CHAPTER 10:

REPPRESSED AND RECOVERED MEMORIES DURING CHILDHOOD AND ADOLESCENCE

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There has been considerable public and scientific controversy over the fate of memories of traumatic childhood experiences like sexual abuse. Of particular concern are claims of amnesia for traumatic experiences and later recovery of once-forgotten traumatic memories. The origins of this debate can be traced to a century ago when Freud proposed that overwhelmingly traumatic memories can be “repressed” or pushed out of conscious awareness, and that the “recovery” of repressed memories is critical to the resolution of psychopathology (Freud, 1915/1957). The concepts of repressed and recovered memories are still accepted by many psychological practitioners today and have influenced both clinical and legal practice. In the 1990s, for instance, a number of states altered the statute of limitations for child sexual abuse so as to accommodate cases involving recovered memories. At the same time, claims of repressed and recovered memories of child sexual abuse and other traumas have come under intense scrutiny in the scientific community. This chapter reviews the scientific evidence concerning the existence of repressed and recovered memories, particularly during childhood and adolescence. An overview of theoretical models of repression and other forms of traumatic amnesia is presented followed by a review of research on the retention of traumatic memories across childhood and adolescence and on the mechanisms that might underlie failures to remember or disclose such events. Finally, data regarding the recovery or reminiscence, during childhood or adolescence, of once-forgotten memories is discussed.
Theoretical Models of Repressed and Recovered Memory

A number of current and historical theoretical models propose that traumatic stress engenders special forgetting mechanisms like repression (Freud, 1915/1957; Freyd, DePrince, & Zurbriggen, 2001; Janet, 1919/1925; Terr, 1994; van der Kolk, 1994). The traditional conceptualization of repression is that it represents a psychological defense process that pushes overwhelmingly traumatic memories into the unconscious and renders them inaccessible to ordinary prompting (Freud, 1915/1957). A slightly different account of traumatic amnesia can be traced back to Janet, who proposed that traumatic stress can prompt a dissociative state that is split from ordinary consciousness, so that traumatic memories are compartmentalized and not integrated with the autobiographical memory system (Janet, 1919/1925). Although the terms repression and dissociation are often used interchangeably to explain traumatic amnesia, repression involves removing from consciousness memories that have already been encoded, whereas dissociation implies an alteration of the encoding process itself. Many current models of traumatic amnesia actually emphasize the role of dissociation (Terr, 1994; van der Kolk, 1994), but the implications of these two processes are quite similar: in either case, the resulting memories are unavailable to conscious awareness, but presumably they may still affect behavior and well-being. Models of traumatic amnesia suggest that recovery of repressed or dissociated memories is possible given the right retrieval conditions, such as when psychological defense mechanisms are in a weakened state (e.g., in a supportive therapeutic setting) or when sensory or affective cues closely match elements of the trauma. For instance, according to van der Kolk (1994), dissociation during traumatic experiences results in the formation of indelible sensory memories that can return as vivid somatosensory “flashbacks” in response to the proper triggers. According to these models, once triggered, repressed or dissociated memories can be integrated into the psyche or translated into narrative form. In fact, the retrieval and emotional processing of such memories is viewed as central to the healing process. Some models further suggest that trauma may lead to more global losses of memory for the period of time surrounding the trauma, producing large gaps in one’s personal history (van der Kolk, 1994). Although several different models of traumatic amnesia have been proposed, they share the following core assumptions:
Traumatic experiences are processed in a fundamentally different manner from ordinary events.

The degree of psychological trauma experienced is positively related to forgetting.

Unconscious representations of traumatic events are retained in the absence of verbally accessible memories.

Unconscious traumatic memories can be recovered given the proper triggers (e.g., contextual cues or therapeutic processes).

For the past 2 decades, these models of traumatic amnesia have also been the subject of considerable controversy. At the core of the debate are the claims that memory for traumatic experiences like abuse involves special mechanisms and that once-lost memories can be recovered intact. In particular, many cognitive and developmental psychologists argue that traumatic memories draw on standard memory mechanisms, although they may be attenuated or intensified by emotional processes (Loftus & Davis, 2006; Ornstein, Ceci, & Loftus, 1998; Schooler & Eich, 2000). A slightly different argument suggests that memory for traumatic events involves a coordination of standard memory processes and stress-activated neurological mechanisms that lead to the formation of either highly memorable (McGaugh, 2002) or highly fragmented (Nadel & Jacobs, 1998) memories. Additional concerns about traumatic amnesia models and attempts to recover memories have been fueled by studies of the reconstructive nature of memory, which provide ample evidence that it is possible to experimentally construct memories for events that never happened in both children and adults (Ceci, Loftus, Liechtman, & Bruck, 1994; Hyman, Husband, & Billings, 1995). Although this line of research suggests that memory recovery techniques have the potential to produce false memories of abuse, it does not provide information about the prevalence of traumatic amnesia for actual cases of abuse, or the likelihood of later reminiscence. More direct evidence regarding traumatic amnesia and recovered memories is presented in the remainder of this chapter.

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**Traumatic Amnesia in Childhood and Adolescence**

The goal of this section is to evaluate the evidence for traumatic amnesia in childhood and adolescence. To address this issue, several areas of research are considered. First and foremost is the literature on children’s long-term memory for traumatic experiences, which provides information
about the prevalence of forgetting and the degree to which the predictors of forgetting versus remembering are suggestive of special mechanisms like repression or dissociation. Next, the discussion turns to evidence for the existence of unconscious memories of trauma in the absence of verbal recall. This section is followed by a review of the evidence regarding general memory losses in children exposed to trauma. Finally, research on cognitive mechanisms that either prevent the entry of or remove to-be-remembered information from consciousness will be discussed, including experimental studies of directed forgetting and studies of dissociation and memory in children.

**Children’s Memory for Traumatic Events**

A first step in evaluating the existence of traumatic amnesia is to determine how likely children are to forget traumatic experiences like abuse. But forgetting alone does not imply the operation of special mechanisms: therefore, it is also important to consider the conditions associated with forgetting and the degree to which they are consistent with special mechanism models or ordinary memory processes. A major prediction from traumatic amnesia models is that more forgetting should be observed for experiences with greater traumatic impact. For example, as summarized in Table 10.1, more severe trauma, traumas that are directly experienced as opposed to witnessed, and traumas that involve the betrayal of attachment relations may all be more likely to activate special mechanisms like repression and dissociation and therefore be forgotten (Freyd et al., 2001; van der Kolk, 1994). It has also been argued that repeated traumas are more likely to prompt partial or complete dissociation, thereby hastening forgetting, than one-time traumas (Terr, 1994).

**Table 10.1 Predictors of Traumatic Memory According to Models of Traumatic Amnesia and Ordinary Memory Models**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Traumatic Amnesia Models</th>
<th>Ordinary Memory Models</th>
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<tbody>
<tr>
<td>Victim’s age</td>
<td>No specific prediction.</td>
<td>Age is positively related to memory.</td>
</tr>
<tr>
<td>Event frequency</td>
<td>Event repetition is negatively related to memory.</td>
<td>Event repetition enhances memory for core event, but single episode details may become blurred.</td>
</tr>
<tr>
<td>Event severity/traumatic impact</td>
<td>Trauma severity/impact is negatively related to memory.</td>
<td>No specific prediction.</td>
</tr>
<tr>
<td>Directly experienced as opposed to</td>
<td>Direct experience is negatively related to memory.</td>
<td>Direct experience is positively related to memory.</td>
</tr>
</tbody>
</table>
If memory for traumatic experiences draws on standard memory mechanisms, it should be related to well-established predictors from the basic memory literature (see Table 10.1). For instance, the literature on age-related changes in autobiographical memory would predict that children who are older at the time of a traumatic experience should show superior retention to those who are younger (Baker-Ward, Gordon, Ornstein, Larus, & Clubb, 1993; Howe & Brainerd, 1989). According to research on the facilitative effects of action and participation on memory (Engelkamp & Dehn, 2000; Rudy & Goodman, 1991; Tobey & Goodman, 1992), less forgetting should be observed for events that are directly experienced than for those that are witnessed. Studies of the effect of event repetition on learning and memory suggest that event frequency should be positively related to retention, although repeated episodes may prompt the formation of a generic or schematic representation, making it difficult to remember the details of any single episode. A large literature also suggests that events that take place during the interval between an event and later recollection can affect memory. Thus, partial reexposure to or repeatedly discussing a traumatic experience may lessen forgetting (Campbell & Jaynes, 1966; Rovee-Collier, 1999), whereas exposure to misinformation may reduce memory accuracy (Principe, Kanaya, Ceci, & Singh, 2006; Roberts & Powell, 2007). Finally, a direct test of the hypothesis that traumatic memory is dissociated from ordinary memory processes can be provided by an examination of the degree to which individual differences in memory for traumatic experiences are explained by variations in nontraumatic autobiographical or episodic memory ability.

