attitudes and behavior? Studies from Bernstein, Laney, Morris, and Loftus (2005) provide some clues: They falsely

suggested to their subjects that they had become ill after eating a certain food (e.g., hard-boiled eggs, strawberry ice cream) when they were children and found that this false suggestion increased subjects' confidence that the critical item had indeed happened. Moreover, these false beliefs had consequences for their subjects, such as decreased self-reported preference for the target food and an increased anticipated behavioral avoidance of the target food.

These studies demonstrate that false beliefs can influence attitudes. A recent study examined whether false beliefs or memories can also produce real changes in *behavior* (Geraerts, Bernstein, et al., 2008). In this study, it was suggested to subjects that, as children, they had become ill after eating egg salad. After this manipulation, a significant minority of subjects came to believe they had experienced this event. More importantly, this newfound autobiographical belief was accompanied by a significantly lower consumption of egg salad sandwiches, both immediately and 4 months after the false suggestion. Indeed, other work now also seems to suggest that false memories can indeed have behavioral consequences (Scoboria, Mazzoni, & Jarry, 2008).

Applying False Memory Paradigms

Clearly, a large collection of studies on the creation of false memories has conclusively shown that misinformation can distort memory reports, non-presented stimuli can be lured into memory, and suggestions may make people incorrectly believe to have experienced a childhood event when they actually did not. To what extent are these conclusions relevant to the question of whether people develop false memories of traumatic events?

Pezdek and Lam (2007) for example, claim that it is inappropriate to generalize directly from false memory research that did not involve planting entirely new events in memory (e.g., falsely remembering non-presented words in the DRM paradigm) to real world situations that do involve planting entirely new events in memory. They point out that it has not been shown that the mechanisms that operate in a DRM paradigm apply to memory for planting entirely new events in memory, especially memory for childhood abuse (see also DePrince et al., 2012, this volume). Yet, objections to laboratory demonstrations of the misinformation effect as irrelevant to the real world of psychotherapy may have less force nowadays than they originally did as researchers have responded to these objections by showing that it is possible to implant false memories of a diversity of experiences (for a review, see Wade et al., 2007). Also, cognitive and personality measures such as working memory capacity and dissociative experiences, are correlated with the propensity to make memory errors. Likewise, individuals' sensitivity to the DRM effect has been found to correlate positively with individuals' sensitivity to false memories in different paradigms, including false autobiographical memories (for a review, see Gallo, 2006). Moreover, and ironically, the most impressive demonstrations of the creation of false memories have arisen in clinical settings, not in the laboratory. If one considers

that trivial manipulations in the laboratory can create memory distortion, these effects may be even more pronounced in the context of suggestive therapy in which therapist and patient join forces to uncover memories of abuse. Over many sessions, and with the aid of techniques such as guided imagination and hypnosis, false memories of childhood sexual abuse have arisen.

Laboratory Studies of Persons with Recovered Memories

One outstanding aspect of the recovered memory debate has been the absence of any research on cognitive functioning of people reporting recovered memories. Until recently, scholars on both sides of the debate have argued their case by relying on evidence from either clinical experience, surveys of abuse survivors, or studies with college students (McNally, 2003). Laboratory studies on the cognitive functioning of people reporting recovered memories have been surprisingly lacking. Only recently have researchers begun to examine how people with recovered CSA memories perform on tests of forgetting, as well as tests of false memories.

