A Longitudinal Study of Adolescents’ Recollections of Family Violence

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SUMMARY

This investigation focuses on adolescents’ recollections of childhood exposure to aversive events and the extent to which such recollections are related to variables from the traditional memory literature. Participants (n = 153) were questioned about mother-directed abuse, child-directed abuse and punishment, and nonabusive events documented 6 years earlier. The teens forgot many details of family aggression, particularly when their mothers were the victims. Thirty-four per cent of those exposed to spousal violence failed to remember or report it, and 20% forgot or failed to report child abuse or punishment. Few participants exposed to escalated violence remembered and reported it, although almost all reported less severe aggression. Remembering was positively related to other measures of nontraumatic autobiographical memory, age, negative attitudes about the abuser, and recent exposure to family aggression. The results suggest that recollections of childhood abuse can be explained in part by variables that apply to a wide range of memory tasks. Copyright © 2005 John Wiley & Sons, Ltd.

This investigation was motivated by the current public and scientific debate over the nature of memory for childhood abuse. On the one hand, many clinicians and researchers claim that memory for traumatic experiences involves special mechanisms specific to trauma. For example, much of the clinical literature suggests that painful childhood experiences such as abuse may be forgotten through psychological mechanisms such as dissociation or repression (e.g. Courtois, 1992; DePrince & Freyd, 1999; Freud, 1959; Putnam, 1993; Van der Kolk, 1994). A number of researchers argue that special neurological mechanisms may lead to the formation of either especially memorable (e.g. Cahill, Gorski, & Le, 2003; McGaugh, 2002) or highly fragmented (e.g. Nadel & Jacobs, 1998) memories for traumatic experiences. On the other hand, many cognitive and developmental psychologists question the notion that memory for trauma is qualitatively different from ordinary memory (e.g. Lindsay & Read, 1994; Loftus, 1993; Ornstein, Ceci, & Loftus, 1998; Schooler & Eich, 2000). Yet to date little is known about the extent to which memory for

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childhood abuse experiences is related to generic autobiographical memory abilities or other variables from the traditional literature on memory and memory development. To address this issue in this study, we assessed adolescents’ memories for childhood exposure to spousal abuse, child abuse and corporal punishment, and for several nonabusive events, as part of a longitudinal study of domestic violence. We examined the factors that predict remembering versus forgetting of family violence, focusing on several well-established predictors of memory from the basic memory literature and measures of nontraumatic autobiographical memory. This work is relevant to an understanding of adolescents’ and adults’ reports of early adverse experiences and also has important implications for scientific models of memory.

The clinical and experimental literatures on memory for personally significant events provide converging evidence that the core of emotional events tends to be remembered quite well. Large-scale studies of adults’ memories for naturally occurring emotional events suggest that recollections of emotional and traumatic events are associated with heightened subjective ratings of memory vividness (Brown & Kulik, 1977; Christianson & Loftus, 1990; Koss, Figueredo, & Tharan, 1995), although some recent studies have failed to illustrate such patterns (Byrne, Hyman, & Scott, 2001; Porter & Birt, 2001). Laboratory studies in which emotional events are presented through a series of slides, videotapes, or staged scenarios show that information integral to an event is highly likely to be remembered (e.g. Christianson, Loftus, Hoffman, & Loftus, 1991; Leippe, Wells, & Ostrom, 1978). Moreover, studies of children’s memories for emotionally-charged experiences (e.g. stressful medical procedures or natural disasters) suggest that many children remember such events over delays at least as long as 6 years (Fivush, Sales, Goldberg, Bahrick, & Parker, 2004; Peterson & Whalen, 2001; Quas et al., 1999). At the same time, there is also evidence among both children and adults that emotional memories are vulnerable to distortion and forgetting (e.g. Lee & Brown, 2003; Merritt, Ornstein, & Spicker, 1994; Peterson & Whalen, 2001; Southwick, Morgan, Nicolaou, & Charney, 1997; Winograd & Neisser; 1992). For example, Southwick and his colleagues found serious inconsistencies over time in recall of traumatic combat experiences by veterans of Operation Desert Storm (Southwick et al., 1997). Moreover, adults have also been shown to forget or fail to report all sorts of significant experiences, such as automobile accidents and visits to the doctor for serious health problems (Cash & Moss, 1972; Means & Loftus, 1991).

Most relevant to the current study are investigations of adult recollections of childhood abuse. Retrospective studies of memory failure among women who currently remember child sexual abuse suggest that forgetting of such events is not uncommon (e.g. Briere & Conte, 1993; Herman & Schatzow, 1987; Loftus, Polonsky, & Fullilove, 1994). For instance, Briere and Conte (1993) found that approximately 60% of their therapy-seeking sample claimed to have forgotten their abuse at some point in time. This line of work, however, is often criticized because the reports of abuse are uncorroborated and because there are obvious interpretive difficulties involved in asking individuals to remember past memory failures (see Lindsay & Read, 1994, and Loftus et al., 1994). More persuasive evidence for the fallibility of childhood abuse memories comes from a few recent prospective investigations of memory for documented child abuse experiences. In the first study of this kind, Williams (1994) found that 38% of the women in her sample failed to report a specific sexual abuse incident that had been documented in hospital records 17 years previously. Many of these women did recall other incidents of sexual abuse; 12% of the participants failed to report any sexual abuse from childhood. Moreover, willingness to
divulge other highly personal information (e.g. having an abortion or sexually transmitted disease or engaging in prostitution) was unrelated to recall, suggesting that the apparent memory failures did not reflect reluctance to disclose abuse. Similarly, Widom and Morris (1997) reported that one-third of their sample forgot or failed to confirm their sexual abuse histories that had been documented 20 years earlier through Child Protective Services records. In a parallel study of individuals with documented histories of physical abuse, almost all participants reported minor violence (e.g. being spanked), but 40% failed to report severe physical abuse when it had been documented (Widom & Shepard, 1996). Finally, a recent report by Goodman and her colleagues (Goodman et al., 2003) indicated that approximately 16% of young adults failed to disclose a specific incident of sexual abuse that, according to criminal prosecution records, had occurred 13 years previously, and 10% did not report any childhood sexual abuse history.

To summarize, the handful of investigations that have tracked recollections of childhood abuse into adolescence or adulthood suggest that although most people remember childhood victimization, a subset of individuals forget or fail to report these events. In the current study we build on this work by looking at adolescents’ memories for two types of childhood exposure to family violence: witnessing spousal abuse and directly experiencing child abuse and corporal punishment. We examined the completeness and accuracy of the teens’ recollections as well as the prevalence of complete forgetting or failure to disclose. We also examined the likelihood of failures to report several significant but nonabusive events from the same time period.

Although the profusion of research on memories for emotionally charged events suggests that they are subject to forgetting, the conditions that lead to forgetting versus retention are unclear. Much of the research on memory for aversive childhood events has focused on the relation between memory and the degree of stress associated with an event. This literature, however, fails to clearly substantiate any one model of stress-memory linkages. A variety of patterns have been reported in the empirical literature, including facilitative (Cahill et al., 2003; Goodman et al., 2003; Peterson & Whalen, 2001; Southwick et al., 2002), detrimental (Byrne et al., 2001; Fivush et al., 2004; Merritt et al., 1994; Payne, Nadel, Allen, Thomas, & Jacobs, 2002) and null (Eisen, Qin, Goodman, & Davis, 2002; Howe, Courage, & Peterson, 1995) effects of stress on recall. A few retrospective studies of memory for child sexual abuse have found positive correlations between markers of emotional severity and forgetting, but just as many have failed to find such associations (e.g. Briere & Conte, 1993; Epstein & Bottoms, 1998; Herman & Schatzow, 1987). In her prospective study of memory for child sexual abuse, Williams (1994) found that the emotional severity of the abuse (e.g. whether penetration occurred) was unrelated to recall or reporting failures, whereas Goodman et al. (2003) reported that severity was positively related to recollection of sexual abuse. One implication of these inconsistent findings is that forgetting of emotionally charged events cannot be explained by stress alone; rather, the impact of stress should be examined in conjunction with other variables that might be associated with remembering and forgetting of emotional experiences (see also Epstein & Bottoms, 1998; Quas, Qin, Schaaf, & Goodman, 1997).