### Memory for Nonabusive Traumas

Much of the research on children’s memories for stressful or traumatic experiences has focused on one-time nonabusive traumas and the findings suggest that these events tend to be remembered quite well when
experienced during childhood, although they are considerably less likely to be recalled when experienced during infancy or toddlerhood.

Clinical Reports

Clinical observations of children exposed to traumatic events indicate that these children report vivid, often intrusive, memories of trauma symptomatic of post traumatic stress disorder (see Table 10.2). For example, in their psychiatric evaluations of 3- to 17-year-old children who witnessed a parent’s homicide, Eth and Pynoos (1994) observed, “the preservation of highly accurate, often detailed, memories.” Likewise, Malmquist (1986) reported vivid, and often intrusive, memories among 16 child witnesses (ages 5 to 10 years) of the murder of a parent. Najarian and colleagues’ (Najarian, Goenjian, Pelcovitz, Mandel, et al., 1996) assessments of 25 school-aged children exposed to a devastating earthquake indicated that almost all reported vivid and intrusive memories of the trauma even after 2.5 years. Similar patterns were revealed by Terr’s evaluations of 25 elementary school children who were kidnapped from a school bus, were buried in a tractor trailer, and eventually dug their way to freedom (Terr, 1979, 1983). All children exhibited enduring memories of the trauma when evaluated 4 years after its occurrence.

Table 10.2 Clinical Reports of Traumatic Memories [AU: for consistency with other chapters, tables here to the end were rotated]

<table>
<thead>
<tr>
<th>Source</th>
<th>Subjects</th>
<th>Procedure</th>
<th>Findings</th>
<th>Weaknesses</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eth &amp; Pynoos (1994)</td>
<td>55 3- to 17-year-olds.</td>
<td>Interviewed 0 to 12 years following homicide. 3-stage semistructured clinical interview: 1. Drawing and storytelling, 2. Interviewer assistance in recounting trauma, and</td>
<td>“preservation of highly accurate, often detailed, memories” Some memories were reinterpreted over time.</td>
<td>Interviewer prompts may affect memory. No data regarding memory accuracy or elaborateness were provided.</td>
<td>Good sample size. Adds to body of knowledge on memory-related posttraumatic symptoms.</td>
</tr>
<tr>
<td>Study</td>
<td>Age Group</td>
<td>Description</td>
<td>Methodology</td>
<td>Findings</td>
<td>Notes</td>
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<tr>
<td>Malmquist (1986)</td>
<td>16 5- to 17-year-olds.</td>
<td>Witnessed homicide of parent or other family member.</td>
<td>Clinical assessment of traumatic events using the Impact of Events Scale administered.</td>
<td>All children met criteria for PTSD. Some children had recurrent, vivid recollections of event. All children dreamed about the event.</td>
<td>Small sample size. No objective evaluation of memory of trauma. Systematic differences in memory related to age and delay were not examined. Adds to body of knowledge on memory-related posttraumatic symptoms.</td>
</tr>
<tr>
<td>Terr (1979, 1983)</td>
<td>25 5- to 15-year-olds.</td>
<td>Victims of Chowchilla school bus kidnapping.</td>
<td>Clinical evaluations of posttraumatic symptoms shortly after event and 4 years later.</td>
<td>All children remembered the trauma at both assessments. Multiple posttraumatic symptoms were evident at both time points.</td>
<td>No objective assessment of memory of trauma. Adds to body of knowledge on memory-related posttraumatic symptoms.</td>
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</table>
Empirical Studies of Disasters and Medical Procedures

A recent profusion of empirical studies of children’s memory for naturally occurring stressful events validates the clinical observation that these events are well remembered, even after extensive periods of time (see Table 10.3). One such study by Ackil, Van Abbema, and Bauer (2003) examined mother-child conversations about a tornado that had destroyed their town and found that their joint recollections of the tornado were more detailed and coherent than those of a nonaversive event. Similarly, examinations of children exposed to Hurricane Andrew at ages 3 to 4 years illustrated that they generally remembered the event in vivid detail both shortly afterward and 6 years later.

Similar patterns have been revealed by investigations of children’s memories of stressful medical experiences. One major advantage of this methodology is that it allows for precise documentation of the to-be-remembered event and therefore evaluations of both accuracy and forgetting. Several of these studies have examined children’s recall of a medically indicated invasive radiological procedure, a voiding cystourethrogram (VCUG; e.g., Merritt, Ornstein, & Spicker, 1994; Quas et al., 1999). This procedure involves cleansing the genital area, inserting a catheter into the urethra, filling the bladder with contrast fluid, flouroscopically filming of the bladder, and voiding (i.e., urinating) the fluid onto the examining table. In their study of 3- to 7-year-olds’ recall of a VCUG, Merritt et al. (1994) found that on average, children remembered the vast majority (88%) of the features of this event shortly afterward and that they forgot very little 6-weeks later. Similarly, Quas et al. (1999) found that most children who were older than 3 years at the time of a VCUG had a clear memory of it after periods ranging from 8 months to several years. A number of investigations have also shown that children’s memories for traumatic injuries (e.g., broken limb, lacerations requiring stitches) and subsequent emergency room treatment are relatively durable; most 3- to 13-year-olds continue to remember the central elements of these experiences even after as many as 5 years (Burgwyn-Bailes, Baker-Ward, Gordon, & Ornstein, 2001; Howe, Courage, & Peterson, 1994, 1995; Peterson & Whalen, 2001).
### Table 10.3 Empirical Studies of Children’s Memories for Traumatic, Nonabusive Events