Directed Forgetting

Some clinical theorists like Leone Terr (1991) maintain that sexually abused children cope by developing an avoidant encoding style that enables them to disengage their attention from threatening cues, thereby impairing their memory for these cues. If people reporting recovered memories have indeed acquired this cognitive style, then this should be evident in the laboratory. As the item method directed forgetting (see above) taps encoding abilities, McNally and colleagues examined the ability of people with recovered CSA memories to forget trauma-related words (McNally, Clancy, & Schacter, 2001; see also McNally, 2012, this volume). Subjects were shown a series of words on a computer screen, one at a time. Each word appeared for 2 s and was replaced by a cue instructing the subject either to remember or to forget the previous word. Three categories of words were used: trauma-related (e.g., *abuse*), positive (e.g., *sociable*), and neutral (e.g., *banister*). Immediately after this encoding phase, subjects were asked to write down as many words as they could remember, regardless of the original instructions to forget or remember. Interestingly, McNally et al. found *normal* memory functioning in the recovered memory group. That is, they recalled to-be-remembered words more often than to-be-forgotten words, regardless of word valence. Moreover, they showed neither worse nor better memory for trauma-related words relative to control subjects without a history of abuse. So, people with recovered memories did not exhibit the predicted superior ability to avoid the encoding of material related to abuse.

Might their reported forgetting of childhood abuse be attributed to superior retrieval inhibition instead of avoidant encoding? To examine this possibility, both

McNally's and my laboratory used the list method directed forgetting procedure (see above). Subjects were told they were taking part in an emotional judgment task, with no hint that they had to remember words. After presentation of the first list, they were then told that what they had had been just practice and they could forget about those words. The second word list was than presented for which subjects were asked to rate the emotionality of each word. In a surprise recall task, subjects were asked to recall as many words as possible from *both* lists. Both laboratories found that subjects recalled more words from the second list than from the first list which had been followed by the forget instruction. Also, all groups recalled trauma words more often than positive words. Interestingly, people reporting recovered CSA memories did not exhibit superior forgetting of trauma versus positive words, relative to control subjects (Geraerts, Smeets, Jelicic, van Heerden, & Merckelbach, 2006; McNally, Clancy, Barrett, & Parker, 2004). This finding suggests that people with recovered memories are not superior at inhibiting retrieval of trauma-related words. So, again no support for the idea that people with recovered memories of CSA are better forgetters of trauma cues than are people who report either never forgetting their abuse or report never having been abused.

Creating False Memories

Might it be the case then that scholars do have a point in arguing that at least some recovered memories might be false recollections, often induced by suggestive therapeutic techniques? Is it that people reporting recovered memories – or at least some of them – may be more prone to developing false memories, and is this evident in the laboratory? To address this possibility, McNally's and my laboratory used the DRM paradigm (see above) to elicit false memories in people reporting recovered memories. In doing so, the idea was tested that people reporting recovered CSA memories would be more prone to falsely remembering and recognizing non-presented words. That is, they would have more difficulty differentiating between what they really saw and what was automatically activated due to the presentation of semantically related words. As hypothesized, we found that as a group, people with recovered CSA memories more often falsely recalled and recognized the non-presented critical lures, relative to people with continuous CSA memories, and people with no history of abuse (Clancy, Schacter, McNally, & Pitman, 2000).

Despite clear demonstrations of this DRM effect, Freyd and Gleaves (1996) questioned whether results on this task could be related to real world examples of false memories. They correctly pointed out that false memories often involve highly emotional events such as childhood abuse, whereas the DRM paradigm typically involves neutral words. As a result, the frequency of false recall or recognition in the DRM paradigm may be lowered when trauma-related material would be used, as these words are more distinctive. My colleagues and I tested this prediction by including trauma-related material in the DRM paradigm as well. Lists were centred on critical lures such as assault and abuse. Results showed that false recall and

recognition performance was higher in individuals with recovered CSA memories. This effect was especially profound in the recognition modality (Geraerts, Smeets, Jelicic, van Heerden, & Merckelbach, 2005).

