

Research Article

Traumatic Impact Predicts Long-Term Memory for Documented Child Sexual Abuse

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ABSTRACT—*Prospective studies of adults' memories of documented child sexual abuse (CSA) reveal that the majority of individuals remember their victimization. However, the accuracy of these memories has rarely been investigated scientifically. The present study examined predictors of memory accuracy and errors 12 to 21 years after abuse ended for individuals with legal experiences resulting from documented CSA. Severity of posttraumatic stress disorder (PTSD) symptomatology was positively associated with memory accuracy. However, individuals nominating CSA as their most traumatic life event exhibited relatively accurate memory regardless of indicators of PTSD. Predictors of memory errors were also identified (e.g., less maternal support). These results indicate that, in addition to understanding the role of traditional cognitive factors, understanding an event's traumatic impact is important for predicting the accuracy of long-term memory for reported CSA.*

Although research has focused on forgetting of child sexual abuse (CSA), virtually no studies have examined the accuracy of long-term memory for such trauma among adults who remember being victimized. We conducted a longitudinal study involving victims of documented and prosecuted CSA to investigate, prospectively, the accuracy of long-term memory of sexual abuse in childhood.

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We specifically sought to examine how reactions to trauma (i.e., trauma symptoms, cognitive appraisals) affect memory (see also Williams, 1995). Regarding trauma symptoms, much current interest focuses on memory functioning in relation to posttraumatic stress disorder (PTSD; McNally, 2003), a psychopathology that is defined by anxiety and memory problems (Sullivan & Gorman, 2002) and is a possible sequela of CSA (Browne & Finkelhor, 1986). Research suggests that trauma survivors, especially those with PTSD, overattend to trauma-related cues (e.g., for rape victims, the word *rape* on the modified Stroop test; e.g., Field et al., 2001; Foa, Feske, Murdock, Kozak, & McCarthy, 1991) and evince heightened memory and reduced forgetting of trauma-related words (e.g., Amir, McNally, & Wiegartz, 1996; McNally, Metzger, Lasko, Clancy, & Pitman, 1998; Paunovic, Lundh, & Oest, 2002).

One possible explanation of such findings is that traumatized individuals, especially those with PTSD, develop semantic networks ("fear networks") within which trauma-related information becomes stored (e.g., Foa, Steketee, & Rothbaum, 1989; but see Foa & Riggs, 1993, and for review, Dalgleish, 2004). These networks may predispose traumatized individuals to be hypervigilant to trauma-related information and retain it particularly well. These networks could also affect retention of the original trauma (e.g., by fostering greater rehearsal) and influence memory for similar experiences or traumatic events generally (e.g., by activation of related nodes in memory). Accordingly, one might predict that abused individuals, especially those who exhibit high levels of PTSD symptomatology, have robust CSA memories, despite findings that link trauma backgrounds with information processing deficits for non-trauma-related information (e.g., Bremner, Shobe, & Kihlstrom, 2000; Edwards, Fivush, Anda, Felitti, & Nordenberg, 2001;

Hunter & Andrews, 2002; McNally, Lasko, Macklin, & Pitman, 1995; cf. Metcalfe & Jacobs, 2000, regarding “hot” and “cold” memory systems).

Independent of potential effects of PTSD symptomatology on memory of CSA, cognitive appraisals of distressing events may also affect CSA memories. Events appraised as highly negative are remembered especially well (e.g., Berntsen, 2002), perhaps because of their salience or distinctiveness. They may activate physiological (e.g., amygdala; LeDoux, 2000) and behavioral (e.g., rehearsal; Christianson, 1992) responses that help consolidate or maintain memories, possibly including memories for whole categories of experiences. Moreover, for highly negative incidents, information directly related to the cause of the stress is prioritized in memory, with such information often retained better the greater the distress (Christianson, 1992); this relation between memory and distress implies that increased severity of CSA would result in more accurate memory for main features of the abuse. Thus, overall, although alternative hypotheses exist (e.g., traumatic reactions and negative appraisals could overwhelm coping abilities or activate defense mechanisms, leaving victims with reduced or distorted processing of CSA experiences; Terr, 1991; van der Kolk, 1997), there is reason to predict that individuals who appraise their CSA as a particularly traumatic experience would remember it well, especially if they evince high levels of PTSD symptomatology, and further that more severe abuse would result in better CSA memory.