<table>
<thead>
<tr>
<th>Source</th>
<th>Subjects</th>
<th>Procedure</th>
<th>Findings</th>
<th>Weaknesses</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ackil et al. (2003)</td>
<td>29 mother-child dyads.</td>
<td>Dyads discussed tornado and two nontraumatic events 4 and 10 months after storm. Coded discussions for completeness, length, detail, and coherence.</td>
<td>Conversations with older children were more detailed than with younger children. Tornado conversations were more detailed, complete, and coherent than nontraumatic event discussions. Event differences were consistent across the two assessments.</td>
<td>Not possible to evaluate accuracy of memory. No evaluation of children’s memories independent of parent. No standard interview protocol.</td>
<td>Comparisons between traumatic and nontraumatic events. Two interviews permitted examination of forgetting.</td>
</tr>
<tr>
<td>Bahrick et al. (1998); Fivush et al. (2004)</td>
<td>3- and 4-year-olds exposed to category IV hurricane. 100 children at Time 1, 42 at Time 2.</td>
<td>Grouped by exposure: low, moderate, and high stress. Children interviewed within 6 months of storm (T1), and 6 years later (T2). Free recall then specific probes.</td>
<td>At T1 moderate stress group reported more than low and high groups. Twice as much information recalled at T2 than T1. At T2 no group differences in overall recall, but high-stress group required more</td>
<td>No external event documentation for evaluating accuracy. Sample attrition over 6-year delay.</td>
<td>Standardized interview protocol. Two interviews permitted examination of forgetting and consistency. 6-year follow-up provides information retention after extensive delay.</td>
</tr>
<tr>
<td>Study</td>
<td>Participants</td>
<td>Methodology</td>
<td>Findings</td>
<td>Notes</td>
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| Howe et al. (1995) | 32 30-, 36-, and 48-month-olds. Children had received emergency room (ER) treatment for injury. | Interviewed 3–5 days and 6 months later. Free recall then cued recall probes. Recall coded for intrusions of nontarget events. Parent report | Intrusions from nontarget events increased over time. With increasing age, fewer children produced intrusions. Events may not have been as traumatic as abuse. | Event documentation permits evaluation of accuracy. Standardized interview protocol. Provides information about blending of multiple
<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Description</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>Peterson &amp; Whalen (2001)</td>
<td>81 2- to 13-year-olds. Children received emergency room (ER) treatment for injury.</td>
<td>Parents interviewed to document event. Children interviewed about injury and ER treatment after 3–5 days, 6 months, and 2 and 5 years. Free recall probes followed by cued recall.</td>
<td>Intrusions unrelated to parent ratings of child stress. Completeness and accuracy of recall increased with age. Even 2-year-olds recalled over 50% of the details of injury. Children had better recall of injury than the ER treatment. Forgetting after delay observed only for ER treatment. Parent rating of child stress was positively related to ER visit recall, unrelated to injury recall. Events may not have been as traumatic as abuse. Repeated interviews may boost retention.</td>
</tr>
<tr>
<td>Pynoos &amp; Nader (1989)</td>
<td>133 students of elementary school attacked by sniper. Some children directly exposed, others no direct exposure. Interviewed 6 to 16 weeks after attack. Free recall questions about attack, followed by cued recall.</td>
<td>Children with direct exposure made memory distortions reducing proximity to attack. Nonexposed children increased proximity to attack in No description of interview protocol. Not clear how accuracy was determined. No data on memory completeness and detail.</td>
<td>Provides information about accuracy of recall of highly traumatic event.</td>
</tr>
</tbody>
</table>
At the same time, this literature also shows that children’s memories for frightening experiences are not indelible, but are subject to forgetting and reconstructive memory processes. For instance, Pynoos and Nader (1989) found that many of the children who were directly exposed to a sniper attack on their school playground distorted their recollections so as to reduce their proximity to the danger, whereas children who were not directly exposed tended to increase their proximity to the threat. The likelihood of memory loss and distortion, moreover, seems to be related to some traditional predictors of memory. For example, almost all of these studies have found that younger children have less complete recall of traumatic experiences than older children (Howe et al., 1994; Merritt et al., 1994; Peterson & Whalen, 2001; Quas et al., 1999). Memory for medical emergencies also varies by the salience or centrality of the event: details that are peripheral to an event tend to be forgotten over time whereas central details are retained, and recall of the emergency treatment tends to be less complete than recall of the injury itself (Howe et al., 1994; Peterson & Whalen, 2001). Moreover, consistent with a considerable amount of research on the effects of event repetition on memory (e.g., Hudson, 1990; Myles-Worsley, Cromer, & Dodd, 1986), Howe et al. (1995) reported that children who had experienced additional injuries or medical procedures during the retention interval tended to blend the multiple episodes into a single generic memory.

A number of these studies have shown that the degree of forgetting and distortion in traumatic memories is related to the level of stress experienced by the child, but there is surprisingly little consistency in the particular stress-memory patterns that have been documented. For instance, Merritt et al. (1994) found that children who exhibited more behavioral indications of stress during a VCUG, as indexed by experimenter observations, had poorer recall of the event. Similarly, in Quas et al.’s (1999) study, higher parent ratings of child distress predicted less complete recall of the event, although distress also predicted higher resistance to suggestive, misleading questions. In contrast, Peterson and Whalen (2001) found that parent ratings of their children’s stress was associated with better recall of emergency room treatment, but was unrelated to memory for the accident itself. A more nuanced conclusion is offered by Bahrick et al. (1998), who found that children with either low or very severe exposure to Hurricane Andrew (as indexed by the amount of damage their homes sustained) provided less elaborate accounts of the storm than those with moderate exposure. After a 6-year delay, the reports of children in the
severe exposure group were more consistent than those of other children, but they did require more prompting to recall their experiences, suggesting that they were less willing or able to recall or discuss their hurricane experiences (Fivush, Sales, Goldberg, Bahrick, & Parker, 2004). Some of these across-study inconsistencies may have to do with variations in the measurement of stress. Further, studies that have examined variables that potentially moderate the impact of stress on memory (e.g., behavioral responses and coping) provide one promising avenue for future research. For instance, Salmon, Price, & Pereira (2002) found that children who cried or distracted themselves during a VCUG showed poorer recall than children who coped by talking about the procedure.

Table 10.4 Empirical Studies Examining the Prevalence of Complete Forgetting of Nonabusive Traumas

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<thead>
<tr>
<th>Source</th>
<th>Subjects</th>
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<tbody>
<tr>
<td>Quas et al. (1999)</td>
<td>43 3- to 13-year-olds.</td>
<td>Interviewed 8 to 69 months after VCUG. Free recall, then prompts with doll and props, then direct questions. Also asked suggestive questions about false medical procedure. Accuracy determined from medical records, standard VCUG practices, and parent reports.</td>
<td>Accuracy was higher among children 4 years and older at VCUG. Longer delay predicted lower recall, but not accuracy. No clear memories produced by children who were 2 years at VCUG. Frequency of no memory decreased with age; 2 5- and 6-year-olds had no memory, but both interviewed after long delays (45 to 57 months). Higher parent ratings of stress predicted less recall but lower suggestibility.</td>
<td>Wide age range and wide range of delay to interview. Retrospective report of child stress.</td>
<td>Event standardization and medical records permit evaluation of accuracy.</td>
</tr>
<tr>
<td>Howe et al. (1994)</td>
<td>25 children 17 to 66 months old. Children received emergency room (ER) treatment for injury.</td>
<td>Children interviewed 3–5 days and 6 months later. Free recall probes followed by cued recall. Parent report used to document events.</td>
<td>Only children 24 months and older at time of event provided coherent verbal recall of events. Children less than 24 months provided behavioral evidence of events.</td>
<td>Events may not have been as traumatic as abuse.</td>
<td>Event documentation permits evaluation of accuracy.</td>
</tr>
<tr>
<td>Azarian &amp; Skriptchenko-Gregorian (1998)</td>
<td>90 child survivors of 1988 Armenian earthquake. Aged 10 to 44 months old at earthquake, 15 to 48 months old at assessment.</td>
<td>Structured clinical interview 6 months after earthquake. Neutral prompts used to elicit child recall. Children also encouraged to express experiences through drawing and play. Parents/guardians permitted to verify and add details during interview.</td>
<td>More than half produced verbal memories of earthquake, 28% had no verbal memory, 19% refused to talk about it or repeated others' stories. Children 2.5 years and older at earthquake more likely than younger children to have verbal memories. 90% expressed nonverbal indications of memory: reactions to physical cues, avoidance of places and people. Parents/guardians permitted to verify and add details during interview.</td>
<td>Parent participation may have affected child recall. No standardized interview protocol.</td>
<td>Provides information about likelihood of forgetting a highly traumatic event.</td>
</tr>
</tbody>
</table>
Although most studies of children’s memories for traumatic events have focused on the completeness and accuracy of their recall, a few have shown that these events are sometimes completely forgotten, but that this is particularly likely when the experiences occur at a very young age (see Table 10.4). In Quas and her colleagues’ (1999) study of children’s memories for a VCUG that had taken place when they were between 2 and 7 years old, about one-third of the children were unable to remember the event. Most of the children with no clear memory of the event had been 3 years or younger when the procedure occurred. None of the children who were 2 years or younger at the time of the VCUG had a clear recollection of it, and only half of those who were 3 years old at VCUG produced a coherent memory. The two oldest children with no memory, one of the nine 5-year-olds and one of the seven 6-year-olds, were interviewed after extensive delays (i.e., 4 or 5 years). Similar age-related patterns have been observed by Howe et al. (1994), who reported that children who were younger than 2 at the time of an injury and subsequent emergency room treatment were generally unable to provide verbal recollections of their experiences. Finally, Azarian and Skrptchenko-Gregorian’s (1998) study of child survivors of the Armenian earthquake showed that very few of the children who were 2 or younger during the event were able to remember the event 6 months later. These age-related patterns are highly consistent with the literature on memory development and childhood amnesia, which has established that older children and adults rarely retain memories of events experienced in the first few years of life (Sheingold & Tenney, 1982; Usher & Neisser, 1993). Moreover, the ability to establish and retain coherent verbal accounts of the past seems to emerge between the ages of 2 and 3 years (Howe, 2000; Nelson & Fivush, 2000), and there is little evidence that memories of events experienced preverbally can be independently and accurately translated into verbal form (Bauer & Wewerka, 1995; Simcock & Hayne, 2002; but see Bauer, Wenner, & Kroupina, 2002). Therefore, at least some of these memory failures are likely due to normal processes related to memory development.