What other variables might explain memory for childhood abuse and other aversive experiences? The literature on memory and memory development has identified a number of variables that are predictive of both children’s and adults’ recall of salient nonstressful events. For example, research on memory development provides ample evidence of age-related improvements in children’s abilities to attend to, encode, and retrieve information (e.g. Baker-Ward, Ornstein, Gordon, Larus, & Clubb, 1993; Brainerd, Kingma, & Howe,
Research on the role of knowledge, attitudes, and beliefs in shaping recollections suggests that within a given age group, individual differences in interpretation or appraisal of an event may lead to variations in what is remembered (e.g. Greenhoot, 2000; Liben & Signorella, 1980; Ross, 1989). Event memory may also be influenced by characteristics of the event itself, such as whether it was witnessed versus directly experienced (e.g. Engelkamp & Dehn, 2000; Tobey & Goodman, 1992) or repeated versus a one-time occurrence (e.g. Hudson, 1990). Finally, events that take place during the interval between an event and the report of it have also been shown to affect memory. For instance, partial re-exposure to or repeatedly discussing an event can lessen forgetting (Campbell & Jaynes, 1966; Hudson & Sheffield, 1998; Rovee-Collier, Sullivan, Enright, Lucas, & Fagen, 1980), whereas exposure to misinformation often reduces the accuracy of memory for the target episode (Ceci & Bruck, 1993; Loftus, 1979; Principe & Ceci, 2002). Although it seems plausible that factors known to predict memory for nontraumatic events might also predict memory for childhood abuse, this hypothesis has yet to be examined systematically. Moreover, investigators who propose trauma-specific memory mechanisms have been skeptical about the relevance of traditional memory research for explaining memory for highly aversive events like abuse (Alpert, Brown, & Courtois, 1998; Courtois, 1992). We address these issues in the current investigation by examining the degree to which traditional predictors of memory are related to memory for witnessed and experienced family violence.

It is also possible that individual differences in memory for abuse and other aversive events might be explained by variations in general episodic or autobiographical memory ability, as reflected by other measures of memory for one’s past. In other words, individuals who have difficulty remembering childhood exposure to abuse simply might have poor episodic or autobiographical memory skills. In spite of the controversy over the existence of trauma-specific memory mechanisms, few studies have examined the relation between traumatic and nontraumatic memories in the same individuals, thus little is known about whether memory for abuse is dissociated from ‘ordinary memory.’ In the present study, we directly assess the relation between recollections of childhood exposure to family violence and memory of other childhood events and life circumstances.

THE PRESENT STUDY

In this investigation, follow-up assessments were conducted on a sample of 153 adolescents who had participated in a study of domestic violence 6 years previously. During the initial interviews, we collected information about the children’s experiences with two types of family aggression by their mothers’ partners: mother-directed abuse and child-directed physical punishment and abuse. Several other personally significant experiences, such as the birth of a sibling or moving to a new home, were also documented at this time. In addition, the children’s psychosocial adjustment and family and life circumstances were assessed. Six years following the target events, extensive interviews were conducted to examine the participants’ recollections of family aggression and other major life events and life circumstances documented in the same year. A standard autobiographical memory task (e.g. Crovitz, Harvey, & McKee, 1980) was administered as a measure of the general accessibility of autobiographical memories from childhood, and a paired associates task was used to measure basic episodic memory skills. Like the initial interview, the follow-up also included assessments of the teens’ current
psychosocial adjustment and life circumstances. One purpose of this study was to obtain descriptions of adolescents’ long-term recollections of spousal abuse and child abuse and punishment, as well as several nonabusive events, after a 6-year delay. A second aim was to examine the factors related to remembering and forgetting these events. Specifically, we looked at the relation between recollections of family violence and the severity of the aggression, generic differences in episodic and autobiographical memory ability, and several traditional variables from the memory literature, including the participants’ age and perceptions of the event, event frequency, re-exposure to family aggression or the perpetrator over the delay interval, and degree of involvement in the event (i.e. witnessed versus experienced). In addition, to help distinguish forgetting from failure to disclose, we examined the relation between recollections of family violence and a ‘nondisclosure tendency’ measure, based on discrepancies between the teens’ and their mothers’ disclosures of sensitive information in the follow-up interview.

**METHOD**

**Participants**

The participants were 153 re-interviewed children (52% female) who were exposed as witnesses or targets to some form of physical abuse or punishment by their mothers’ partners (i.e. mother’s boyfriend, child’s father or stepfather) during Year 1 of the study. These children were drawn from a larger sample of 299 children retained in a longitudinal project to assess the impact of family violence, particularly spousal violence, on children’s mental health (McCloskey, Figueredo, & Koss, 1995). The total number of children interviewed at Year 1 was 363, and we successfully tracked 82% of them at the second interview. The original sampling procedure involved recruiting battered and nonbattered women and one of their children through battered women’s shelters and posters and announcements throughout the community asking for volunteer women who had been ‘abused by a partner in the last year’ (for the battered group) or who wanted to participate in ‘a study on the family’ (for the comparison group). For each family, a ‘target child’ (the participant for this study) between 6 and 12 years of age was selected according to a procedure that chose alternately between male or female sex during the phone intake. Further details regarding participant recruitment are provided in McCloskey et al. (1995).

Children in the longitudinal sample who had neither witnessed nor experienced family aggression were not included in the current study \(N = 26\).\(^1\) An additional 25 teens were excluded because they had moved out of state and complete memory interviews could not be conducted, and 15 were excluded because they failed to complete the memory battery during the second assessment. We also adopted several criteria to ensure that all participants in the current study had encoded the to-be-remembered events, and to minimize concerns about fabricated or inaccurate reports at the initial assessments. Thus, some children were excluded from the present analyses because they failed to corroborate maternal reports of spousal violence or child-directed aggression at the initial assessment in Year 1 \(N = 57\). Children who reported family violence at the initial interview whose reports were not corroborated by their mothers were also excluded.

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\(^1\)Although it might have been interesting to examine rates of ‘false positives’ among this group, such cases would be difficult to interpret because it was possible that some of these children were exposed to family violence during the delay interval.
Our sample, therefore, is restricted to youth who as children witnessed men in their family physically abusing their mothers or who experienced physical punishment and abuse—both by their own and their mothers’ accounts.

The children were interviewed in Year 1 when they were between 6 and 12 years of age ($M = 9$), and six years later (Year 6) when they were between 12 and 18 years of age ($M = 15$). Approximately 31% of the adolescents ($N = 49$) had both witnessed partner-mother violence and experienced partner-child aggression, 30% ($N = 47$) had only witnessed partner-mother violence, and 39% ($N = 57$) had not witnessed spousal violence but had experienced partner-child aggression. Forty-three per cent of the participants were White, 38% were Hispanic, 4% were African American, 4% were Native American, and 11% were from other or mixed ethnic origins. Fifty-nine per cent of the mothers’ partners were biologically related to the child. Further demographic characteristics of the sample are shown in Table 1.