In addition to the aforementioned trauma-specific factors, numerous factors correlated with trauma undoubtedly affect memory. Thus, the impact of trauma must be considered in the context of other potentially important variables. Increased severity of CSA may result in increased trauma, but severity can comprise such factors as duration and frequency, which themselves may affect memory accuracy independently of traumatic impact. Moreover, severe abuse is often aggressively prosecuted. Insofar as extensive legal involvement results in elaborate rehearsal, greater stress, and a more distinct experience, children with extensive legal involvement may remember their CSA experiences particularly well.

Another set of variables potentially correlated with trauma concerns interpersonal relationships. Close relationship to the perpetrator is associated with lack of maternal support when child victims disclose their abuse (Everson, Hunter, Runyon, Edelson, & Coulter, 1989). To the extent that unsupportive mothers talk less often with their children about the CSA than supportive mothers do or fail to legitimate their children's allegations, long-term memory may be adversely affected (Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1994; Haden, Hayne, & Fivush, 1997). Furthermore, individuals abused by an emotionally close caregiver may feel especially betrayed (Freyd, 1996). Such feelings may reduce the clarity and accessibility of memories (e.g., through cognitive avoidance). However, a close relationship to the abuser (e.g.,

intrafamilial abuse) may be associated with a detailed knowledge base, which may support memory. Thus, relationship variables must be considered, despite the unclear direction of their effects.

Factors that are not necessarily related to trauma but affect long-term retention (e.g., age, delay) also likely influence memory of CSA. Older children provide more accurate and complete memory reports than do younger children (e.g., Quas et al., 1999), which suggests that children who were older when the abuse ended may have more accurate long-term memories than children who were younger. Additionally, delay often heralds forgetting; a shorter delay between the event and memory interview should engender better memory. Furthermore, compared with females, males may be less likely to disclose CSA (e.g., Finkelhor, Hotaling, Lewis, & Smith, 1990; Widom & Morris, 1997; but see Goodman et al., 2003) and may have less detailed autobiographical memories about emotional events (Davis, 1999). If males are hesitant to talk about CSA, their memory of it might fade over the years. In the present study, memory accuracy was considered in light of these possible influences.

THE PRESENT STUDY

Our goal was to examine the accuracy of adolescents' and young adults' memory for CSA that ended 12 to 21 years previously. We hypothesized that individuals displaying more PTSD symptomatology and reporting CSA as their most traumatic life event would exhibit better memory for the abuse than individuals displaying less PTSD symptomatology and reporting another event as their most traumatic experience. Further, increased abuse severity, greater maternal support, more extensive legal involvement, older age when the abuse ended, shorter delay, and being female were expected to make independent contributions to memory accuracy.

METHOD

Participants and Procedure

Participants had been involved during the 1980s in a study of the short-term effects of criminal prosecutions on CSA victims (Goodman et al., 1992). In that study, detailed information was collected on two hundred seventeen 3- to 17-year-olds' backgrounds, mental health, and abuse and legal experiences.¹ The data included demographic information (e.g., ethnicity, socioeconomic status), ratings of the children's behavioral adjustment at the outset of prosecution (i.e., Achenbach's, 1991, Child Behavior Checklist, or CBCL), information about the abuse (e.g., victim-perpetrator relationship, abuse duration), and facts

¹One participant from the original study ($n = 218$) is not included because the defendant was not 4 years older, a necessary element of the crime for prosecution.

related to the children's legal experiences (e.g., extent of legal involvement).²

Ten to 16 years following the original study, when participants were adolescents and young adults, they were recontacted to join a study of attitudes toward and experiences with the legal system. The follow-up was conducted in three phases: (a) Phase 1 was conducted via telephone interview, (b) Phase 2 was conducted via mailed questionnaires, and (c) Phase 3 was conducted via in-person interview. Exceptions to interview format were made as necessary (e.g., for participants lacking telephones, Phase 1 was conducted via mail or in-person interview). For scientific and ethical reasons, participants were not told of the researchers' knowledge of the sample's past victimization, legal involvement, or participation in the original study. Interviewers were blind to individual participants' prior experiences. In each phase, information about the participants' mental health, victimization, and legal experiences was elicited. Of the original 217 eligible participants, 81% ($n = 175$) were interviewed at least once.