**Summary**

In sum, the clinical and experimental literatures provide converging evidence that traumatic events are usually well remembered, but that distortion and forgetting are not uncommon, particularly for events that occur in the first few years of life. There is also evidence that memory for these events operates according to principles generated by the basic memory literature. Nevertheless, many researchers and practitioners question the relevance of this research to memory for child abuse because
there are some important differences between maltreatment and events like natural disasters or medical procedures (Freyd et al., 2001; Terr, 1994; van der Kolk, 1994). For instance, many children who are maltreated are victimized repeatedly rather than a single time. Moreover, abuse may be far less likely to be openly discussed in the family or the broader community than either natural disasters or frightening medical experiences. Finally, the betrayal of caregiver relationships often involved in child maltreatment may make it more traumatic than other frightening or aversive experiences (Freyd et al., 2001).

**Memory for Childhood Abuse**

The vast majority of studies of memory for child abuse rely on retrospective assessments of memory in which adults who currently remember child abuse are asked whether they have ever forgotten it. Subjective reports of prior memory loss are common both in clinical samples of adults seeking treatment for child abuse and in nonclinical samples of adults who disclose child abuse histories (Briere & Conte, 1993; Epstein & Bottoms, 2002; Ghetti et al., 2006; Gold, Hughes, & Hohnecker, 1994; Herman & Schatzow, 1987). Only a couple of these studies have provided information about the estimated ages of self-reported memory loss. L. M. Williams (1995) found that 16% (n = 12) of a sample of women who remembered childhood sexual abuse that had been documented in hospital records reported a prior period of forgetting, and most believed that this forgetting had occurred during childhood. Remarkably similar patterns were observed in Ghetti et al.’s (2006) follow-up of adults with court-documented histories of childhood sexual abuse. Of the participants who remembered the abuse, 15% (n = 21) reported past forgetting, and almost all believed that the onset of this forgetting occurred during childhood. Importantly, through a series of follow-up questions Ghetti et al. (2006) also discovered that most of these participants attributed their memory loss to standard processes such as cognitive avoidance or to an earlier failure to understand that the event constituted abuse. All but five participants also said they would have remembered the abuse during that period if directly questioned about it. This retrospective methodology, however, is less than ideal for examining long-term memory for abuse because adults are often inaccurate in judging past states of remembering (Geraerts et al., 2006), and retrospective reports are often biased by current knowledge, beliefs, and retrieval context (e.g., Corenblum, 2003; Matt, Vasquez, & Campbell, 1992; Ross, 1989). Furthermore, these studies are unable to tell us anything about individuals who continue to forget abuse.
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<tr>
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<th>Subjects</th>
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<tr>
<td>Terr (1988)</td>
<td>20 children seen in therapy for various traumas.</td>
<td>Clinical assessments of children’s traumatic memories and other posttraumatic features.</td>
<td>3 in 5 children with CSA had no verbal memory; 2 in 5 had spotty memories.</td>
<td>Memory assessment based on clinical observation rather than standardized memory interview.</td>
<td>Information about individual cases permitted evaluation of abuse memories from other traumatic memories.</td>
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<td>Children were 6 months old to 4 years, 10 months old at time of trauma.</td>
<td>Time between assessment and trauma was 5 months to 12 years.</td>
<td>All children with CSA were under 3 years old at event, those with no memory were under 25 months old.</td>
<td>Small sample.</td>
<td>Behavioral indices of trauma are dependent on context and practitioner’s knowledge of event.</td>
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<td>5 children exposed to sexual abuse (CSA), 4 of those exposed repeatedly.</td>
<td></td>
<td>18 of the 20 children, including those with CSA, showed behavioral indications of trauma: reenactment during play, personality changes, or trauma-specific fears.</td>
<td></td>
<td>Documentation of behavioral signs of abuse in absence of verbal memory.</td>
</tr>
<tr>
<td>Lamb et al. (2000)</td>
<td>145 4- to 12-year-olds who reported an incident of sexual abuse.</td>
<td>Interviewed 3 days to 14 months after the alleged abuse.</td>
<td>60% of interviewer utterances elicited new details from children.</td>
<td>No repeated interview or external documentation of event; therefore unable to evaluate accuracy or forgetting over time.</td>
<td>Large sample. Characterizes children’s recall of sexual abuse in typical forensic settings.</td>
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<td></td>
<td>Participated in forensic interview about abuse.</td>
<td>Interview coded for amount of detail provided by child and number of utterances by interviewer.</td>
<td>Age, but not delay, was positively related to the amount of detail in child report.</td>
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<td></td>
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<td></td>
<td>Substantive investigator utterances that brought about</td>
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</table>
| Ghetti et al. (2002) | 222 3- to 16-year-olds.  
Involved in forensic investigation of physical or sexual abuse.  
Interviewed during a 5-day inpatient forensic evaluation. | Child report of abuse obtained in psychological consultation and forensic interview.  
Reports coded for consistency across two interviews.  
Anogenital examination administered.  
Memory for physical exam tested with specific questions. | Younger children (3 to 5 years old) were less consistent in abuse reports than older children.  
Consistency was higher for reports of sexual abuse than physical abuse.  
Girls were more consistent in sexual abuse reports than boys.  
Memory for anogenital exam was positively related to consistency of reports of sexual abuse but not physical abuse. | Accuracy of recall of abuse could not be determined.  
Short delay between two interviews did not permit assessment of forgetting over the long term. | Large sample.  
Examines relation between memory for abuse and memory for nontraumatic events. |
|---|---|---|---|---|---|
| Ghetti et al. (2006) | 138 adult victims of CSA who remembered the abuse.  
Involved in criminal prosecutions at 4 to 17 years. | Phone interview 12 to 19 years after target CSA event.  
Once CSA was disclosed, asked questions about previous forgetting.  
If forgetting reported, subjects asked | 15% reported prior forgetting period.  
Most forgot and recovered memory prior to adulthood.  
75% said they would have remembered if asked. | Retrospective reports of forgetting are not always accurate.  
Study provides no information about status of individuals who forgot abuse when interviewed for | Abuse was documented in court records.  
Detailed questions regarding what subjects meant when they reported prior forgetting. |
| Greenhoot et al. (2005) | 156 12- to 18-year-olds. Exposed to mother-directed spousal violence and/or child-directed aggression at 6 to 12 years old (Year 1). | Child and mother interviews to document specific acts of family violence at Year 1. Nontraumatic control events also documented. Teens interviewed about family violence and control events 6 years later. Free recall, then yes-no questions about each aggressive act. Autobiographical Memory Test to elicit memories from childhood. | Teens recalled 45% of the mother-directed violent acts reported at Year 1, and 56% of child-directed acts. 34% of teens exposed to spousal violence failed to report it at all, 20% failed to report any of their exposure to child-directed violence. The most severe acts were unlikely to be remembered, but teens with most severe exposure were the least likely to show complete failure to report. | Unable to determine whether “complete forgetting” represents true forgetting, unwillingness to disclose, or misremembering time frame. | Prospective family violence documentation. Cross-validation of family violence reports with mother. Standardized memory interviews. Memory for trauma and nontraumatic events in same sample. |
Clinical Reports