We adopted several procedures for dealing with the sensitive nature of some of our interview questions. During the informed consent procedure, we told participants that if it were revealed that the child had been harmed, the interviewers would contact the authorities (two families ended the Year 1 interview at this point). When child abuse was reported during an interview, we contacted Child Protective Services to confirm that the abuse had been previously reported; new complaints were made after 28 of the Year 1 interviews because no previous reports had been filed, and the mothers cooperated in all but one of these cases. We also hired a full-time counsellor to provide short-term individual counselling for families who desired it and made referrals to various local agencies when necessary.

### Procedure

#### Year 1

**Documentation of family violence.** During the initial interviews, the women and children were interviewed simultaneously in separate rooms by two different female interviewers matched for ethnicity. Children were asked about their experiences with two classes of events within the family: mother-directed and child-directed physical coercion or abuse. In particular, they were asked about the frequency of their fathers’ or stepfathers’ use of physical tactics of control in the last year, using items from the Conflict Tactics Scale (Straus, 1979). Children were asked whether their fathers (stepfathers/mothers’ partners) had done any of the following to their mothers: (1) push, grab, shove; (2) slap; (3) kick, bite or hit with fist; (4) hit or try to hit with something/object; (5) beat for several minutes; (6) choke; and (7) threaten with knife or gun. Factor analysis on these and additional items, reported in detail elsewhere (McCloskey et al., 1995), indicated that the first four items composed a physical abuse factor and the last three items composed an escalated abuse factor. Children also were asked about the frequency with which they had been targets of...
the following physical control tactics by the mother’s partner: (1) push, grab, shove; (2) slap or spank; (3) hit with object; (4) kick or hit with a fist; and (5) burn. Previous factor analysis of these items suggested that the first three items indicate moderate physical control tactics whereas the last two items are indicative of escalated child abuse. To facilitate frequency judgments by the children, we used Straus’s response scale of 0–6 (0 = never, 1 = once, 2 = twice, 3 = 3–5 times, 4 = 6–10 times, 5 = 11–20 times, and 6 = more than 20 times) in the interview, with the aid of a simple histogram that depicted the scale. These scores were protracted for analyses to estimate the actual frequency (0–20) of each of the events.

The same items (and more) were administered to the mothers in separate interviews and the mothers’ independent reports of mother-directed and child-directed aggression were used as corroboration of the children’s accounts. Specifically, only children whose mothers reported at least the same level of mother- or child-directed aggression, physical or escalated, as the children themselves were included in the sample. For example, among those children who reported forms of escalated abuse of their mothers, only those whose mothers also reported escalated abuse items were included in the final sample. These corroboration criteria were only used for the selection of the sample; the children’s Year 1 reports served as the baseline for the memory analyses. The children endorsed an average of four mother-directed aggression items and three child-directed aggression items. Table 2 presents the number of children who disclosed each type of conflict tactic, as well as the reported frequency of those acts in the last year.

**Documentation of major life events and life circumstances.** Information was also collected from the mother about the occurrence of 16 recent life stress events during the past year using the Life Events Questionnaire (LEQ: Garmezy, Masten, & Tellegen, 1984). These events included: moving to a new home, birth of a new child, target child

Table 2. Number of children who disclosed each type of aggressive act at Year 1, and average reported frequency of each act

<table>
<thead>
<tr>
<th>Number of children</th>
<th>Frequency of acts in previous year*</th>
</tr>
</thead>
<tbody>
<tr>
<td>who reported acts at Year 1</td>
<td></td>
</tr>
<tr>
<td><strong>Partner-mother aggression—overall</strong></td>
<td>96</td>
</tr>
<tr>
<td><strong>Physical abuse</strong></td>
<td></td>
</tr>
<tr>
<td>Push, grab, shove</td>
<td>83</td>
</tr>
<tr>
<td>Slap</td>
<td>68</td>
</tr>
<tr>
<td>Hit with object</td>
<td>69</td>
</tr>
<tr>
<td>Kick, bite, hit with fist</td>
<td>61</td>
</tr>
<tr>
<td><strong>Escalated abuse</strong></td>
<td></td>
</tr>
<tr>
<td>Beat for several minutes</td>
<td>55</td>
</tr>
<tr>
<td>Choke</td>
<td>32</td>
</tr>
<tr>
<td>Threaten with weapon</td>
<td>30</td>
</tr>
<tr>
<td><strong>Partner-child aggression—overall</strong></td>
<td>106</td>
</tr>
<tr>
<td><strong>Moderate physical control tactics</strong></td>
<td></td>
</tr>
<tr>
<td>Push, grab, shove</td>
<td>64</td>
</tr>
<tr>
<td>Slap</td>
<td>100</td>
</tr>
<tr>
<td>Hit with object</td>
<td>75</td>
</tr>
<tr>
<td><strong>Escalated child abuse</strong></td>
<td></td>
</tr>
<tr>
<td>Kick, hit with fist</td>
<td>20</td>
</tr>
<tr>
<td>Burn</td>
<td>6</td>
</tr>
</tbody>
</table>

*Standard deviations are shown in parentheses.
changing schools, hospitalization of a family member, illness or injury to target child, mother victim of a crime, target child victim of a crime, death of a family member, target child losing a friend, eviction from home, suicide attempt in family, mother or mother’s partner jailed, another adult moving into home, mother’s partner losing job, mother losing or changing job. On average, mothers reported that six of these events had occurred in the previous year. These items were later used as nonabusive events in our autobiographical memory assessments. Children and mothers were also asked nine questions about household composition (e.g. who lived in the home, were mother and/or partner working outside the home), the children’s experiences at school (e.g. grades, quality of relationship with teacher), and the children’s friends (e.g. existence of a best friend). These ‘life circumstances’ also were used as control items in our autobiographical memory assessments.

Child perceptions of family aggression. In the remainder of the interview, information was collected on a range of measures of child attitudes, psychosocial adjustment, and life circumstances. For this study, we were especially interested in measures of the children’s perceptions of family conflict and their mothers’ partners. Specifically, we questioned children about the extent to which they blamed the mother’s partner for intrafamily aggression and conflict. For spousal violence, the children were asked to rate on a scale of 1 (never) to 4 (most of the time), ‘How much is your father/stepfather/mother’s partner to blame for the arguments or fights between your mother and father/stepfather/mother’s partner?’ Thus, higher scores indicated more negative views of the mothers’ partner and his role in spousal conflict. To measure the extent to which children blamed the partner for child-directed aggression, they were asked to indicate on a scale of 1 to 4, ‘How much of the time do you think your (father/stepfather/mother’s partner) yells at you or hurts you just because he’s angry and in a bad mood?’ Again, higher scores indicated more negative appraisals of the partner’s behaviour.

Year 6

Memory for Year 1. At the second interview, approximately 6 years after the first assessment, the youths were asked open-ended and specific questions about their memories for family aggression and the nonabusive events and life circumstances reported at the Year 1 interview. The participants were only told that they were participating in ‘a study of the family’ and the memory questions were part of a much larger interview (about 3 hours in length) that also included questions about family relationships, social support, social adjustment, psychopathology, and criminal behaviour. Efforts were made to diminish the appearance of ‘forgetting’ of family violence due to misremembering the time frame. At the beginning of the interview, the interviewer followed a protocol to ensure that participants understood the correct time frame. This part of the interview involved questions about the date of the first interview, the child’s age and grade at the time and the location of his or her home. Prior to the interviews, interviewers were provided the correct answers to these questions, and they corrected the youths when necessary.