For the present report, CSA memory accuracy was determined using primarily information collected during Phase 3 (in-person interview), which focused on participants' CSA memories, disclosure, and legal experiences. CSA was defined as exhibitionism, sexual touching, rape, oral sex, or intercourse (completed or attempted acts) that occurred before age 18 and with a person more than 4 years older (see Goodman et al., 2003). Of the 103 individuals (23 males, 80 females) who completed all portions of Phase 3, 7 said they were never abused (although 3 of them had disclosed abuse in Phase 1 or 2), and 2 discussed the legal case but stated the abuse was a false report. The present study concerns the 94 individuals (19 males, 75 females) who reported the former CSA and answered questions about it (see Table 1).³ Of these individuals, 69.1% were non-Hispanic Caucasian, 8.5% were African American, 12.8% were Hispanic, and 9.6% were "other." Alleged perpetrators were strangers (9%), acquaintances (30%), nonparental caregivers (39%), or parental caregivers (22%). Of the cases, 44.7% involved genital contact and 42.6% involved penetration. At entry into the original study, maternal support following disclosure was assessed on a dichotomous scale; most individuals had supportive mothers ($n = 83$ of 91). Participants' legal involvement was scored as 1 if the child never went to the courthouse ($n = 25$), 2 if the child went to the courthouse but did not testify ($n = 32$), or 3 if the child went to the courthouse and testified ($n = 37$).

Participants who completed Phase 3 and disclosed the CSA were comparable to the other participants from the original sample (Goodman et al., 1992) in terms of gender, socioeco-

²See Goodman et al. (1992) and Goodman et al. (2003) for details about the measures in the original study and identification of target cases, respectively.

³For predictors of Phase 1 disclosure, see Goodman et al. (2003). An identical analysis predicting disclosure in the smaller Phase 3 sample revealed similar findings, although age no longer significantly predicted disclosure.

TABLE 1
Characteristics of the Sample

Variable	<i>M</i>	<i>SD</i>	Range
Victim's age at end of abuse ^a	9.88	3.38	3–16
Victim's age at police report ^a	10.23	3.51	3–17
Victim's age at Phase 3 ^a	24.23	3.55	17–31
Delay ^b	14.34	1.41	12–21
Socioeconomic status ^c	4.88	1.69	1–7
Victim's relationship to perpetrator ^d	2.76	0.90	1–4
Abuse severity ^e	4.81	1.80	2–9
Abuse frequency ^f	1.88	0.89	1–3
Legal involvement ^g	2.13	0.81	1–3
Maternal support ^h	.91	.28	0–1
Number of posttraumatic stress disorder criteria met	3.65	1.95	0–6

^aAges are reported in years. ^bDelay is the number of years between the cessation of abuse and the Phase 3 interview. ^cSocioeconomic status (1 = high, 7 = low) was determined during the original study using a modified Hollingshead index. ^dThe scale for relationship to perpetrator ranged from *stranger* (1) to *parental figure* (4). ^eThe abuse-severity composite index (1 = low, 12 = high) included abuse duration, extent of sexual contact, amount of force, and extent of injury sustained because of the abuse, all from the original case documentation. ^fAbuse frequency was scored as 1 (1 time), 2 (2–3 times), or 3 (4 or more times). ^gThe scale for legal involvement ranged from *minimal* (1) to *testified* (3). ^hMaternal support was scored on a dichotomous scale (0 = no, 1 = yes).

omic status, abuse severity, victim-perpetrator relationship, and original CBCL total *T* score, $t(213-215) \leq 1.19$. However, this subsample experienced greater legal involvement, received more maternal support, and was older at the end of the abuse than were others from the original sample, $t(164-215) \geq |2.31|$, $ps < .01$.