The few studies that have employed more objective measures of children’s memory for abuse are summarized in Table 10.5. Terr (1988) reported clinical observations of memory in 25 children exposed to a variety of traumas that had occurred 5 months to 12 years previously, including five children who were subjected to sexual abuse. Three of these children had no memory of the abuse and the other two provided highly fragmented reports. Four of these children were exposed to multiple episodes of abuse, and Terr (1994) proposed that the recurrence caused the children to dissociate during the events, thereby impairing their ability to subsequently remember the experiences. But it is important to point out that all of these children were under 3 years of age when the abuse occurred, and the three with no memory were under 25 months. Therefore, Terr’s findings are also highly consistent with well-established patterns of childhood amnesia and memory development discussed earlier, which indicate that events occurring prior to 24 months of age are unlikely to be later verbally recalled.

Forensic Interviews

Examinations of forensic interviews of children who report being sexually abused in the recent past provide some evidence that memory for abuse is related to traditional predictors of memory. In particular, older children provide more detail about their abuse experiences than younger children (Lamb, Sternberg, & Esplin, 2000; Lamb et al., 2003; Orbach, Hershkowitz, Lamb, Esplin, & Horowitz, 2000) and, in contrast to Terr’s
suggestion that repeated abuse should accelerate forgetting (Terr, 1994), children who were victimized multiple times reported more about their experiences than children who were victimized a single time (Lamb et al., 2000). One study of 3- to 16-year-olds who were hospitalized for a forensic investigation of child reported physical and sexual abuse indicated that memory for abuse was related to individual differences in memory for a nontraumatic event (Ghetti, Goodman, Eisen, Qin, & Davis, 2002). As part of the forensic assessment, the children received physical examinations and were interviewed about their abuse experiences two times (i.e., during a psychological consultation and a forensic interview) within a 3-day period. Children who had more complete recall of their physical examinations were also more consistent in their reports of sexual abuse across the two interviews. Nevertheless, these studies did not yield information about the accuracy of children’s recall or the likelihood of forgetting because there was no external documentation against which to compare the children’s accounts of abuse, and the children’s memories were not tracked over time.

**Prospective Studies**

The clearest evidence regarding the retention of memory for abuse is provided by studies that are prospective in that they involve longitudinal assessments of memory for maltreatment that is documented during childhood. The landmark prospective study of memory for abuse was conducted by L. M. Williams (1994) and examined adult women’s (n = 129) memories for childhood sexual abuse documented in hospital records 17 years earlier. Thirty-eight percent of the women forgot the documented episode of abuse, and 12% failed to report any sexual abuse experiences at all. These findings have been replicated by several other studies of adults with documented histories of physical or sexual abuse, although the specific proportions showing forgetting vary across samples (Goodman et al., 2003; Widom & Morris, 1997; Widom & Shepard, 1996). As has been observed in studies of nonabusive traumas, both L.M. Williams (1994) and Goodman et al. (2003) found that younger age at the time of abuse increased the likelihood of forgetting. For example, L. M. Williams (1994) reported that 55% of the participants who were 0 to 3 years and 62% of those who were 4 to 6 years at the time of the abuse failed to remember it, whereas 28% of those who were 7 or older showed forgetting. In contrast, Widom and colleagues (Widom & Morris, 1997; Widom & Shepard, 1996) found no associations between age and forgetting in their samples.

To date, only one study has tracked the retention of abuse memories across childhood and adolescence. Greenhoot, McCloskey and Glisky (2005) examined adolescents’ memories for mother-directed spousal
violence and child physical abuse, as well as several salient nonabusive events (e.g., moving to new home, suicide in the family, parent getting arrested), that had been documented 6 years previously when they were 6 to 12 years old. The teens forgot many of the details of these experiences, particularly when their mothers were the targets of violence. Complete forgetting of these events was not uncommon; approximately one third of the teens exposed to spousal violence failed to remember or report it at all, and one fifth failed to remember or report any child abuse or punishment. Importantly, these apparent recall failures do not seem to reflect deliberate nondisclosures (e.g., proclivity to cover up family secrets). The likelihood of complete forgetting was unrelated to a measure of “nondisclosure tendency” estimated by discrepancies between the teens’ and mothers’ reports of recent domestic violence, and teens who failed to recall family violence were just as likely to divulge other sensitive information (e.g., drug use, criminal behaviors, and sexual activity) as those who recalled their experiences. Furthermore, complete forgetting of the nonabusive events was also quite common, with rates of “complete forgetting” of individual events ranging between 40% and 82%.

Participants who had been exposed to the most severe abusive acts as children were very unlikely to remember them, and this was particularly true for child-directed abuse. Although these patterns seem consistent with special mechanism models, repression and dissociation cannot explain the fact that teens with exposure to the most severe violence in childhood were also far less likely than other teens to show complete forgetting of their family violence histories altogether. Furthermore, consistent with research on the role of participating versus witnessing events, higher rates of complete forgetting were observed for violence that was witnessed than for violence that was directly experienced (and presumably more traumatic). One explanation offered by Greenhoot et al. is that the participants exposed to the more severe violent acts (e.g., burning, kicking) tended to be exposed to less severe and more common acts as well (e.g., slapping, spanking, hitting with an object) and might have been especially likely to form schematic memories of their abuse histories. Thus, they might have been keenly aware that they were exposed to family aggression as children, but had difficulty remembering the details of their exposure, therefore reporting only the most common forms of violence rather than the less common, severe acts.

The other predictors of memory for abuse in this study, including age, recent exposure to abuse, and negative attitudes about the abuser, were consistent with the traditional literature on memory development. However, some standard predictors of memory, such as the frequency of the events themselves or discussion of the events, were unrelated to memory. Perhaps
most revealing, memory for abuse was partially explained by individual differences in children’s memory for nonabusive events and their performance on an assessment of general autobiographical memory skill, suggesting that these memories draw on some of the same underlying processes.

