

Research Report

The Reality of Recovered Memories

Corroborating Continuous and Discontinuous Memories of Childhood Sexual Abuse

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ABSTRACT—Although controversy surrounds the relative authenticity of discontinuous versus continuous memories of childhood sexual abuse (CSA), little is known about whether such memories differ in their likelihood of corroborative evidence. Individuals reporting CSA memories were interviewed, and two independent raters attempted to find corroborative information for the allegations. Continuous CSA memories and discontinuous memories that were unexpectedly recalled outside therapy were more likely to be corroborated than anticipated discontinuous memories recovered in therapy. Evidence that suggestion during therapy possibly mediates these differences comes from the additional finding that individuals who recalled the memories outside therapy were markedly more surprised at the existence of their memories than were individuals who initially recalled the memories in therapy. These results indicate that discontinuous CSA memories spontaneously retrieved outside of therapy may be accurate, while implicating expectations arising from suggestions during therapy in producing false CSA memories.

There are individuals who say that they had completely forgotten their traumatic life experiences, only to recover them years later. How accurate are such discontinuous memories? Over the past 15 years, this issue has given rise to one of the most intense controversies to afflict the fields of psychiatry and psychology

(e.g., Loftus, 1997; McNally, 2003; Schacter, 1995). This debate has focused mainly on the validity of discontinuous memories of childhood sexual abuse (CSA). Whereas some researchers have forcefully argued that such reports should be taken at face value (Brown, Schefflin, & Whitfield, 1999), others have countered with equal vehemence that they are likely to be the product of therapist suggestion (e.g., Kihlstrom, 2004; Loftus, 2003).

A relatively straightforward approach for assessing the authenticity of discontinuous CSA memories is to examine whether such memories can be corroborated independently, by other individuals who were abused by the same perpetrator, learned of the abuse soon after it occurred, or confessed to having participated in the abuse themselves. Although such evidence does not incontrovertibly demonstrate the validity of any single memory report, the existence of independent corroborative evidence certainly increases the likelihood that a memory report corresponds to an actual event. Using this approach, Schooler and his coworkers (e.g., Schooler, Ambadar, & Bendiksen, 1997; Schooler, Bendiksen, & Ambadar, 1997; Shobe & Schooler, 2001) described corroborative evidence for several case studies of individuals who experienced the “discovery” of apparently long-forgotten memories of abuse. These case studies demonstrated that it is possible to find corroborative information for the memories of individuals who report suddenly remembering that they had been victims of abuse. However, these findings do not preclude the possibility that other discontinuous memories are illusory. It is important to bear in mind that none of the discontinuous memories in these cases were recalled in the context of aggressive recovered-memory therapy employing visualization, suggestion, hypnosis, or other techniques in order to facilitate the recall of unknown “memories” of abuse. It has frequently been suggested that such techniques are a major

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source of false CSA memories (Lindsay & Read, 1994, 1995; Loftus, 2004; McNally, 2003).

Despite the huge controversy surrounding this issue, no systematic large-scale research has examined the relative likelihood of corroborative evidence for continuous versus discontinuous CSA memories. Accordingly, in the current study, we attempted to determine whether continuous CSA memories (i.e., abuse memories characterized as having been continuously accessible to the individual) differ from discontinuous memories that are alleged to have been forgotten and subsequently recalled (for different approaches, see Andrews et al., 2000; Dalenberg, 1996; Williams, 1995). If discontinuous memories are inherently unreliable, then continuous memories should be more likely to be corroborated than discontinuous memories, regardless of whether the latter are recalled in or out of therapy. If discontinuous memories are inherently reliable, then they should not differ from continuous memories in their likelihood of corroboration. Finally, if discontinuous memories can be the product of therapist suggestions, then discontinuous memories recalled in therapy should be less likely to be corroborated than those recalled out of therapy.

We also examined whether other characteristics of memory descriptions predict the relative likelihood that CSA memories will be corroborated. A systematic comparison of the factors associated with corroborated versus noncorroborated memories can speak to mechanisms that could produce false memories. For example, if deliberate efforts to find suspected CSA memories increase the likelihood of generating false memories, then reported surprise at the discovery of a CSA memory may be predictive of whether or not the memory will be corroborated (Schooler, 2001).