Memory for Year 1 life circumstances. After these orienting questions, the teens were asked nine open-ended questions about life circumstances reported at the initial interview (e.g. ‘What were your grades like?’ and ‘What was your best friend’s name?’). These responses were compared to the information they provided at the initial interview and scored as correct or incorrect.
Memory for Year 1 major life events. Participants then were asked a series of yes/no questions about the occurrence of the 16 major life events documented with the LEQ in Year 1 (e.g. ‘Did you change schools that year?’), as well as a general, open-ended question about the occurrence of significant events in the family that year (‘Did any significant or important things happen to you or your family during that year?’). Because of the general nature of this question, recall of Year 1 family aggression was also scored in response to this probe. The teens’ responses regarding each life event were scored as correct or incorrect, and the proportion of life events correctly reported was calculated for each participant. Responses to questions about significant life events and to those about life circumstances were treated separately because the ‘life circumstances’ were ongoing situational factors not associated with one particular experience, whereas the ‘major life events’ were salient, one-time events (although they may have had ongoing consequences).

Memory for Year 1 family aggression. The teens were probed about their memories for partner to mother violence from Year 1 using a combination of open-ended and specific questions. As described above, the teens were asked a general question about the occurrence of any significant events in the family in Year 1. They also were asked a series of specific, yes/no questions about the occurrence of each of the seven mother-directed acts they had been asked about at the initial interview (e.g. ‘Did ____ push, grab, or shove your mother that year?’). The partner-to-mother violence questions were followed by a comparable set of questions about partner-to-child aggression. First, teens were asked an open-ended question about how the partner disciplined the child during Year 1 (‘Now I’d like you to think about your relationship with your father/stepfather during that time when you were ___ years old. When your father was angry with you or wanted to discipline you, what usually happened?’). They were then asked a series of yes/no questions about the occurrence of the five child-directed acts they had been asked about at Year 1 (e.g. ‘Did ____ kick you or hit you with a fist that year?’). The interviewers followed a standard protocol and were blind to the teens’ actual histories. Because many of the children had not endorsed all possible aggression items at Year 1, teens were sometimes asked specific questions about acts that they had not actually reported. The participants were asked an average of three specific questions about undocumented mother-directed acts and two such questions about child-directed acts.

The teens’ responses to all open-ended questions in the Year 1 memory interview were transcribed and each event or life circumstance reported was categorized according to the family aggression, life event and life circumstance categories described above (e.g. death of family member, partner-to-mother beating, partner-to-child spanking, and so on). The coding was completed by two research assistants and a ‘master coder,’ who scored 10% of each coder’s work. Per cent agreement between each coder and the master coder was at least 92%.

Childhood autobiographical memory task (CAMT). A general measure of childhood autobiographical memory was obtained using a technique adapted from Crovitz et al. (1980). Participants were asked to generate specific childhood memories (from before age 9) in response to three types of cue words: positive (‘present,’ ‘playing’), neutral (‘car,’ ‘shopping’), and negative (‘punishment,’ ‘arguing’). The participants were given 3 min per cue word to generate specific memories. The participants’ responses were scored by two coders who counted the number of specific childhood memories generated for each cue.
Each coder scored 10% of the other’s work for reliability (thus overlapping on 20%), and per cent agreement was 97%. Preliminary analyses of performance on this task indicated that the numbers of memories generated in response to the three types of cue words were highly intercorrelated, thus an overall measure of the extensiveness or accessibility of childhood autobiographical memory was calculated as the mean number of memories generated per cue word. Examination of the content of the memories showed that the teens generated all sorts of memories, including memories for positive, neutral, and negative events, and events that took place inside and outside of the family. A complete analysis of the types of memories generated is beyond the scope of this paper and is reported elsewhere (Johnson, Greenhoot, Glisky, & McCloskey, in press).

Paired associate task. To screen for any basic episodic memory problems (e.g. due to physical problems associated with child abuse), a paired associate recall task was administered. Eight pairs of words were read out loud. Participants were asked to recall one member of each pair in response to the other member. Recall of the word pairs was tested both immediately after presentation and again after completion of another portion of the interview (a delay of about 15 min).

Recent exposure to family aggression and Year 1 partner. The follow-up assessment also included several measures of the adolescents’ psychological and social adjustment and current life circumstances. In this portion of the interview the teens were asked a series of questions about current exposure to domestic violence and physical punishment. They were also asked whether the mother had the same partner as in Year 1, and whether they had continued contact with the Year 1 partner.

‘Nondisclosure.’ Finally, a measure of ‘nondisclosure tendency’ was created by comparing teen and mother reports of current family aggression at the follow-up interview. Teens whose mothers reported current spousal violence, child abuse or physical punishment but who themselves denied recent exposure to family violence were classified as ‘nondisclosers.’ An alternate nondisclosure variable, similar to measures used by Williams (1994), also was constructed based on the teens’ reports of drug and alcohol use and delinquent behaviour, such as stealing or receiving money for sex. Because this variable was highly positively correlated with age and unrelated to recollections of mother- or child-directed aggression, it was not included in further analyses.

RESULTS

The overall analytic strategy was carried out in two stages. The first stage described the completeness of participants’ recollections of abuse and punishment over time, and the prevalence of complete forgetting. The second stage applied inferential analyses to explore the factors associated with remembering and forgetting of these events.

Descriptive analyses

Memory for nonabusive experiences

In response to the questions about major life events (e.g. changing schools, moving to a new home) from Year 1, the teens correctly reported 38% (SD = 35) of the events documented during Year 1. Almost all of these reports (95%) were elicited by the specific
questions rather than the open-ended question. The teens correctly remembered 75% ($SD = 16$) of their life circumstances (e.g. name of teacher) during that same year. In the CAMT, the participants generated an average of 3.8 ($SD = 2.1$) specific childhood memories per cue word. These memory measures were used as predictors of recollections of family violence in the inferential analyses.

The completeness and accuracy of family violence recollections
Quantitative measures of memory for family violence were calculated to provide information about the completeness and accuracy of the teens’ recollections. The youths’ reports at the initial interview first were rescored into dichotomous variables indicating the presence or absence of each aggressive item that year (0 = never and 1 = once or more). Their responses with respect to each item in the memory interview were then compared to their original disclosures and scored as correct or incorrect, and the proportions of correctly remembered child- and mother-directed aggressive acts were calculated. The mean proportions of child- and mother-directed aggressive acts that were reported in Year 1 and were correctly remembered in Year 6 are shown by the black and grey bars in Figure 1. These data suggest that overall, the teens’ memories for the details of their abuse and punishment histories were not well maintained over the 6-year period, especially when their mothers were the targets. The participants reported slightly more than half of the child-directed acts they had disclosed 6 years earlier, and less than half of the previously disclosed mother-directed acts. A comparison of the black and grey portions of the bars indicates that a majority of the acts reported were elicited by specific questions. In addition, child-directed aggression was more frequently remembered in response to open-ended questions than mother-directed aggression; this pattern is most likely to due the fact that the interview included a more focused open-ended probe about child-directed aggression than about mother-directed aggression.

![Figure 1. Proportion of Year 1 aggressive acts correctly remembered and correctly rejected at Year 6, by target (mother or child)](image-url)
To provide a statistical test of the difference between recollections of witnessed and directly experienced aggression, an analysis was conducted on the subsample of participants ($N = 49$) for whom both types of aggression were documented. We limited this analysis to teens’ responses to the four items that were used to document both types of aggression: push/grab/shove, slap/spank, hit with an object, and kick(hit with a fist (which resulted in the deletion of two additional participants from this analysis). This analysis indicated that the teens remembered and reported a higher proportion of acts directed towards themselves ($M = 0.61$) than those directed towards their mothers ($M = 0.48$), although this difference did not quite reach significance, $t(46) = 1.75, p = 0.087$.