Nonverbal Memories of Trauma

Another major assumption of models of traumatic amnesia is that children with repressed or dissociated memories retain unconscious, nonverbal memories of traumatic experiences in the absence of verbal recall. Both children and adults do show evidence of unconscious memories on “implicit” memory tasks in which previous experience affects performance without awareness (Drummey & Newcombe, 1995; Tulving, 2000). For example, prior exposure to pictures of particular objects can facilitate children’s abilities to subsequently identify blurry pictures of those objects (Drummey & Newcombe, 1995). Performance on implicit memory tasks is often unrelated to performance on “explicit” or conscious memory tasks, although there is considerable debate about whether these two forms of memory tap separate systems with different developmental trajectories (Anooshian, 1997; Murphy, McKone, & Slee, 2003; Parkin, 1997). Thus, it is plausible that both children and adults might retain implicit memories of traumatic events without having conscious awareness of the experience. To date, however, this conjecture has not been objectively, empirically corroborated. Several investigators have reported behavioral indications of trauma memories in children in the absence of explicit verbal recall (Azarian & Skritchenko-Gregorian, 1998; Gaensbauer, 1995; Terr, 1988). For example, 18 out of the 20 children observed by Terr exhibited behavioral signs of their traumas such as reenactment during play, trauma-specific fears, and personality changes, generally without awareness of the link to the trauma. According to Terr, these “behavioral memories” were consistent with outside documentation in a majority of the cases. Nevertheless, none of these reports showed that the incidence of these behaviors exceeded the prevalence in a control group of nontraumatized children, and the interpretation of these behaviors as indicators of trauma is heavily dependent on context and interviewer knowledge of the child’s experiences. As a result, these “memories” have the potential to be heavily influenced by interviewer bias regarding the alleged trauma (see Malloy & Quas, Chapter 12). In sum, although reenactment, fears, and personality changes may well be nonverbal
indicators of traumatic experiences, they should not be viewed as veridical representations of trauma in the absence of external validation.

## Trauma and General Memory Deficits in Children

The evidence for more global trauma-related memory losses in children is mixed (see Table 10.6). For instance, Eisen, Qin, Goodman, and Davis (2002) looked at memory for an anogenital examination administered to children (3 to 17 years old) who had been abused or neglected and those with no maltreatment history and found no differences as a function of maltreatment history. Similarly, Howe, Cicchetti, Toth, and Cerrito (2004) observed no maltreatment-related differences in children’s performance on the Deese Roediger McDermott paradigm, which examines the tendency to falsely recall nonpresented words that are semantically associated with presented words. On the other hand, several investigations link child abuse to difficulty recollecting specific autobiographical memories in adulthood. In most of these studies, memory is assessed with an autobiographical memory test (AMT) in which participants are asked to rapidly generate memories of single events in response to cue words. Adults who report histories of child abuse are less willing or able than control subjects to produce memories of single episodes (e.g., “I remember my mom and dad arguing about how he wrecked our truck,” in response to the cue “arguing”), often generating “overgeneral” memories that refer to a category of events (e.g., “My parents always argued about money”; Burnside, Startup, Byatt, Rollinson, & Hill, 2004; Hermans et al., 2004; Kuyken & Brewin, 1995). Although no studies have looked at whether these abuse-related memory problems emerge during childhood, a few indicate that they appear at least as early as adolescence (de Decker, Hermans, Raes, & Eelen, 2003; Johnson, Greenhoot, Glisky, & McCloskey, 2005). It is not clear, however, whether these patterns are limited to the AMT context; Orbach, Lamb, Sternberg, Williams, and Dawud-Noursi (2001) found that the specificity of adolescents’ recollections of family disagreements was unrelated to past family violence exposure, although teens with such exposure did tend to altogether avoid talking about family conflict. Poor memory specificity on the AMT is also characteristic of depressed adolescents and adults (see J. M. G. Williams et al., 2007, for a review), but abuse-related memory problems do not seem to be a simple by-product of depression because several studies show that abuse is related to memory specificity problems even accounting for depression (Hermans
et al., 2004; Johnson et al., 2005; Kuyken & Brewin, 1995). Abuse-related autobiographical memory patterns are also unrelated to measures of nonautobiographical memory, suggesting that they are not explained by basic memory or cognitive deficits (de Decker et al., 2003; Johnson et al., 2005).

Table 10.6 Research on Abuse and Global Memory Deficits in Children

<table>
<thead>
<tr>
<th>Source</th>
<th>Subjects</th>
<th>Procedure</th>
<th>Findings</th>
<th>Weaknesses</th>
<th>Strengths</th>
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<tbody>
<tr>
<td>Eisen et al. (2002)</td>
<td>118 3- to 17-year-olds.</td>
<td>Department of Children and Family Services records used to identify abused (physical or sexual), neglected, and nonabused groups. Anogenital examination. Child report of maltreatment obtained in psychological consultation and forensic interview. Measures of dissociation, Global Adaptive Functioning Scale. Basic memory measures: memory for sentences and digit span. Memory for anogenital examination tested after 4 days with specific questions.</td>
<td>No abuse-related differences in memory for anogenital exam or basic memory measures. Older children provided more detailed abuse reports than younger children. Better memory for anogenital exam predicted more detail in abuse reports. No abuse-related differences in dissociation measures. Dissociation was unrelated to memory for exam but predicted higher clinician ratings of detail in abuse reports.</td>
<td>Unable to collect complete memory data for all participants. Did not evaluate accuracy of abuse reports.</td>
<td>Used standardized memory interviews. Wide range of cognitive and psychological assessments administered. External documentation and physical evidence of maltreatment status.</td>
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<tr>
<td>Howe et al.</td>
<td>108 maltreated</td>
<td>Maltreated children identified                                             Recall improved with</td>
<td>No analysis of differences in</td>
<td>Large sample of maltreated</td>
<td></td>
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<tr>
<td>Year</td>
<td>Sample Description</td>
<td>Methods</td>
<td>Findings</td>
<td>Notes/Issues</td>
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<tr>
<td>2004</td>
<td>51 children and 51 nonmaltreated children. 3 age groups: 5 to 7 years old, 8 to 9</td>
<td>through the Department of Health and Human Services. Used Deese-Roediger-McDermott (DRM) word list paradigm to assess true and false memory.</td>
<td>age. There were age-related increases in both true and false memory. No differences in false memory as a function of maltreatment.</td>
<td>No differences in false memory as a function of maltreatment. Use of only one type of memory assessment limits conclusions regarding null effect of maltreatment.</td>
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<tr>
<td>de Decker et al. (2003)</td>
<td>27 14- to 20-year-old patients in a residential psychiatric clinic in Belgium.</td>
<td>Autobiographical memory test (AMT). AMT memories coded for specificity. Youth Self Report, Beck Depression Inventory, Beck Hopelessness Scale, State-Trait Anxiety Inventory, Penn State Worry Questionnaire. Trauma questionnaire, Impact of Event Scale. Computational Span Task. Immediate and delayed story recall.</td>
<td>Higher trauma levels predicted fewer specific memories on the AMT, especially positive cues. AMT performance and trauma history were unrelated to story recall and computational span.</td>
<td>Small sample size. Retrospective self-report of trauma may not always be accurate. Wide range of traumatic experiences reported, no analysis of subtypes. Accessed participants who were inpatients in a psychiatric center.</td>
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<tr>
<td>Johnson et al. (2005)</td>
<td>134 adolescent (12 to 18 years old) participants of longitudinal study of family violence.</td>
<td>Year 1 and Year 6: Conflict Tactics Scale assessed recent exposure to spousal violence, child-directed aggression.</td>
<td>Depressive symptoms predicted poorer AMT memory specificity. Recent family violence</td>
<td>No analysis of differences in memory performance due to type of family violence. Wider range of memory tests</td>
<td>Prospective abuse documentation. Separate effects of concurrent and early abuse.</td>
</tr>
</tbody>
</table>
Recruited (with mothers) 6 years prior (Year 1) when 6 to 12 years old.

Interviews with mothers to corroborate child disclosures.

Year 6: AMT
AMT memories coded for number of prompts, length, specificity, and valence.
Paired associates test of episodic memory.
Center for Epidemiological Studies Depression Scale.

predicted shorter memories, poorer specificity, and fewer negative memories.

Year 1 family violence associated with more interviewer prompting.
Paired associates performance was unrelated to AMT performance.

Orbach et al. (2001)
34 15- to 19-year-olds.
Family violence was documented 7 years prior by parent and child interview, social worker evaluation.
4 groups: victims of abuse, witnesses of abuse, victims and witnesses, and comparison group

Child Depression Inventory.
Memory for family disagreements tested with Family Disagreements Questionnaire.
Memories coded for specificity.