METHOD

For this study, which is part of an ongoing research project on discontinuous memories (Geraerts, Arnold, et al., 2006, Geraerts, Smeets, Jelicic, Merckelbach, & van Heerden, 2006; Geraerts, Smeets, Jelicic, van Heerden, & Merckelbach, 2005), we used advertisements in local newspapers to recruit subjects with discontinuous and continuous CSA memories. Subjects were told that the research pertained to CSA and memory. CSA was defined as physical sexual contact ranging from fondling to penetrative acts until the age of 12. We screened subjects during an initial telephone conversation so as to acquire similar sample sizes for the two groups. After subjects provided written informed consent, a semistructured memory interview was conducted to verify their classification into one of the two groups. The discontinuous-memory group consisted of 57 subjects (mean age = 41.5 years, $SD = 10.3$; 45 women) who responded affirmatively to the question, "Do you believe there was a time when you were completely unaware that you had ever been a victim of abuse, and that you later came to remember that you were abused?" We note that just because these individuals said

they forgot the memory does not mean they necessarily did (Geraerts, Arnold, et al., 2006, Schooler, Ambadar, & Bendiksen, 1997). The continuous-memory group comprised 71 subjects (mean age = 41.2 years, $SD = 11.5$; 55 women) who responded negatively to this question.

Subjects were asked to complete an extensive questionnaire that assessed their memory for the abuse. Additionally, for subjects reporting discontinuous memories, the questionnaire covered the degree of prior memory loss, the context of the memory recovery, and the use of specific techniques during recovered-memory therapy.

After subjects had completed the questionnaire, they were systematically queried regarding their knowledge of potential corroborative evidence for the alleged abuse events. Subsequently, two raters, blind to the type of abuse memories of each subject, interviewed other individuals who could potentially provide corroborative evidence for the abuse. Memories were characterized as corroborated if one or more of the following three criteria were met: (a) another individual reported learning about the abuse soon (i.e., within the next week) after it occurred, (b) another individual reported having also been abused by the alleged perpetrator, or (c) another individual reported having committed the abuse him- or herself. For each subject, these blind raters assessed whether or not the testimonies met these criteria. Interrater agreement was .96; disagreements were resolved by discussion.

RESULTS

To examine whether continuous CSA memories and discontinuous memories recalled outside therapy are more likely to be corroborated than discontinuous memories reported to have been recalled in therapy, we divided the discontinuous-memory group into individuals reporting having recalled CSA memories out of therapy ($n = 41$) and individuals reporting having recalled the abuse events in therapy ($n = 16$). There was relatively little difference in the frequency of corroborative evidence between the continuous-memory group (45%) and the recalled-out-of-therapy group (37%), $\chi^2(1, N = 112) < 1$. Moreover, as Table 1 shows, the type of corroboration did not differ between these two groups, $\chi^2(1, N = 112) = .195$. However, there was a marked difference in the frequency of corroborative evidence for discontinuous memories reported to be recalled out of therapy (37%) and discontinuous memories reported to be recalled in therapy (0%), $\chi^2(1, N = 57) = 7.94, p_{rep} = .97$. Indeed, no corroborative evidence could be found for any of the abuse events reported by subjects in the recalled-in-therapy group.

We had hypothesized that discontinuous memories recalled in therapy would be less likely to be corroborated than those recalled out of therapy because the therapy context often involves an explicit effort to unearth forgotten memories (Polusny & Follette, 1996) and thereby raises the opportunity for suggestion. To test this hypothesis, we examined how surprised indi-

TABLE 1
Percentage of Continuous Memories and Discontinuous Memories Recovered Out of Therapy That Were Corroborated by Each of the Three Criteria

Memory type	Type of corroborative information		
	Individuals abused by the same perpetrator	Individuals who learned of the abuse soon after it occurred	Perpetrator him- or herself
Continuous	53% (17)	31% (10)	16% (5)
Recovered out of therapy	60% (9)	27% (4)	13% (2)

Note. Frequencies are given in parentheses.