PTSD was assessed during Phase 2 using the Post-Traumatic Stress Diagnostic Scale (PDS), which has commendable psychometric properties (e.g., internal consistencies from .78 to .84 for the criteria; Foa, Cashman, Jaycox, & Perry, 1997). This measure provides a list of traumatic events (including CSA); respondents indicate which events happened to them and, among those, which was the most traumatic. The answer to the latter question was used to score the *most traumatic event* (MTE) as CSA or another event. The measure then lists a series of questions regarding the effects of participants' self-identified MTE on their lives. Depending on participants' responses to these questions, they could meet up to six PTSD criteria: exposure to trauma, reexperiencing symptoms, avoidance symptoms, arousal symptoms, trauma-related symptoms lasting 3 months or more, and significant distress or impairment in daily functioning. A PTSD diagnosis is made when all six criteria are met. However, because another potentially important index is number of PTSD criteria satisfied, which may reflect more precisely the magnitude of an individual's psychopathology related to a particular trauma, we used *number of PTSD criteria met* (nPTSD) as the operational index of traumatization. Of participants who completed the PDS ($n = 86$), 77 provided detailed information about the nature of their most traumatic

TABLE 2
Correlations Among Key Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Victim's age at end of abuse	—											
2. Victim's gender	.05	—										
3. Abuse severity	.06	.11	—									
4. Legal involvement	.17	-.09	.06	—								
5. Victim's relationship to perpetrator	-.03	.28**	.38***	-.19	—							
6. Maternal support	-.04	.04	-.04	.11	.09	—						
7. Delay	-.09	-.07	.02	-.08	.25**	.04	—					
8. Abuse frequency	.02	.09	.62***	-.11	.56***	.04	.05	—				
9. Number of posttraumatic stress disorder criteria met	.25*	.01	.04	.20	.08	.03	-.16	.00	—			
10. Most traumatic event	-.22*	-.03	.13	-.20	.22*	-.02	.30**	.10	.00	—		
11. Proportion correct	.07	-.01	.16	.19	.01	.29**	.09	-.08	.14	.26*	—	
12. Proportion commission errors	.09	.13	-.30**	-.24*	.13	.08	-.04	-.04	-.01	-.08	-.61***	—
13. Proportion omission errors	-.16	-.21*	.15	.02	-.09	-.29**	.09	.24*	-.26*	-.20	-.43***	-.16

Note. *N*s ranged from 75 to 94. See Table 1 for explanations of rating scales; in addition, for victim's gender, male = 1 and female = 2, and most traumatic event was scored 0 if it was not child sexual abuse and 1 if it was child sexual abuse.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$ (two-tailed tests).

experience, which was CSA for 48 of these participants and another event for 29.⁴

Memory Coding

Memory interviews were coded for accuracy according to facts recorded in the original study. The coding scheme was based on 11 points of information (i.e., perpetrator's name, sexual acts, victim's age at onset and offset, perpetrator's age, child-perpetrator relationship, frequency and duration of abuse, child-perpetrator living arrangement, and force and coercion involved). Participants' Phase 3 responses to relevant questions (e.g., "How old were you when the CSA first happened?" "What was the defendant's name?") were examined for this information. When necessary for clarification, Phase 1 interviews and Phase 2 questionnaires were consulted. Then, responses were compared with the corresponding information from the original study (Goodman et al., 1992). Proportion correct was computed by dividing the number of correct responses by the number of the 11 points of information reported by the participant. For 7 of the 11 points (e.g., whether force was involved), errors could be scored as errors of commission (exaggeration or addition of information relative to the original record; e.g., the victim stating that he or she lived with the perpetrator when our records indicated that was not the case) or omission (exclusion or downplaying of information; e.g., indicating no force was involved when our records indicated force was used).⁵

⁴For most cases, it was possible to determine that the CSA reported as the MTE was the CSA case we had studied previously (i.e., of the 48 participants indicating CSA as their MTE, 36 provided enough information to verify that they were referring to the documented CSA).

⁵Questions not scored for errors were those such as, "How old were you when the abuse ended?" If, for example, the participant was 10 years old but indicated 9 years, it was unclear whether this should be scored as a commission or omission error. The denominator for proportion errors was 7.

To establish reliability, four raters independently coded 12% of the interviews. For correct responses, commission errors, and omission errors, proportion agreement ranged from .83 to .99 ($M = .93$) for each pair of raters. The raters divided the remaining interviews for coding.