What do these findings tell us about the authenticity of reports of recovered abuse memories? Several researchers have suggested that deficits in source monitoring may lead to false memories. People with such deficits are prone to making incorrect judgements about the origins or sources of information (Johnson, Hashtroudi, & Lindsay, 1993; Johnson, Raye, Mitchell, & Ankudowich, 2012, this volume). Relating this to the DRM paradigm, one needs to make a distinction between what was presented and what was activated besides the presented material (i.e., critical lures). That is, the presentation of semantically associated words may activate a gist (a general idea about the concept of the list), which makes it possible for individuals to rely more on memory for this gist than on the verbatim memory traces of the presented material (Brainerd & Reyna, 1998). Accordingly, when subjects think of the critical lure at study because it automatically comes to mind, at test they must differentiate between these memories of the gist versus memories of the studied words. The above results suggest that at least some individuals with recovered memories may have a source monitoring deficit for all types of material, whether the content is neutral or trauma-related (see also, McNally, Clancy, Barrett, & Parker, 2005). They may be more likely to accept a memory of the gist as being a genuine memory. So, it seems plausible that at least some of those with recovered memories developed false memories of abuse via a subtle interaction between already existing source monitoring difficulties and suggestive therapeutic techniques.

A Step Outside the Laboratory

This kind of work in the laboratory may lead one to conclude that recovered memories are sometimes fictitious. On the other hand, work outside the laboratory has also shown that the opposite may happen, that recovered memories may reflect genuine abuse events. Jonathan Schooler and colleagues (e.g., Schooler, Bendiksen, & Ambadar, 1997; Shobe & Schooler, 2001) published several case descriptions of individuals who experienced the discovery of apparently long-forgotten memories of abuse. Memories that were all recovered outside the context of therapy. Importantly, corroborative information was found for these cases. In some of these cases something fascinating was found: The partners of the women who reported a recovered memory experience mentioned that their spouses had talked about the abuse, *prior* to the alleged recovered memory experience. Schooler et al. proposed that such cases demonstrate a forgot-it-all-along (FIA) mechanism, which can lead to the forgetting of prior instances of recollecting a past event. During the recovered memory experience, the traumatic event may be recalled in a qualitatively different way from past occasions of remembering it. For example, it may be recalled more completely, more episodically, or as abuse per se rather than as some more innocent category of childhood event. As such a recollection is often paired with shock and

surprise, individuals' assessment of their prior knowledge may be influenced. They might reason, "If I am this shocked and surprised now, then I must have completely forgotten about the experience" (p. 283). Hence, these case studies put forward the possibility that at least some recovered memories reflect genuine abuse episodes about which people simply forgot their prior thoughts.

Forgetting Prior Remembering

Is it possible that some people with recovered memories are not truly recalling the abuse event for the first time in years, but are forgetting prior cases of thinking about it? If so, how would this forgetting of prior recall come about? To explore this possibility, my colleagues and I (Geraerts, Arnold, et al., 2006) investigated whether people reporting recovered memories were more likely to underestimate their prior remembering. In a FIA task, subjects with recovered or continuous memories of abuse were asked to generate an autobiographical memory from their childhood in response to each of 25 cue phrases describing common childhood events (e.g., being home alone, going to the dentist). For some events, they were asked to focus on emotionally positive aspects of the event, but for others, they were instructed to concentrate on the negative aspects. Two months later subjects returned to the laboratory and generated the same memories. This time, however, subjects were instructed to retrieve the events in the same emotional frame as before, but for other events, they were instructed to retrieve the event in the opposite emotional frame. So, for example, if they had recalled "being home alone without parents" in a positive light during the first visit (e.g., having lots of freedom), they recalled the same event again, but focused on the negative aspects (e.g., being afraid of a thunderstorm or feeling lonely). Finally, subjects returned to the lab for a third time 2 months later and recalled all of the events yet again. Now subjects had to recall each event in the same emotional frame in which they had recalled it during their first visit. Critically, after recalling each of the memories, subjects told the experimenter whether or not they had recalled that same memory during the second visit. Would people be able to remember having recalled the event during the second visit? Would this depend on whether it was recalled in the same "emotional context" both then and now? Interestingly, when the emotional framing on the final visit differed from the one on the second visit, subjects showed a pronounced tendency to forget having remembered the event during that second visit, relative to when the emotional framing remained the same. So, simply shifting the way that people thought about the very same memory (whether positively or negatively) from one occasion to the next made them forget thinking about the memory before. Strikingly, this tendency was significantly greater for people reporting recovered memories than it was for people reporting continuously available memories, or people without any history of abuse.