As a supplementary measure of the accuracy of the adolescents’ recollections, the proportions of correct rejections to questions about mother- and child-directed physical tactics that were not reported at Year 1 were calculated. Correct rejections could not be calculated for all participants in either subsample, as some children had endorsed all possible items during the initial interviews. Correct rejections to questions about acts not documented at Year 1 are illustrated in Figure 1. Rates of correct rejections were quite good, although they tended to be higher for child-directed aggression than for mother-directed aggression. A $t$-test on correct rejections for the subsample that had reported both types of aggression indicated that this difference was not significant.

The prevalence of complete forgetting of family violence

The quantitative measures of memory provide information about how closely the teens’ memory reports matched their original reports, but they do not provide information about the prevalence of complete forgetting. Indeed, a participant could fail to correctly report any of the particular aggressive acts s/he had disclosed at Year 1 yet still recollect some family aggression. How frequently did participants deny any childhood exposure to mother- or child-directed aggression? To address this question, we constructed qualitative measures of memory that indicated whether teens reported any mother- or child-directed aggression in the memory interview (regardless of whether the particular acts reported were the same as those endorsed at Year 1), or failed to report any such experiences. For example, teens who had been targets of child-directed aggression and who responded ‘yes’ to any question about child-directed aggression were given credit for having some memory of their abuse and punishment histories. In contrast, teens who responded ‘no’ to all questions about child-directed aggression were classified in the ‘complete forgetting’ category for child-directed aggression. A parallel procedure was used to identify those teens who acknowledged witnessing some spousal abuse as children versus those who failed to report any spousal abuse.

These analyses revealed that most participants recounted some family violence in the memory interview. Specifically, 66% of the participants who had witnessed partner-to-mother abuse recounted some domestic violence against their mothers, and 80% of the teens remembered and reported some punishment and abuse history. Nevertheless, substantial proportions failed to recount witnessing partner-to-mother abuse (34%) or experiencing child abuse or punishment (20%) altogether. A Mantel-Haenszel chi-square statistic on the subset of teens that experienced both types of family aggression indicated that the difference in forgetting rates for mother- and child-directed aggression was marginally significant, $\chi^2(1) = 3.3, p = 0.07$.

To provide information about the likelihood of complete forgetting of escalated violence in comparison to less severe aggression, additional analyses were conducted on the subsets of participants who had witnessed escalated spousal violence ($N = 75$) or

experienced escalated child abuse (N = 22). This set of analyses involved calculating rates of ‘complete forgetting’ separately for escalated aggression and for less severe aggression, and these data are summarized in Table 3. As indicated in the top left cell of Table 3, more than half of the participants who witnessed escalated spousal violence failed to recount such violence in the memory interviews. In contrast, the proportions in the lower left cell show that fewer teens appeared to forget less severe forms of mother-directed aggression. These patterns suggest that there was a tendency to underreport the most severe forms of violence in comparison to the milder forms of aggression. McNemar’s test confirmed that the rate of ‘complete forgetting’ of escalated spousal violence was significantly higher than ‘complete forgetting’ of less severe spousal aggression in this subsample of participants, \( \chi^2(1) = 11.84, p = 0.0006 \). The tendency to underreport severe violence was even more dramatic in the analyses of memory for child-directed aggression. As illustrated in the top right cell of Table 3, almost all of the participants who were targets of escalated abuse failed to report any escalated abuse in the memory interview. In contrast, all but one disclosed more moderate forms of child-directed aggression (see bottom right cell of Table 3). McNemar’s tests verified that these teens were significantly more likely to show ‘complete forgetting’ of escalated child abuse than of more moderate forms of physical punishment, \( \chi^2(1) = 17.00, p = 0.0001 \). Because of the small number of teens exposed to severe mother- and child-directed abuse (N = 15), it was not possible to conduct a direct test of the interaction between the target of aggression and severity on complete forgetting. It is also noteworthy that ‘complete forgetting’ of less severe child-directed aggression in this subsample is much less frequent than for the sample as a whole. Indeed, teens exposed to severe child abuse were significantly more likely to report moderate aggression than teens not exposed to escalated aggression, \( \chi^2(1) = 4.07, p = 0.04 \).

To provide comparative data against which to examine forgetting of family aggression, a final set of descriptive analyses involved calculating rates of complete forgetting or failure to report significant nonabusive events from Year 1, such as a move to a new home or death of a family member. The proportions of teens who failed to disclose such events are shown in Figure 2, along with the numbers of participants for whom these events had occurred. We limit the presentation to the 10 events most frequently reported at Year 1. These forgetting rates are comparable to those observed for different forms of family aggression, although escalated child abuse remained the most commonly forgotten Year 1 event (82%). The forgetting rates of several non abusive events did approach that of escalated child abuse, although some (e.g. suicide attempt in family) also could have been experienced as traumatic. Because of the small numbers of youths exposed to individual

<table>
<thead>
<tr>
<th>Type of aggression</th>
<th>Mother-directed (n = 75)</th>
<th>Child-directed (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent of Teens who failed to report escalated aggression</td>
<td>0.56</td>
<td>0.82</td>
</tr>
<tr>
<td>Per cent of teens who failed to report less severe aggression</td>
<td>0.36</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Table 3. Rates of complete forgetting of escalated and less severe aggression among teens exposed to escalated violence
nonabusive events and each form of family violence, we were unable to systematically test differences in forgetting of family violence and nonabusive events.

**Predicting recollections of family aggression**

Inferential analyses were used to examine the factors that predict remembering versus forgetting of family aggression. Because different, but overlapping, subsets of the participants reported the two types of aggression, these analyses were carried out separately for mother- and child-directed violence. General linear models (GLMs) were used to predict the quantitative measures of memory completeness, and logistic regressions were conducted to predict the qualitative index of complete forgetting. For all models, the predictors included (a) a dichotomous indicator of severe aggression, (b) the three measures of nontraumatic autobiographical memory (the average number of childhood memories generated per cue word in the CAMT, the proportion of Year 1 life events remembered, and the proportion of Year 1 life circumstances correctly recalled), and (c) the following traditional predictors of memory from the memory literature: child age at Year 1 (which was highly correlated with age at Year 6), child perception of family aggression (i.e. the extent to which children blamed the Year 1 partner for family aggression), the frequency of mother-directed or child-directed aggression at Year 1 (calculated as the sum of the children’s frequency estimates of each physical conflict tactic at the initial interview), a dichotomous indicator of Year 6 exposure to family aggression, and a dichotomous indicator of Year 6 contact with the Year 1 partner. To help distinguish between true memory failures and unwillingness to report past abuse and punishment, the indicator of nondisclosure tendency was also included in all models.

To rule out basic memory decrements, preliminary analyses involved examining memory performance as a function of the paired associate learning task and the teens’ histories of head injuries and loss of consciousness due to injury, illness or drowning (as reported by the mothers). Neither paired associate performance nor head injury correlated

Figure 2. Proportion of teens who completely forgot or failed to report Year 1 nonabusive life events

significantly with memory for family aggression or performance on the other autobiographical memory measures. Preliminary analyses also controlled for the effects of demographic variables including gender, biological relatedness of mother’s partner to the teen, ethnicity (coded as Caucasian, Hispanic, and other ethnicities) and family income. Because these variables were not associated with any outcome measures, they were excluded from further analyses.

Predicting the proportion of correctly remembered aggressive acts

The results of the GLMs predicting the proportions of mother- and child-directed acts remembered are shown in Table 4. The model predicting memory for partner-to-mother abuse was significant, and accounted for 26% of the variance in performance. The parameter estimates corresponding to each predictor indicate that the proportion of correctly remembered mother-directed acts was positively related to CAMT performance and memory for Year 1 life circumstances. Recollections of mother-directed acts were also positively related to the extent to which the child blamed the partner for spousal conflict. That is, participants who held more negative attitudes about their mothers’ partner remembered more about his aggression towards their mother than other participants. In addition, recent (Year 6) exposure to spousal violence was positively related to memory performance, although this effect just failed to reach significance.