RESULTS

Our goal was to identify predictors of memory accuracy for CSA. Dependent measures included proportion correct ($M = .72$, $SD = .18$, range = .29–1.00), proportion commission errors ($M = .14$, $SD = .17$, range = .00–.71), and proportion omission errors ($M = .14$, $SD = .18$, range = .00–.80). Correlations among key variables are shown in Table 2.

To examine the relative contribution of each variable in predicting memory of CSA, we conducted three linear regressions.⁶ Predictors included victim's age at the end of the abuse, victim's gender, abuse severity, maternal support, victim-perpetrator relationship, extent of legal involvement, delay between end of abuse and current memory interview, nPTSD, MTE, and the nPTSD \times MTE interaction. The regression for proportion correct was significant, $F(10, 64) = 3.34$, $p < .01$ (Table 3): Maternal support, nPTSD, MTE, and the MTE \times nPTSD interaction were significant predictors.

Individuals who received maternal support following CSA discovery evinced more accurate long-term memory than those who did not receive such support. More PTSD criteria met and nominating CSA as the MTE were also associated with more accurate responses. Figure 1 shows the interaction between

⁶Because of missing data, n in the regressions was 73 to 75. The pattern of results was virtually identical (except as noted in the text) when duration or frequency, which could independently affect memory, replaced severity, and when only corroborated cases were considered.

TABLE 3

Regression Analysis for Variables Predicting Accuracy of Long-Term Memory for Child Sexual Abuse

Variable	β	t	p
Victim's age at end of abuse	-.07	-0.62	.54
Victim's gender	.16	1.47	.15
Abuse severity	.17	1.47	.15
Legal involvement	.03	0.28	.78
Victim's relationship to perpetrator	-.10	-0.82	.42
Maternal support	.33	3.11	.003
Delay	-.06	-0.51	.61
MTE	.29	2.54	.01
nPTSD	.23	2.07	.04
MTE \times nPTSD	-.33	-3.10	.003

Note. $n = 75$. MTE = most traumatic event (not child sexual abuse = 0, child sexual abuse = 1), nPTSD = number of posttraumatic stress disorder criteria met. MTE and nPTSD were standardized to create the interaction term. $R^2 = .34$. The addition of the interaction term led to R^2 change of .10, $p < .01$. See Tables 1 and 2 for explanations of rating scales.

MTE and nPTSD. For individuals designating CSA as their most significant life trauma, there was virtually no relation between nPTSD and memory for the abuse, $r = -.02$; memory was rel-

atively accurate regardless of the number of PTSD criteria satisfied. However, for individuals nominating another life event (e.g., car accident, loved one's death) as their most significant trauma, the relation between nPTSD and memory was positive, $r = .44$, $p < .05$. For these individuals, a greater number of PTSD criteria met was associated with better memory of CSA.

It is possible that PTSD symptomatology is related to how often the abuse was discussed with a counselor or parent, which could affect memory. To investigate this possibility, we added therapy (whether the participant reported receiving counseling during or immediately following the prosecution) and frequency of CSA discussion with the caregiver (immediately following the CSA and during the delay), as indicated during Phase 2, individually to the regressions.⁷ We similarly included self-reported number of other CSA experiences ($M = 1.71$ for participants whose MTE was CSA and $M = 2.07$ for participants whose MTE was not CSA) and number of non-CSA traumas ($M = 7.02$ for participants whose MTE was CSA and $M = 8.90$ for participants whose MTE was not CSA), assessed in Phase 1. No significant R^2 changes resulted.⁸

Our accuracy measure might be perceived as simply an index of consistency between the original and current reports. Although some facts used to create the accuracy variable relied solely on children's original statements, others were objectively verifiable (e.g., perpetrator's name and age). When a composite variable including only proportion correct for these verifiable questions was entered as the dependent variable, the regression results remained virtually identical, $F(10, 64) = 2.57$, $p = .01$.