viduals indicated they were when they recalled the memory of abuse. A logistic regression analysis restricted to the discontinuous-memory group revealed that subjects' reported surprise at the existence of the memory significantly predicted the probability of corroborative evidence, $\beta = .84$, $SE = .39$, $p_{rep} = .91$. Furthermore subjects whose memories were recalled outside therapy were markedly more surprised at the existence of their memories than were individuals whose memories were recalled in therapy, $t(55) = 7.41$, $p_{rep} > .99$. This finding is what would be expected if expectations of recovering long-lost memories are shaped during therapy and lead clients to recall unfounded memories. Further support for the claim that therapists' suggestions contributed to the disparity between the corroboration rates of memories recalled in therapy and memories recalled out of therapy comes from the finding that the recalled-in-therapy and recalled-out-of-therapy groups did not differ with respect to a host of other variables that could in principle contribute to differences in corroboration rate (including reported age of abuse, $\beta = .13$, $SE = .08$, $p_{rep} = .81$; relationship to perpetrator, $\beta = .02$, $SE = .22$, $p_{rep} = .15$; and severity of abuse, $\beta = .32$, $SE = .52$, $p_{rep} = .47$).

DISCUSSION

This study made use of a corroborative approach to examine discontinuous memories of abuse. Although the sources of corroboration were initially based on our subjects' self-reports, the corroborative information itself reflects independent corroboration. Admittedly, this corroborative evidence did not reach the "beyond reasonable doubt" threshold necessary for criminal convictions, as false memories could have been independently corroborated with the criteria used in this study. For example, in cases in which other individuals reported being abused by the same perpetrator (i.e., our second criterion), the corroborating source could have generated a false memory after learning of the subject's reported abuse. Notably, however, the proportion of cases corroborated according to this criterion did not differ

between discontinuous memories recalled outside therapy and continuous memories. This result is evidence against the possibility that the corroboration rate for discontinuous memories was unduly biased by this source of evidence. Moreover, our corroboration criteria are consistent with those used in other rigorous investigations of CSA memories (McNally, Ristuccia, & Perlman, 2005), led to very high agreement between independent raters, and powerfully discriminated between discontinuous memories that on a priori grounds were expected to be more versus less likely to be factual. Altogether, it seems appropriate to conclude that the present corroborative approach offers genuine clues regarding the factors that tend to discriminate authentic CSA memory reports from pseudomemories about CSA.

We found that continuous CSA memories and memories recalled unexpectedly out of therapy were comparable in their likelihood of corroborative evidence. This finding indicates that discontinuous memories are not, as has sometimes been suggested, inherently unreliable. This idea is supported by recent research showing that people reporting spontaneously recovered memories show a striking tendency to forget prior incidences of remembering when those prior retrievals have taken place in a different retrieval context. This finding suggests that this group, as a whole, may simply be failing to remember their prior thoughts about a genuine incidence of CSA (Geraerts et al., 2007).

At the same time, discontinuous memories that were recalled in the context of therapy were significantly less likely to be corroborated than were either continuous memories or discontinuous memories recalled outside therapy. Indeed, of the 16 therapy-based discontinuous memories, not a single one could be corroborated.

The difference in the corroboration rate for discontinuous memories recalled in therapy versus out of therapy does not logically require that memories recalled outside therapy were necessarily more likely to be false. It is possible that some other factor associated with individuals recalling memories in therapy led to the failure to corroborate these memories. For example, factors such as age at the time of the event, relationship to the perpetrator, or severity of the abuse could in principle have contributed to the likelihood of corroboration, independently of whether or not the memories were factual. However, none of these variables differed for discontinuous memories recalled in versus out of therapy. In fact, the only factor besides corroboration that discriminated discontinuous memories recovered in therapy from those remembered out of therapy was surprise at the existence of the memory, with memories recalled in therapy being associated with markedly less surprise. Indeed, degree of surprise proved to be a powerful predictor of corroboration.