The model predicting recollections of child-directed aggression was also significant, although together the predictors only accounted for about 18% of the variance in performance. Child age, recall of Year 1 major life events, and current exposure to child-directed violence were positively related to the proportion of correctly remembered child-directed acts, and there also was a marginally significant positive association with performance on the CAMT. Thus, participants who were older, had better memories for childhood events, and who reported recent abuse or corporal punishment remembered and reported more of their abuse and punishment histories than other children.

Table 4. Predicting the proportion of correctly remembered aggressive acts

<table>
<thead>
<tr>
<th>% Mother-directed aggression remembered</th>
<th>% Child-directed aggression remembered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall model</td>
<td>$F(10, 85) = 2.93^{**}$</td>
</tr>
<tr>
<td>Escalated violence</td>
<td>$R^2 = 0.26$</td>
</tr>
<tr>
<td>0.106</td>
<td>0.103</td>
</tr>
<tr>
<td>Autobiographical memory measures</td>
<td></td>
</tr>
<tr>
<td>CAMT</td>
<td>0.047*</td>
</tr>
<tr>
<td>0.021</td>
<td>0.016</td>
</tr>
<tr>
<td>Memory for Year 1 major events</td>
<td>0.010</td>
</tr>
<tr>
<td>0.129</td>
<td>0.108</td>
</tr>
<tr>
<td>Memory for Year 1 life circumstances</td>
<td>0.577*</td>
</tr>
<tr>
<td>0.242</td>
<td>0.206</td>
</tr>
<tr>
<td>Traditional memory predictors</td>
<td></td>
</tr>
<tr>
<td>Child age at Year 1</td>
<td>0.027</td>
</tr>
<tr>
<td>0.022</td>
<td>0.021</td>
</tr>
<tr>
<td>Event frequency</td>
<td>-0.001</td>
</tr>
<tr>
<td>0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>Attitudes at Year 1: partner to blame</td>
<td>0.031*</td>
</tr>
<tr>
<td>0.015</td>
<td>0.010</td>
</tr>
<tr>
<td>Contact with partner at Year 6</td>
<td>-0.034</td>
</tr>
<tr>
<td>0.082</td>
<td>0.080</td>
</tr>
<tr>
<td>Exposure to aggression at Year 6</td>
<td>0.201*</td>
</tr>
<tr>
<td>0.103</td>
<td>0.096</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>0.058</td>
</tr>
<tr>
<td>0.058</td>
<td>0.102</td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01; *p < 0.06; b*p < 0.07.
An additional analysis was conducted on the subset of teens who were exposed to both forms of aggression to test directly whether predictors of remembering differed for mother- and child-directed aggression. Using a hierarchical linear model (HLM) strategy, we tested effects of the within-subjects factor of target (mother versus child), the between-subjects predictors (allowing frequency, severity, attitudes, and current violence to have varying values across target), and interactions between target and the between-subjects predictors. None of the interactions involving target were significant, although the power to detect such effects was limited by the small number of participants involved in this analysis \((N = 49)\). Consistent with the univariate analyses on the full samples, the CAMT was positively related to memory performance across both types of violence \(F(1,42) = 6.30, p = 0.016\), and age and current violence had marginally significant positive associations with performance, \(Fs(1,42) \geq 3.41, ps \leq 0.072\).

Predicting the likelihood of complete forgetting

Table 5 summarizes the results of the logistic regressions predicting complete forgetting or failure to report family violence. The model for mother-directed aggression fits adequately, and the score statistic indicates that, collectively, the predictor variables significantly predicted forgetting of spousal abuse. The parameter estimates indicate that blame of the partner was negatively related to failure to report spousal violence. A negative association between failure to disclose spousal violence and CAMT performance was marginally significant. Thus, the teens who failed to recollect any spousal abuse had poorer autobiographical memory skills and more positive perceptions of the mothers’ partner than those who recounted some spousal violence. A generalized R-square for this model indicated that it explained one fifth of the variance in forgetting of mother-directed violence.

<table>
<thead>
<tr>
<th>Table 5. Predicting the likelihood of complete forgetting</th>
<th>Complete forgetting of mother-directed aggression</th>
<th>Complete forgetting of child-directed aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Overall model fit</td>
<td>(\chi^2(85) = 92.67)</td>
<td>(\chi^2(95) = 82.55)</td>
</tr>
<tr>
<td>Score statistic (explanatory value)</td>
<td>-0.627</td>
<td>0.686</td>
</tr>
<tr>
<td>Escalated violence</td>
<td>-0.268a</td>
<td>0.166</td>
</tr>
<tr>
<td>Autobiographical memory measures</td>
<td>0.463</td>
<td>0.806</td>
</tr>
<tr>
<td>CAMT</td>
<td>-2.024</td>
<td>1.548</td>
</tr>
<tr>
<td>Memory for Year 1 major events</td>
<td>0.018</td>
<td>0.138</td>
</tr>
<tr>
<td>Memory for Year 1 life circumstances</td>
<td>0.010</td>
<td>0.008</td>
</tr>
<tr>
<td>Traditional memory predictors</td>
<td>-0.195*</td>
<td>0.096</td>
</tr>
<tr>
<td>Child age at Year 1</td>
<td>0.616</td>
<td>0.517</td>
</tr>
<tr>
<td>Event frequency</td>
<td>-0.886</td>
<td>0.768</td>
</tr>
<tr>
<td>Attitudes at Year 1: partner to blame</td>
<td>0.710</td>
<td>0.562</td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01; *p < 0.07; b p < 0.10.

The right half of Table 5 shows the results of the analyses for child-directed aggression. The score statistic for this model was significant and the predictors together accounted for about one fourth (24%) of the variance in performance. Age, recent child-directed aggression, and memory for Year 1 major events all were negatively related to forgetting. In other words, participants who were younger at Year 1, who were no longer exposed to child-directed aggression at Year 6, and who remembered fewer nonabusive events from Year 1 were more likely to completely forget or fail to report their childhood punishment and abuse histories than other participants. There also was a marginally significant effect of escalated abuse such that teens who had experienced severe abuse were less likely to disclose any child-directed aggression than teens who were not severely abused.

To determine whether the predictors of complete forgetting differed significantly between child- and mother-directed aggression, generalized linear models were tested in the subset of teens who had been exposed to both forms of aggression. Like HLM, this method allows for predictors that vary across the repeated measure. We tested effects of target, the between-subjects predictors, and interactions between target and the between-subjects predictors. There was a main effect of target, \( \chi^2(1) = 5.65, p = 0.017 \), such that teens were less likely to fail to report child-directed aggression than mother-directed aggression, but none of the interactions between target and the predictors were significant. Again it should be noted that the small number of participants limited the power to detect such effects. Current violence was negatively associated with forgetting, \( \chi^2(1) = 4.0, p = 0.045 \), and the negative relation between severity and complete forgetting just failed to reach significance, \( \chi^2(1) = 3.59, p = 0.058 \).

DISCUSSION

The results of this study indicate that most adolescents remembered and reported witnessing or being targets of family violence when they were children. Nevertheless, the exact details of their abuse and punishment histories were not well retained in their reports over time, particularly when the mothers were the victims. Adolescents reported about half of previously disclosed acts of child-directed aggression, and less than half of the violent mother-directed acts they had reported witnessing as children. Moreover, consistent with previous findings reported by Williams (1994), Widom and her colleagues (Widom & Shepard, 1996; Widom & Morris, 1997), and Goodman and her colleagues (2003), a subset of the participants either completely forgot or failed to report their abuse or punishment histories altogether.