The regression analysis for omission errors was also significant, $F(10, 62) = 2.17$, $p < .05$, $R^2 = .26$. Maternal support was the only significant predictor, $\beta = -.30$, $p = .01$ (greater maternal support predicted fewer omissions),⁹ although gender, $\beta = -.21$, $p < .10$, approached significance (females produced somewhat fewer omission errors than males). When we conducted the analysis replacing severity with frequency (the two variables were highly correlated), greater frequency of CSA significantly predicted increased omission errors, $\beta = .40$, $p = .01$, despite a positive relation between frequency and

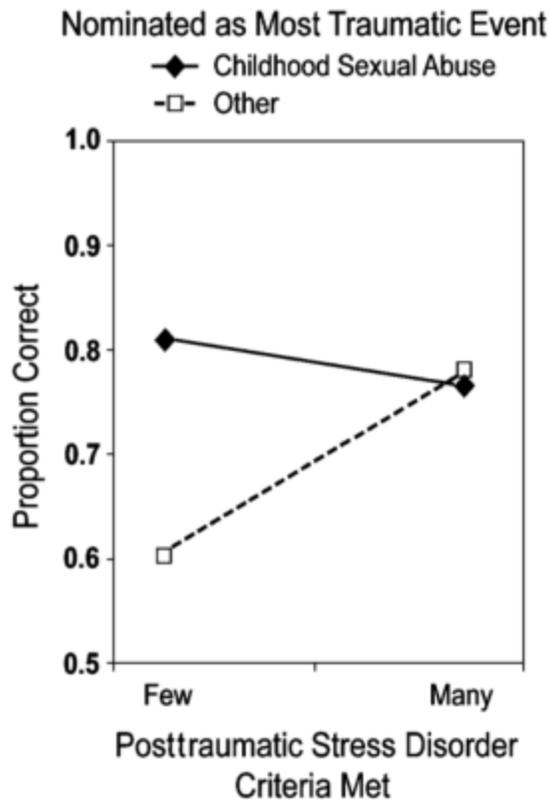


Fig. 1. Relation between number of posttraumatic stress disorder criteria satisfied and proportion correct on the measure of memory for the target childhood sexual abuse for participants indicating their most traumatic life event was child sexual abuse versus another event. Lines are plotted according to the regression coefficients.

⁷We did not have information on recent therapy.

⁸Other mental health indices (composite scores) collected during the initial study (i.e., CBCL) or present study (i.e., Dissociative Experiences Scale, Bernstein & Putnam, 1986; Youth Self Report, Achenbach, 1997; Behavior Symptom Index, Derogatis, 1983; Beck's Depression Inventory, Beck & Beamesderfer, 1974; Trauma Symptom Inventory, Briere, Elliott, Harris, & Cotman, 1995) were not significantly related to memory accuracy or errors, $r_s \leq .19$. Of the 86 individuals whose data allowed for a formal PTSD diagnosis to be made, 14 (15.9%) reached the clinical diagnosis level (meeting the six criteria). Having a PTSD diagnosis was not related to proportion correct or commission or omission errors regarding the documented CSA, $r_s \leq .08$, largely because participants who met four or five PTSD criteria generally evinced accurate memory for the documented CSA.

⁹Participants who reported that their mother avoided talking about the abuse or told them not to talk about it made more omission errors than other participants, $r_s = -.29$ and $-.25$, $n_s = 78$, $p_s < .05$.

initially receiving counseling related to the case, $r = .30$, $p < .05$. The regression model for commission errors was not significant, $F(10, 62) = 1.35$, $R^2 = .18$.

For the three memory measures, the findings remained virtually identical when we excluded the 12 people who indicated another CSA case (not our target case) was their MTE; for example, the regression for the proportion correct was again significant, $F(10, 52) = 4.79$, $p < .001$. Also, the effect of gender became significant for proportion correct, $\beta = .23$, $p < .05$; females were more accurate than males.

DISCUSSION

The present study examined the accuracy of long-term memory for CSA using a prospective design. Individuals who designated CSA as their MTE and individuals with more PTSD symptomatology were particularly accurate in their memory of the documented CSA case, which suggests an important influence of trauma symptoms and cognitive appraisals on long-term CSA memory. Evidence demonstrates that memory for emotional events often endures and that trauma-related information is generally retained well, especially among individuals with PTSD (Paunovic et al., 2002). Our results are largely consistent with this evidence.