The general lack of surprise at the existence of uncorroborated memories recovered in therapy is consistent with the view that expectations (that were generated by the therapist or that led the subject to therapy in the first place) contributed to the

generation of false memories. It is possible, however, that some other factor was responsible for the tendency for individuals to be unsurprised by the existence of memories recovered in therapy. For example, the existence of abuse-related symptoms might have increased the likelihood of seeking therapy and also reduced the experience of surprise when a possible source of those symptoms was discovered. Similarly, it is possible that some undetected factor could have both increased the likelihood that subjects sought therapy and decreased the likelihood that their abuse experiences were corroborated. For example, individuals who failed to disclose their abuse might have been more likely to seek therapy (because of their symptoms) and less likely to have experienced abuse that could be corroborated (because there were no other individuals to whom the abuse was disclosed). Such an account could in principle be one reason for the differential corroboration rate for memories recovered in and out of therapy. However, the present data provide no direct evidence for this hypothesis, as there was no relation between whether or not a memory was recovered in therapy and the frequency with which subjects reported talking about the abuse with other people.

A limitation of our study deserves attention. Our findings pertain to adults recruited through advertisements in local newspapers. Corroborative evidence for abuse events might be different in clinical samples. It is important for future research to examine whether the patterns observed in this study generalize to the many abuse survivors who would be unlikely to actively seek out participation in research associated with their experience.

Together, the current findings suggest that expectations regarding the possible existence of a forgotten memory of abuse contributed to the difference in the corroboration rates for memories recalled in versus out of therapy. Given the correlational nature of the data, it is difficult to assess whether such expectations were caused by the therapists, or whether individuals who suspected they possessed forgotten memories of abuse were more likely than others to seek therapy. However, given that therapists are known to use aggressive recovered-memory techniques (for a review, see Andrews, 2001) and that such forms of suggestion can produce false memories (e.g., Mazzoni, Loftus, Seitz, & Lynn, 1999), it seems likely that one reason memories recalled in therapy were not corroborated is that some of these memories were false memories generated from an interaction between expectations induced in therapy and intrinsic source-monitoring difficulties in the clients (Johnson, Hashtroudi, & Lindsay, 1993). Consistent with this idea, a recent study in our lab has shown that as a group, people who come to believe they have recovered a memory of CSA through suggestive therapy generally show a pronounced tendency to incorrectly claim that they have experienced events when they have demonstrably not experienced those events, as measured by simple, well-documented cognitive tests of false-memory formation (Geraerts et al., 2007).

In sum, this study provides support for both sides of the so-called recovered-memory controversy. Evidence that discontinuous memories can be genuine comes from the observation that discontinuous memories recalled outside the context of therapy were not significantly less likely to be corroborated than were continuous memories. Evidence that discontinuous memories can be false comes from the finding that memories recalled in the context of therapy were markedly less likely to be corroborated than were continuous memories or discontinuous memories recalled outside of therapy. The present results also offer an important clue for discerning which discontinuous CSA memories are likely to be factual. Seemingly forgotten memories whose recall was associated with a sense of surprise were much more frequently corroborated than discontinuous memories whose existence was anticipated. This latter finding suggests that whereas deliberately recovered memories are apt to be suspect, spontaneously discovered memories (Schooler, 2001) are more likely to be true.

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REFERENCES

- Andrews, B. (2001). Recovered memories in therapy: Clinicians' beliefs and practices. In G.M. Davies & T. Dalgleish (Eds.), *Recovered memories: Seeking the middle ground* (pp. 95–151). Chichester, England: John Wiley & Sons.
- Andrews, B., Brewin, C.R., Oehara, J., Morton, J., Bekerian, D.A., Davies, G.M., et al. (2000). The timing, triggers and qualities of recovered memories in therapy. *British Journal of Clinical Psychology*, *39*, 11–26.
- Brown, D., Schefflin, A.W., & Whitfield, C.L. (1999). Recovered memories: The current weight of the evidence in science and in the courts. *Journal of Psychiatry & Law*, *27*, 5–156.
- Dalenberg, C.J. (1996). Accuracy, timing and circumstances of disclosure in therapy of recovered and continuous memories of abuse. *Journal of Psychiatry & Law*, *24*, 229–275.
- Geraerts, E., Arnold, M.M., Lindsay, D.S., Merckelbach, H., Jelicic, M., & Hauer, B. (2006). Forgetting of prior remembering in people reporting recovered memories of childhood sexual abuse. *Psychological Science*, *17*, 1002–1008.
- Geraerts, E., Lindsay, D.S., Jelicic, M., Merckelbach, H., Raymaekers, L., Arnold, M.M., & Schooler, J.S. (2007). *Cognitive mechanisms underlying recovered memory experiences of childhood sexual abuse*. Manuscript submitted for publication.
- Geraerts, E., Smeets, E., Jelicic, M., Merckelbach, H., & van Heerden, J. (2006). Retrieval inhibition of trauma-related words in women reporting repressed or recovered memories of childhood sexual abuse. *Behaviour Research and Therapy*, *44*, 1129–1136.
- Geraerts, E., Smeets, E., Jelicic, M., van Heerden, J., & Merckelbach, H. (2005). Fantasy proneness, but not self-reported trauma is related to DRM performance of women reporting recovered