How should complete forgetting or failure to report family violence be interpreted? Without comparative data on failures to disclose nontraumatic events, it is not clear whether such ‘forgetting’ should be viewed as extraordinary and therefore suggestive of a trauma-specific amnesia mechanism (see Read, 1997, and Read & Lindsay, 2000). Previous prospective investigations of recollections of early abuse have not examined memory for both traumatic and nontraumatic events in the same individuals, but there is some evidence that complete forgetting of salient nontraumatic events may be commonplace (Cash & Moss, 1972; Means & Loftus, 1991; Read, 1997; Read & Lindsay, 2000). For example, Read (1997) reported that adults are just as likely to retrospectively report extended memory losses for nontraumatic experiences (e.g. vacations and attending music lessons) as for traumatic events (e.g. abuse and domestic violence). To provide a context for interpreting failures to report early experiences with family violence in the current
study, we calculated rates of ‘complete forgetting’ of several nonabusive events from Year 1 (e.g. moving to new home, death of family member) that varied along several dimensions, including the child’s involvement, the potential for emotional arousal, and the potential for enduring effects. These data indicated that teens frequently failed to report all such events after the 6-year delay. Admittedly, the comparability of family violence and nonabusive events in this study is not perfect. For instance, memories of each nonabusive event were probed by an open-ended question and a single yes/no question, whereas memories of family violence were probed by an open-ended question and a series of yes/no questions, rather than a global yes/no question about the general occurrence of spousal violence or child abuse. At a minimum, however, these data suggest that the teens were highly likely to fail to disclose all sorts of events from Year 1, whether abuse-related or not.

Some of the patterns observed in this study could be viewed as suggestive of the operation of trauma-specific memory mechanisms. In particular, the analyses of memory among teens exposed to escalated abuse revealed that most of these participants failed to remember or report severe violence. Indeed, teens exposed to escalated child or spousal abuse were significantly more likely to remember and report the less severe forms of aggression to which they had been exposed than the escalated forms of aggression. Widom and Shepard (1996) found similar underreporting of very severe abuse in a sample of over 1000 adults who had been physically abused as children. Sixty per cent of their participants failed to disclose severe physical abuse, whereas most did report harsh physical punishment. Taken alone, the underreporting of severe violence observed in this study is consistent with claims that traumatic memories are vulnerable to forgetting through trauma-specific memory mechanisms such as repression and dissociation (e.g. Courtois, 1992; DePrince & Freyd, 1999; van der Kolk, 1994). This interpretation is bolstered by the fact that underreporting of escalated violence was accentuated for child-directed violence, which is likely to be more traumatic than witnessing spousal violence. Moreover, rates of ‘complete forgetting’ of escalated child abuse were consistently higher than those observed for the Year 1 nonabusive events.

Yet repression and dissociation cannot easily explain the tendency for teens exposed to escalated child abuse to be less likely to completely forget or fail to report family aggression altogether. Indeed, among the 22 teens exposed to escalated child abuse, only one failed to report moderate forms of family aggression, a rate significantly lower than that observed in the remainder of the sample. This complex pattern of relations between violence severity and memory is highly consistent with another ‘traumatic memory is special’ formulation: the argument that traumatic experiences invoke special neurological mechanisms that result in highly fragmentary sensory memories (e.g. Nadel & Jacobs, 1998). According to this model, traumatic levels of stress activate amygdala-based processing, enhancing memory for the emotional attributes of an experience, but disrupt the consolidation functions of the hippocampus, leading to the formation of disorganized, fragmented memories. Thus, individuals who were severely abused might be highly aware that they were exposed to harsh treatment as children (and therefore report more normative forms of such treatment such as spanking), yet have difficulty remembering incidents of severe abuse.

On the other hand, it is possible that ordinary memory mechanisms might accelerate forgetting of the most traumatic forms of family violence while enhancing recall of less severe events. For instance, participants who were exposed to escalated abuse might have been especially likely to form schematic representations of family aggression. Children

who were targets of severe violence were almost always targets of less severe acts as well, thus they were exposed to a wider range of aggressive acts than children who were targets of physical punishment alone. Because the milder forms of aggression were also more frequent than the more severe acts (see Table 2), these events would be more likely than the severe acts to be incorporated into a general event representation, and therefore more likely to be ‘remembered’ through reliance on a schematic representation. In other words, participants who were severely abused might have ‘known’ that they were targets of some aggression, such as spanking, but failed to remember specific aggressive events such as being kicked or hit with a fist. It is also possible that the teens exposed to severe abuse, particularly child abuse, might have avoided thinking and/or talking about these experiences as a way of coping, leading them to forget or fail to report the specific details of their histories, and report only the more common forms of aggression. Consistent with this explanation, a growing literature suggests that people exposed to repeated negative events like child abuse may avoid remembering the details of past events as a strategy for regulating affect (e.g. Johnson et al., in press; Williams, 1995).

Less equivocal evidence for the position that memory for abuse involves ordinary memory mechanisms comes from the finding that recollections of childhood experiences with family aggression were associated with several simple and traditional variables from the memory literature, as well as individual differences in autobiographical memory. For instance, consistent with well-established patterns of memory development (Baker-Ward et al., 1993; Brainerd et al., 1985), participants who were older at Year 1 showed superior recollections of their own abuse and punishment histories than those who were younger. Increased age was associated with more complete and detailed recollections of child abuse and corporal punishment and, as in Goodman et al. (2003) and Williams (1994), a lower likelihood of complete forgetting or failure to report. As would be predicted by the literature on the role of re-exposure and repetition in maintaining memory (e.g. Campbell & Jaynes, 1966; Hudson & Sheffield, 1998; Rovee-Collier et al., 1980), adolescents’ performance in the memory interview was also related to their reports of recent (Year 6) experiences. Specifically, for both mother- and child-directed aggression, recent exposure to such aggression was related to more detailed recollections and lower rates of complete forgetting. These findings also could be seen as illustrative of retroactive interference or the biasing effects of one’s current perspective on recollections of the past (Greenhoot, 2000; Ross, 1989; Wilson & Ross, 2003). For example, Ross and his colleagues have shown that adults’ memories are shaped by current knowledge and beliefs such that their recollections lead to coherent views of present selves and circumstances. Thus, the heightened memory for Year 1 violence associated with recent violence could be the result of memory constructions biased or distorted by current conditions. Finally, it is also possible that these patterns reflect participants’ willingness to disclose any family aggression (either recent or childhood) during the follow-up interview. However, the fact that nondisclosure tendency, which was based on discrepancies between mothers’ and teens’ reports of recent family violence, was not associated with recollections of Year 1 family violence argues against this interpretation.

Participants’ recollections of spousal violence also were related to their appraisals of parents’ conflicts. Specifically, participants who blamed the partner more for their parents’ conflicts remembered and reported more mother-directed acts and had lower rates of complete forgetting, controlling for aggression frequency and severity. This finding can be interpreted in light of the large literature indicating that knowledge, attitudes, and beliefs can shape recollections, enhancing memory when an experience is consistent with
expectations, and interfering with accurate remembering when an event does not conform to attitudes or expectations (e.g. Greenhoot, 2000; Ornstein et al., 1998; Wilson & Ross, 2003). Thus, in this study, more negative views of the partner might have supported retention of his violent behaviour. Alternatively, participants with more negative views might have been more willing to report his violent behaviour in the memory interviews. Regardless of whether these patterns reflect mnemonic or social factors, one implication is that individual differences in children’s construal of aversive events could lead to substantial variations in what they remember or report about those events.