Regarding the significant interaction involving PTSD criteria, it is possible that when CSA (our documented case or another incident) was indicated as the MTE, individuals encoded and rehearsed central details of the CSA enough to maintain accurate memory over the long term, regardless of PTSD symptoms. For them, as they reported, CSA was an emotional event, and the emotion or trauma-related semantic network that resulted may have facilitated memory retention (Foa et al., 1989; LeDoux, 2000). Among victims who indicated a non-CSA event as their most traumatic, those with fewer PTSD symptoms may not have focused on or may have actively tried to forget the CSA, leading to poorer long-term memory. In contrast, those who reported greater PTSD symptomatology (for a non-CSA trauma) may have been preoccupied with trauma or possessed fear networks that generalized to traumatic events overall, supporting relatively accurate long-term memory of CSA. It is also possible that this latter group had discussed the abuse more (e.g., in recent psychotherapy), although apparently not with a therapist right after the target CSA or with their nonoffending caregiver up to the time of the present interview.

Maternal support following disclosure of the abuse significantly predicted a higher proportion correct and fewer omission errors. Previous research has revealed benefits of maternal support on children's memory for distressing experiences (e.g., Goodman et al., 1994). In our study, maternal supportiveness may have facilitated formation of a coherent representation of the abuse. Also, children with supportive mothers may have felt comfortable discussing the CSA with other people. Both

greater coherence of an initial event representation and increased discussion could lead to maintenance of accurate memory.

When the entire sample was included in the analyses, men's and women's memory accuracy did not differ significantly. However, when the sample was limited to participants specifying the target case as their MTE, results demonstrated that females provided more correct information than did males. Former research has suggested gender differences in what males and females define as abusive and in their memory for emotional events (e.g., Davis, 1999; Widom & Morris, 1997). To the extent that males may be less willing to discuss CSA, perhaps particularly when the CSA is appraised as a highly traumatic personal event, they may have fewer rehearsal opportunities from the time the abuse ends, even in individuals willing to disclose their victimization. The resulting lack of rehearsal may affect accuracy of long-term memory.

Frequency of abuse was associated with a greater proportion of omission errors. There are several possible interpretations of this finding. For instance, frequent events are associated with schematization in memory, which could lead to omission errors. Victims may also downplay incest or abuse in which they were frequently (and perhaps actively) involved (Bidrose & Goodman, 2000).

Although the regression predicting commission errors was nonsignificant, two potentially important factors were identified in correlational analyses, warranting further research. Abuse severity predicted lack of commission errors, a result consistent with studies indicating that stress is often (although not always) associated with accuracy (e.g., Christianson, 1992). Also, greater legal involvement predicted fewer commission errors. Legal involvement might be associated with elaborative rehearsal, which facilitates long-term retention. The additional stress of possibly or actually testifying may have further solidified memory, thus reducing the likelihood of memory errors.

In the regression analyses, age at end of abuse was not significantly associated with long-term memory. In a previous analysis based on a larger sample (from Phase 1, $n = 174$; Goodman et al., 2003), we found that age predicted whether participants disclosed CSA. Nondisclosing participants were not included in the present study. Moreover, the present sample did not contain individuals whose abuse ended before they were 3 years old. Age at end of abuse may be related to childhood amnesia or "lost memory" but not to accuracy for core, salient features among individuals whose abuse ended at age 3 or after and who remember CSA.

Finally, victim-perpetrator relationship and delay were statistically unrelated to memory of CSA. Relationship between the victim and perpetrator is likely more complicated than our classification captured. Delay may have lost its predictive power given the long time interval, and subsequent forgetting, between the abuse and memory interview.

Some limitations of our study should be noted. The generalizability of our findings to nonreported CSA cases is unknown, and most CSA is never reported to authorities. Because we tested memory in a prosecution sample, disclosure and discussion of CSA had typically taken place during childhood. Our results do not necessarily reflect memory accuracy for cases in which the first disclosure occurs after lengthy delays (i.e., in adulthood). Moreover, if the initial allegations were false or distorted, our findings would be affected. Lack of statistical power may have reduced our ability to detect certain effects, such as those of age and delay. Furthermore, future studies should focus on additional memory characteristics (e.g., completeness, emotional content).

Nevertheless, by examining trauma-related factors, the present study sheds light on theoretical and applied issues regarding memory for traumatic experiences. Although replication is needed, our results indicate that in addition to traditional cognitive factors, an event's traumatic impact predicts accuracy of long-term memory for CSA.

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