- memories of childhood sexual abuse. *Consciousness & Cognition*, 14, 602–612.
- Johnson, M.K., Hashtroudi, S., & Lindsay, D.S. (1993). Source monitoring. *Psychological Bulletin*, 114, 3–28.
- Kihlstrom, J.F. (2004). An unbalanced balancing act: Blocked, recovered, and false memories in the laboratory and clinic. *Clinical Psychology: Science and Practice*, 11, 34–41.
- Lindsay, D.S., & Read, J.D. (1994). Psychotherapy and memories of childhood sexual abuse: A cognitive perspective. *Applied Cognitive Psychology*, 8, 281–338.
- Lindsay, D.S., & Read, J.D. (1995). “Memory work” and recovered memories of childhood sexual abuse: Scientific evidence and public, professional, and personal issues. *Psychology, Public Policy, and Law*, 1, 846–908.
- Loftus, E.F. (1997). Dispatch from the (un)civil memory wars. In J.D. Read & D.S. Lindsay (Eds.), *Recollections of trauma: Scientific evidence and clinical practice* (pp. 171–198). New York: Plenum.
- Loftus, E.F. (2003). Make-believe memories. *American Psychologist*, 58, 867–873.
- Loftus, E.F. (2004). Dispatch from the (un)civil memory wars. *Lancet*, 364, 20–21.
- Mazzoni, G.A.L., Loftus, E.F., Seitz, A., & Lynn, S.J. (1999). Changing beliefs and memories through dream interpretation. *Applied Cognitive Psychology*, 13, 125–144.
- McNally, R.J. (2003). *Remembering trauma*. Cambridge, MA: Belknap Press/Harvard University Press.
- McNally, R.J., Ristuccia, C.S., & Perlman, C.A. (2005). Forgetting trauma cues in adults reporting continuous or recovered memories of childhood sexual abuse. *Psychological Science*, 16, 336–340.
- Polusny, M.A., & Follette, V.M. (1996). Remembering childhood sexual abuse: A national survey of psychologists’ clinical practices, beliefs, and personal experiences. *Professional Psychology: Research and Practice*, 27, 41–52.
- Schacter, D.L. (1995, April). Memory wars. *Scientific American*, 272, 135–139.
- Schooler, J.W. (2001). Discovering memories in the light of meta-awareness. *Journal of Aggression, Maltreatment, and Trauma*, 4, 105–136.
- Schooler, J.W., Ambadar, Z., & Bendiksen, M.A. (1997). A cognitive corroborative case study approach for investigating discovered memories of sexual abuse. In J.D. Read & D.S. Lindsay (Eds.), *Recollections of trauma: Scientific evidence and clinical practice* (pp. 379–388). New York: Plenum.
- Schooler, J.W., Bendiksen, M.A., & Ambadar, Z. (1997). Taking the middle line: Can we accommodate both fabricated and recovered memories of sexual abuse? In M. Conway (Ed.), *False and recovered memories* (pp. 251–292). Oxford, England: Oxford University Press.
- Shobe, K.K., & Schooler, J.W. (2001). Discovering fact and fiction: Case-based analyses of authentic and fabricated memories of abuse. In G.M. Davies & T. Dalgleish (Eds.), *Recovered memories: Seeking the middle ground* (pp. 95–151). Chichester, England: John Wiley & Sons.
- Williams, L.M. (1995). Recovered memories of abuse in women with documented child sexual victimization histories. *Journal of Traumatic Stress*, 8, 649–674.

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