Our findings also are consistent with research on the facilitative effects of action and participation on children and adults’ memory (Engelkamp & Dehn, 2000; Rudy & Goodman, 1991; Tobey & Goodman, 1992). Across both types of memory measures, recollections of aggression that was directly experienced were superior to those of events that were only witnessed. Further, analyses on the subsample of participants exposed to both types of aggression indicated that they correctly remembered more child-directed than mother-directed acts and that they were more likely to fail to report spousal violence than their own abuse or punishment histories, although these differences reached traditional standards of statistical significance only in the repeated measures analysis of complete forgetting of child-directed violence. Importantly, predictors of memory for the two types of events were quite similar, and repeated measures analyses on the subsample exposed to both types of aggression revealed no interactions between predictors of remembering and the target of aggression, suggesting that differences between these events may be more quantitative than qualitative. Nonetheless, as discussed earlier, reverse effects of participation were observed for escalated violence, such that teens were more likely to completely forget escalated child abuse than spousal abuse. These patterns cannot be explained through straightforward distinctiveness effects due to participation.

Finally, recollections of family violence were mediated by individual differences in autobiographical memory ability. More extensive or accessible autobiographical memory (as estimated by CAMT performance) predicted more complete recollections of spousal abuse and was marginally associated with lower rates of ‘complete forgetting’ of spousal abuse and more detailed reports of child-directed aggression. Similarly, participants who accurately remembered more life circumstances from Year 1, such as the composition of their households or their grades in school, had more complete and detailed recollections of spousal abuse than other teens. Finally, more complete recollections of Year 1 nonabusive events were associated with more detailed recollections of child-directed aggression, and a lower likelihood of complete forgetting or failure to report. These findings are consistent with those reported by Ghetti, Goodman, Eisen, Qin, and Davis (2002), who found that across-time consistency in children’s reports of sexual and physical abuse was related to their memories for a physical examination.

The memory associations observed here are especially noteworthy in light of the differences between the types of stimulus events being remembered. The acts of family aggression occurred repeatedly and cannot necessarily be seen as discrete events. In contrast, the nonabusive events were single events (perhaps with long-lasting consequences), the CAMT required retrieval of specific episodes, and the interview about Year 1 life circumstances involved recall of general life characteristics (i.e. personal semantic memory) rather than events. It seems unlikely that the associations between these measures reflect individual differences in verbal fluency or talkativeness because different methods were used to measure the different types of memories. The interviews about family aggression and nonabusive events consisted of a general question followed by yes/
no questions, whereas the autobiographical memory task required participants to generate narratives, and the interview about life circumstances consisted of focused, open-ended probes such as, ‘What were your grades like?’ Moreover, neither memory for family violence nor the other autobiographical memory measures were related to a basic measure of episodic memory skill, paired associates recall, suggesting that the associations between potentially traumatic and ordinary memories may be specific to personal memories or that the paired associates task used in this study was a poor measure of episodic memory skill. Whether the associations between these measures are indicative of other common processes that affect autobiographical memory or of a general ‘memory ability’ is unclear. It also is not clear why different autobiographical memory measures tended to predict different forms of family violence. Nonetheless, these patterns do illustrate that, contrary to some models of traumatic memory (e.g. Terr, 1994; van der Kolk, 1994), memory for abuse is not completely dissociated from other memories.

It is important to point out that because verbal reports are always imperfect measures of memory representations, failures to report Year 1 family aggression in the memory interviews are not unequivocal indicators of forgetting. For instance, it is possible that, in spite of our steps to ensure that participants understood the correct time frame, some of the teens might have misattributed memories for family aggression to a year other than Year 1 and thus failed to report family aggression when asked about the events that took place during Year 1. Indeed, research on autobiographical event dating suggests that individuals are often inaccurate in estimating the timing of previous events, particularly over long delays (e.g. Thompson, Skowronski, Larsen, & Betz, 1996). The same argument could be applied to recollections of Year 1 life events and life circumstances. In addition, some participants may have chosen not to disclose their childhood abuse histories during the memory interviews. Yet our predictive models showed that our indicator of nondisclosure tendency (when mothers reported recent family aggression at Year 6 but teens did not report such events) was not significantly related to any of the measures of memory for family aggression. Although we cannot completely rule out the possibility of deliberate nondisclosures on the basis of this variable alone, our results do corroborate those reported by Williams (1994), who found that willingness to divulge highly personal information (e.g. having an abortion) was unrelated to recall of previously documented child sexual abuse. Indeed, during the Year 6 interview teens were also asked to disclose other sensitive information, including drug and alcohol use, delinquent behaviour (e.g. stealing, having sex for money, gang involvement), and sexual activity. Teens who failed to recollect any mother- or child-directed violence were just as likely to report such behaviours as teens who did recollect mother- or child-directed violence. Moreover, the fact that memories for less sensitive information and experiences, as well as several traditional predictors of memory performance, were associated with recollections of family violence suggests that neither nondisclosure nor misremembering the time frame can completely account for retention patterns in this study.

Taken together, the results of this study suggest that remembering and forgetting of early experiences with abuse can be explained, at least in part, by variables that apply to a wide range of memory tasks. Some of our findings, particularly the disproportionate levels of forgetting or failure to report escalated child abuse relative to other forms of violence, are consistent with the arguments for trauma-specific memory mechanisms. Yet similarly high levels of apparent forgetting were observed for several non abusive events, and there are also ‘ordinary memory’ explanations for the hastened forgetting of severe abuse. While it is possible that memory for abuse and memory for nonabusive events involve
separate mechanisms influenced by the same factors in the same way, a more parsimonious
interpretation of these results is that these memories are based on the same underlying
mechanisms. Similar conclusions were drawn by Goodman and her colleagues (2003),
who found that adults’ disclosures of previously documented sexual abuse were predicted
by variables that are consistent with the broader memory literature, such as age and level
of maternal support. Of course, even though we identified several factors associated with
memory for emotionally charged events, much of the variance in memory performance
was unexplained. Additional research is clearly necessary to identify other determinants of
memory for early adverse experiences. For instance, individual differences in children’s
reactions to adverse experiences may affect the way they process and remember these
events. Indeed, a growing literature suggests that a range of personality, behavioural, and
cognitive characteristics are associated with variations in remembering and reporting
stressful events (e.g. Merritt et al., 1994; Quas et al., 1997). Similarly, this study
demonstrated that one measure of children’s perceptions of spousal violence was related
to their recollections, but more comprehensive examinations of individual differences in
children’s interpretations of traumatic events also seem warranted. It also seems likely that
better documentation of events that take place during the delay interval between an
experience and recall might explain additional variance in memory for early traumatic
experiences. Participants in this study were not asked about the extent to which they had
discussed family aggression, because among those individuals who failed to remember
past abuse, such a question could function as a suggestion. Alternative methods for
measuring discussions of abuse, such as documentation of therapeutic interventions or the
questioning of close friends and family may elucidate the role of postevent discussions on
retention of trauma. In addition, future studies should also document other events that take
place during the delay interval that may shape recollections.

The results of this study provide information about the completeness and accuracy of
long-term recollections of childhood exposure to family violence, as well as the conditions
under which remembering versus forgetting might be observed. These findings are
relevant to the current debate over the nature of memory for childhood abuse experiences,
and have implications in both clinical and legal settings. For instance, it should not be
regarded as extraordinary for an adolescent to forget events as aversive as spousal violence
or child abuse, and some of this forgetting may be mediated by factors as straightforward
as general autobiographical memory ability, age, and degree of re-exposure to the events.

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