Family violence victims reported more depressive symptoms than other children.
Depressive symptoms were related to less specific memories for family disagreements.
Family violence unrelated to memory specificity, but children exposed to family violence omitted responses more frequently.

Small sample size might have led to a lack of statistical power to find potentially significant relationships.

Prospective documentation of family violence.
Cross-validation of reports.
Used standardized interview Protocol.

The prevailing explanation is that poor memory specificity reflects emotion regulation processes that involve avoiding thinking or talking
about the details of past memories so as to avoid potentially painful content (J. M. G. Williams et al., 2007). In support of this argument, nonabused, nondepressed adults who retrieve fewer specific memories score higher on measures of cognitive avoidance and thought suppression (e.g., the White Bear Suppression Inventory) and report less distress following a lab-induced stressor than adults who are more specific in their memories (Hermans, Defranc, Raes, Williams, & Eelen, 2005; Raes, Hermans, de Decker, Eelen, & Williams, 2003; Raes, Hermans, Williams, & Eelen, 2006). It seems unlikely, however, that these memory patterns reflect traumatic amnesia due to repression or dissociation. Individuals with abuse histories do report some specific memories on the AMT and their specificity fluctuates with retrieval conditions such as the type of cue (de Decker et al., 2003; Johnson et al., 2005) and the presence of intrusive thoughts (Wessel, Merckelbach, & Dekkers, 2002). Thus, traumatized individuals who produce overly general memories do seem to have some specific memories available in memory storage even if they do not always retrieve or report them. Further, there is considerable variation in specificity on the AMT among healthy, nontraumatized individuals, suggesting that differences between individuals with and without trauma histories may be more quantitative than qualitative, and that trauma alone cannot explain poor memory specificity (Greenhoot, Johnson, Legerski, & McCloskey, in press; J. M. G. Williams et al., 2007). Finally, forgetting episodic details associated with single experiences is not the same as forgetting that the events were experienced at all.

Studies of Directed Forgetting and Other Forms of Memory Control

Some researchers and theorists have suggested that the experimental literature on memory control processes provides empirical evidence for cognitive mechanisms consistent with repression (e.g., Anderson & Levy, 2006; Conway, 2001; Erdelyi, 2006). For instance, in the directed forgetting paradigm participants are presented with words and are instructed to forget some words and remember other (Anderson & Green, 2001). When later asked to remember both types of words, participants demonstrate impaired recall of the to-be-forgotten words relative to both baseline and the to-be-remembered words. Directed forgetting patterns are typically interpreted as evidence of retrieval inhibition, which temporarily suppresses the accessibility of to-be-forgotten stimuli, although an alternative account emphasizes the roles of selective rehearsal and
interference of the to-be-remembered stimuli (e.g., Barnier et al., 2007). Recent extensions of this work illustrate that adults can be directed to forget autobiographical memories (Barnier et al., 2007; Joslyn & Oakes, 2005). Children can also be directed to forget stimuli, but there are substantial age-related improvements in children’s memory control processes and children younger than 8 years old are especially inefficient inhibitors (Harnishfeger & Pope, 1996; Wilson & Kipp, 1998). Under simplified conditions, however, children as young as 4 years old have been shown to intentionally forget to-be-forgotten words and stories (Howe, 2002; Wilson, Kipp, & Daniels, 2003). Evidence that children have equally good recognition for both the to-be-forgotten and the to-be-remembered words is interpreted as proof that the to-be-forgotten words were encoded and stored in memory (Harnishfeger & Pope, 1996).

Nevertheless, many researchers strongly contest the claim that directed forgetting of words in the laboratory can validate the concept of repression of entire events (e.g., Hayne, Garry, & Loftus, 2006; McNally, 2006). First, directed forgetting involves a deliberate act of turning information away from consciousness (i.e., suppression) whereas the traditional or commonly held view of repression is that it represents an unconscious process (but see Erdelyi, 2006, for an exception). Semantic arguments aside, the effects of directed forgetting instructions on recall are actually quite small and unreliable (Hayne et al., 2006) and have been shown to disappear when cued recall procedures are used (Barnier et al., 2007). Thus, whereas repressed memories are presumably unavailable and cannot be accessed under normal conditions, temporarily inhibited or suppressed memories remain available in memory storage and are accessible when the right cues are encountered. It does seem possible that repeated application of motivated forgetting mechanisms like retrieval inhibition and/or selective rehearsal might eventually lead to the loss of unrehearsed material, but this implies the operation of rather “ordinary” forgetting processes (i.e., the effects of rehearsal and reactivation; Campbell & Jaynes, 1966; Hudson & Sheffield, 1998) rather than the repression of intact memories.

Studies of Dissociative Tendencies

A fifth line of research relevant to the controversy over traumatic amnesia looks at the role of dissociative tendencies in children’s memories.
Dissociation involves a failure to integrate thoughts and feelings into the stream of consciousness, and according to Freyd (1996) there are wide individual variations in the tendency to dissociate (e.g., daydreaming, losing conscious awareness of driving for a period of time). According to models of traumatic amnesia, more dissociative individuals should have poorer memory for traumatic experiences because they form isolated, unconscious representations while dissociated (Freyd & DePrince, 2001). Very few studies, however, have examined this possibility in children. In one study of 182 3- to 17-year-olds being evaluated for alleged maltreatment, indices of dissociation were unrelated to memory for an anogenital exam that was part of the forensic assessment (Eisen et al., 2002). Contrary to what was predicted, children with more dissociative tendencies provided more detailed reports of their abuse than children with lower levels of dissociation. In contrast, a similar study by Eisen and colleagues (2007) with a larger sample (n = 328) illustrated that children who reported more dissociative tendencies made more errors in their recollections of a forensic anogenital exam than children who reported fewer dissociative tendencies. These results, along with the findings of some adult studies (Goodman et al., 2003), suggest that dissociative tendencies may indeed influence children’s memories for aversive experiences. But whether the dissociative phenomena measured in these studies reflect pathological dissociation or more normative variations in traditional attentional processes is unclear, and it has not been established that high dissociators actually encode isolated, dissociated memories. For example, if dissociation involves phenomena such as attending to one’s daydreams rather than an ongoing experience, individuals with high dissociative tendencies may not encode any memories of the event at all.

**Summary of Evidence Regarding Traumatic Amnesia**

- Children are unlikely to retain explicit verbal memories of traumatic experiences that occurred during infancy or toddlerhood, although they may show some behavioral indications.
- Most children exposed to trauma after about 3 years of age continue to remember their experiences over time, often in vivid detail, but a subset do forget or fail to report such experiences after long delays.
- Some of the predictors of forgetting are consistent with models of traumatic amnesia, but all of these patterns can also be explained by principles from the basic literature on memory and memory development. Furthermore, patterns of memory for abusive and nonabusive traumas appear to be very similar.
There is some evidence for more general memory problems in teens with abuse histories, but these problems seem to reflect a tendency not to think or talk about event details rather than large gaps in memory for childhood.

Cognitive mechanisms that remove unwanted information from awareness or prevent its entry into consciousness have been validated in child samples, but it is not clear that these cognitive processes are analogous to repression or pathological dissociation.