So it seems that one reason why people may have a recovered memory experience is that they simply forget having remembered the event before, just as was observed in the case studies reported by Schooler et al. (1997). They may forget

prior cases of remembering if, for example, the mental context when they are having their recovered memory experience differs dramatically from the mental context on prior occasions in which they thought of the event. By this view, it's not that people have forgotten the event all those years; it is that they simply can't remember having previously remembered the experience.

Two Types of Recovered Memory Experiences

When we review these laboratory findings, we can see different interpretations of recovered memories. People with recovered memories show an increased tendency towards false memory formation. In contrast, they also show pronounced underestimation of prior remembering. How can these phenomena be integrated? Careful inspection of recovered memory experiences suggests that they reveal themselves as two qualitatively different types; and that additional investigation of these types appears to provide an answer. In one type, people come to realize that they are abuse survivors, commonly attributing current life difficulties to their forgotten memories of CSA. In this type of recovered memory experience, abuse events are mostly slowly recalled over time, often instigated by suggestive therapeutic techniques such as guided imagery, dream interpretation, and hypnosis. In the other type of recovered memory experience, people are unexpectedly reminded of events that they believe they had not thought about for many years. Mostly, individuals recollect the abuse when encountering salient retrieval cues (e.g., a book or movie in which CSA is clearly depicted, being in the same setting as where the abuse happened, or events involving the person's children; see also Brewin, 2012, this volume, and Anderson & Huddleston, 2012, this volume, for issues pertaining to spontaneous recovery of CSA). This kind of recollection clearly differs from the one in which the person is gradually recalling the abuse, often in the course of suggestive therapy. If so, one expects it to be easier to find corroborative evidence for spontaneously recovered memories than for memories recovered through suggestive therapy.

To examine this issue, my colleagues and I invited subjects who had always remembered the abuse, had a recovered memory of it that took place during suggestive therapy, or had a recovered memory spontaneously, outside of therapy (Geraerts et al., 2007). After filling out a questionnaire about their memory of the abuse events, subjects were queried systematically about sources of corroboration. Independent raters who were blind to group assignment then, based on the sources provided by the participants, sought to determine if the abuse could be corroborated. A memory was considered corroborated if either (a) another individual reported learning about the abuse within a week after it happened, (b) another individual reported having been abused by the same perpetrator, or (c) the perpetrator admitted to committing the abuse. Strikingly, memories that were recovered spontaneously, outside of therapy, were corroborated at a rate (37%) that was quite comparable to that observed for people with continuously accessible memories of abuse (45%).

In contrast, memories recovered through suggestive therapy could not be corroborated (0%). Although the lack of corroboration does not imply that these recovered memories are false, it does recommend caution in interpreting memories recovered in suggestive therapy.

Differing Origins of Recovered Memory Experiences

The foregoing findings suggest that recovered memories may originate in different ways for people who recollect the abuse event spontaneously, and for those who recall it through suggestive therapy. We hypothesized that memories recalled through suggestive therapy may be more likely to be the product of suggestion, a possibility consistent with (but not demanded by) the lack of corroboration. People recalling memories spontaneously, by contrast, may have recalled the event previously, but may have simply forgotten the fact that they have recalled it before. To examine these possibilities, my colleagues and I tested people with spontaneously recovered memories, people with memories recovered through suggestive therapy, and people with continuously available memories on a simplified version of the above mentioned forgot-it-all-along task (Geraerts et al., 2009). Strikingly, only those subjects who had recovered their memories spontaneously showed exaggerated forgetting of prior remembering; subjects who recovered their memories in suggestive therapy or subjects with continuous memories showed no such pattern. When tested on a simple false memory task (DRM task), however, only people who recovered their memories in suggestive therapy showed exaggerated false memory formation; neither the spontaneously recovered group nor people with continuous access to their memories showed such a pattern.

These results strongly support the idea that memories recovered in suggestive therapy and recovered spontaneously may have fundamentally different origins. As a group, people who report having recovered their memories in suggestive therapy generally show a pronounced tendency to incorrectly claim that they have experienced events when they have demonstrably not experienced them as measured by the DRM test. To the extent that this pattern on the DRM task is indicative of a broader deficit in monitoring the source of one's memories, this finding suggests that such reports of recovered memories should be viewed with a cautious eye, as they may reflect an interaction of suggestive therapy with pre-existing source monitoring deficits. In contrast, people who believe they have spontaneously recovered a memory of CSA show no evidence at all of heightened susceptibility to the creation of false memories. This group does, however, show a pronounced tendency to forget prior incidences of remembering when those prior retrievals have taken place in a different retrieval context. So, even when prior accessibility of simple events studied in the laboratory can be objectively demonstrated, this group, as a whole, was significantly more likely to deny having remembered those events on previous occasions. These findings suggest that this group, as a whole, may simply be failing to remember their prior thoughts about a *genuine* incidence of CSA.

Conclusion

The debate about recovered memories of childhood abuse has received a great deal of attention, in part because of concern over the possibility that some proportion of recovered memory experiences may be false. Accordingly, cognitive researchers have examined how people may forget certain experiences on the one hand, and how people may come to remember events that have not happened to them on the other hand. Research on the cognitive functioning of people reporting recovered CSA memories has yielded evidence for at least two types of recovered memory experiences, each with their specific origin.

False recovered memories might arise when people participate in prolonged periods of trying to recollect an abuse event, instigated by highly suggestive memory recovery techniques. False memories of abuse have indeed been induced by such techniques, emphasizing the role of suggestion and source monitoring errors in shaping what people believe has happened to them. When a suggestive therapist is convinced of the existence of repressed abuse memories, and when a client starts to remember certain events, it may become difficult to comprehend that the memory may not be real, particularly when it provides a suitable explanation for current symptomatology. Indeed, memories of CSA that are recovered in suggestive therapy appear, in general, to be less open to corroboration in comparison to memories that are recovered spontaneously outside of therapy. Although the lack of corroboration does not indicate that a recovered memory is false, research suggests that people recovering memories under such circumstances are in fact more suggestible. This pattern of results raises the possibility that some of these recovery events may not reflect real abuse, but rather the unintentional result of overly suggestive therapeutic techniques. Other types of therapy that do not involve suggestion are not necessarily subject to this concern (see e.g., Andrews et al., 1999; Brewin, 2012, this volume). Thus, some cases of recovered memories may in fact be false memories that are, in effect, unwittingly implanted by therapists who actually intend to help the patient.

On the other hand, some recovered memories of sexual abuse have proven to be real events that can be corroborated, sometimes even with a confession of the perpetrator. Indeed, memories recovered spontaneously appear to be corroborated at the same rate as continuously accessible memories, suggesting that many of these experiences reflect real abuse events. People recovering memories under these circumstances exhibit an especially pronounced tendency to forget their prior experiences of remembering, and also show superior ability to suppress thoughts about anxious autobiographical memories.

Research on cognitive mechanisms underlying recovered memories has advanced our understanding on the validity of recovered memory reports and how such memories come about. Now that the recovered memory debate is decreasing in intensity and divergence, it will be important that research findings on recovered memories will be applied in the justice system and in clinical practice. Exciting future research on recovered memories on a wide range of empirical and theoretical fronts will only continue to advance our understanding of recovered memories and will hopefully yield a broader image of how one can determine on several levels the (in)accuracy of such memories.

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