Evidence regarding Memory Recovery

In contrast to the literature related to the existence of traumatic amnesia, the literature on the recovery of once-forgotten trauma memories is quite sparse. The experimental literature on reminiscence and hypermnesia suggests that it is not unusual for children or adults to recall new information over time that was not remembered during earlier recall attempts (e.g., Rooy, Pipe, & Murray, 2005), but little is known about the frequency of such patterns for traumatic memories. Although several studies have looked at changes in children’s recall of traumatic events over time, very few of these have actually examined the consistency of their reports across multiple interviews and the degree to which children remember new information over time. One exception is Fivush et al.’s (2004) 6-year follow-up assessment of children who had been exposed to Hurricane Andrew at 3 to 4 years of age. This study revealed that the children produced more than twice as much information in the 6-year interview than they had in the initial interview. According to parent reports, moreover, the vast majority of this new information was accurate. The researchers suggested that these changes could reflect developmental changes in children’s verbal and narrative abilities, increases in their understanding of the storm, and/or the impact of repeated discussion and media exposure related to the hurricane.
Recovery of Previously Forgotten Trauma

Some evidence regarding memory recovery comes from the retrospective studies of abuse memories that were discussed earlier, as all of the adults in these studies currently remembered their abuse (Briere & Conte, 1993; Epstein & Bottoms, 2002; Ghetti et al., 2006). In other words, all of the participants in these studies who subjectively reported past periods of forgetting also evidenced subsequent remembering or “recovery.” Whether this remembering took place prior to adulthood is not clear from the majority of these investigations. The studies by L. M. Williams (1995) and Ghetti and colleagues (2006) are the only investigations that reported participants’ estimated ages at forgetting and recovery, and in both studies the majority believed that both forgetting and recovery had occurred during childhood or adolescence. Ghetti et al.’s (2006) detailed analysis showed that most, but not all, of these participants attributed the recovery of once-forgotten memories to the offset of cognitive avoidance of the trauma or to relabeling of the event based on changes in knowledge about what constitutes abuse. Interestingly, the accuracy of objective measures of the participants’ memories for abuse was similar for those who reported previous forgetting and those who did not. Thus, these findings suggest that children or adolescents who forget abuse for a period of time may remember it later under other conditions, but that at least some of the time these patterns reflect the operation of standard forgetting and reminiscence mechanisms.

As mentioned previously, there are clear limitations to the retrospective methodology for accurately evaluating lost and recovered memories. For instance, these studies do not provide information about the prevalence of memory recovery because they rely on subjective reports of previous forgetting among individuals who currently do remember past traumas. Very few of the prospective studies that have documented complete forgetting of traumatic events have included follow-up assessments to evaluate the possibility of later recovery. Terr (1979, 1983) assessed memory two times over a 5-year period in the victims of the Chowchilla kidnapping, but found that all children remembered the experience at both times. In contrast, Greenhoot, McCloskey, and Glisky (1999) conducted a follow-up interview with a subset of the adolescent participants in their longitudinal study of family violence. The teens’ memories for family violence were originally assessed 6 years after the events were documented (Year 6), and the second follow-up took place 2
years later (Year 8), or 8 years after the events themselves. At Year 6, 18% (10 out of 62) of these teens had not recalled previous exposure to child abuse; of those, four provided some recollection at Year 8. Thus, 40% of the teens who apparently forgot child abuse (or 9% of those that experienced this type of event) remembered it 2 years later. For mother-directed spousal violence, 42% (8 out of 48) of the teens failed to recall the abuse at Year 6, and of those eight (44%) remembered childhood exposure to spousal abuse at the Year 8 interview. These eight participants represented 25% of the teens with exposure to these events. For both child-directed abuse and mother-directed abuse, teens with “recovered” memories recalled fewer of the aggressive acts documented at Year 1 than did those with continuous memories.

Translation of Nonverbal Trauma Memories into Verbal Accounts

A final line of evidence regarding recovered memories looks at whether children who exhibit behavioral and presumably unconscious indices of trauma through play, personality change, or avoidance can later produce verbal accounts of the traumatic events. There are several case studies reported in the clinical literature in which children who were traumatized prior to language proficiency were later able to talk about the experiences after they acquired the requisite verbal abilities (Gaensbauer, 1995; Hewitt, 1994; Terr, 1988), suggesting that the children had translated their nonverbal experiences into linguistic form. But these accounts should be interpreted cautiously because all of these children were in therapy for the trauma and the verbal accounts may have been acquired through adult (i.e., parent or practitioner) labeling of the children’s behaviors that the children then appropriated for their own emerging verbal accounts.

Only a few studies have systematically addressed the question of later verbal accessibility of nonverbal memories and the answer is still a matter of some debate. Simcock and Hayne (2002) found that 2- to 4-year-olds’ verbal recall of a unique play event occurring 6 or 12 months earlier reflected their vocabulary at the time of the initial encounter; that is, although their language skills had improved dramatically, the children’s verbal accounts contained only words that were part of their productive vocabulary at the time of the event. These results suggest that children do not use newly acquired language skills to represent nonverbal representations of events maintained in memory. Peterson and Rideout
(1998) found that children who were 20 to 25-months-old at the time of a medical emergency and unable to talk about it at the time were able to verbally recall the event 6 months later. It is impossible, however, to rule out the possibility that these children were reporting what they had subsequently been told about the event, rather than what they remembered. Indeed, two studies suggest that reinstatement, through repeated exposure to similar events or discussions with adults, is the key to the verbal updating of preverbal memories (Bauer et al., 2002; Cheatham & Bauer, 2005). These findings suggest that the ability to put preverbal memories into words may depend on contextual cues to activate behavioral indices and interpretation by an adult with previous knowledge of the trauma. Thus, although it may be possible to elicit verbal accounts of preverbal memories, these accounts may not necessarily be reliable.

Conclusion

A growing literature suggests that children and adolescents can indeed forget traumatic events like child abuse, and some sparse evidence suggests that they might later remember such events in spite of earlier periods of forgetting. But there is little evidence to suggest that this forgetting is driven by forces like repression and dissociation, resulting in the formation of unconscious, indelible memories that can later be recovered. The predictors of forgetting and remembering are generally quite consistent with the traditional literature on memory and memory development: children are most likely to forget traumatic experiences if they occurred when they were very young, if they are not reexposed to the trauma or reminders of it over the delay, and if they have poorer autobiographical memory skills. The existing data are consistent with the view that forgetting of trauma involves standard forgetting mechanisms, although they may be attenuated or intensified by self-regulatory processes. If the forgetting of trauma involves ordinary mechanisms rather than repression or dissociation, a major implication is that traumatic memories that are forgotten for a period of time are not necessarily preserved intact. Therefore, if once-lost memories are later remembered, their accuracy will depend on the conditions of retrieval and exposure to misinformation during the delay interval. There is also little evidence that traumatized children experience amnesia for large periods of childhood, although they may tend to avoid thinking or talking about the details of past experiences, which could reduce memory accessibility over long delays. Although it seems possible that children might be especially likely to avoid thinking and talking about memories of abuse to cover up “family secrets,” there is
evidence that children may be reluctant to talk about highly traumatic nonabusive experiences as well (e.g., hurricanes; Fivush et al., 2004). Finally, although children may exhibit behavioral signs of preverbal trauma, there is little evidence to suggest that these indices, or later verbal redescriptions of them, provide veridical accounts of the events. Nevertheless, systematic examinations of children’s memories for documented abuse are few and far between, and many questions remain to be answered regarding the possibility that memory for abuse in particular might indeed involve special memory mechanisms that serve self-regulatory functions.

Guidelines

Considerations and Cautions

- Most children remember the core components of traumatic experiences over very long periods, often in vivid detail, but like memories of ordinary events these memories are vulnerable to distortion.
- It should not be considered extraordinary for a child or adolescent to forget an experience as aversive as abuse, especially if the child was very young at the time of the event or was not reexposed to reminders of the experience over time.
- Some children or adolescents may avoid thinking or talking about abuse or other traumatic experiences, and this cognitive avoidance most likely leads to forgetting through the activation of ordinary forgetting mechanisms.
- There is little conclusive evidence that suggests that forgetting of trauma is the result of traumatic amnesia due to repression or dissociation, therefore abuse memories that are recalled after a period of forgetting are not indelible and, like memories of ordinary events, may be subject to reconstructive memory processes.
- Cases of recovered memories of abuse experienced preverbally should lead the evaluator to question the validity of the report.

References


