

# Psychological Counseling and Accuracy of Memory for Child Sexual Abuse

Gail S. Goodman and Deborah Goldfarb  
University of California, Davis

Jodi A. Quas  
University of California, Irvine

Alexandra Lyon  
University of California, Davis

Tens of thousands of child sexual abuse (CSA) cases are reported to authorities annually. Although some of the child victims obtain psychological counseling or therapy, controversy exists about the potential consequences for the accuracy of victims' memory of CSA, both in childhood and adulthood. Yet, delaying needed therapeutic intervention may have detrimental effects on the victims' well-being and recovery. To address this controversy, this study examined whether psychological counseling during a CSA prosecution predicts accuracy or inaccuracy of long-term memory for CSA. Participants ( $N = 71$ ) were CSA victims who took part in a longitudinal study of memory and legal involvement. Data regarding participants' counseling attendance during the prosecution and details of their CSA cases were gathered throughout legal involvement and shortly thereafter (Time 1). Ten to 16 years later (Time 2), participants were questioned about a range of topics, including the alleged abuse. Time 1 counseling attendance significantly predicted more correct answers to abuse-related questions and (for corroborated cases) fewer overreporting responses at Time 2. Counseling was unrelated to underreporting responses. These results held even with other potential influences, such as abuse severity, victim–defendant relationship, posttraumatic stress disorder criteria met, testifying in the case, and delay, were statistically controlled. Although further research is needed, this study provides evidence that psychological counseling received by CSA victims during or shortly after prosecutions may improve later memory for abuse-related information.

*Keywords:* therapy, memory, child sexual abuse, legal involvement

Of the tens of thousands of child sexual abuse (CSA) cases reported every year in the United States (Child Trends, 2016), a subset of the victims seek psychological services (Turner, Finkelhor, & Ormrod, 2007), the goal of which is to reduce negative sequela that result from sexual victimization in childhood. Despite potential emotional ben-

efits of psychological counseling for victims, controversy exists about its effects on memory accuracy and victim testimony. For example, concerns have been raised that if memory is particularly malleable in vulnerable individuals (young children as well as adults suffering from posttraumatic stress disorder [PTSD] symptoms), therapeutic interven-

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*Authors' note.* Gail S. Goodman and Deborah Goldfarb, Department of Psychology, University of California, Davis; Jodi A. Quas, Department of Psychology and Social Behavior, University of California, Irvine; Alexandra Lyon, Department of Psychology, University of California, Davis.

Alexandra Lyon is now at the School of Psychology, Xavier University. Contributions of the first and second authors to this article should be considered equal.

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Correspondence concerning this article should be addressed to Gail S. Goodman, Department of Psychology, University of California, 1 Shields Avenue, Davis, CA 95616. E-mail: [ggoodman@ucdavis.edu](mailto:ggoodman@ucdavis.edu)

tions could lead to memory distortion or false memory (Lynn, Lock, Loftus, Krackow, & Lilienfeld, 2003; McNally, 2005). If children's receipt of psychological counseling during CSA prosecutions decreases their memory accuracy for the abuse, or even raises concerns about the victims' memory accuracy, prosecutors may be hesitant to have child victims attend therapy prior to or during the ongoing legal proceedings. However, having victims wait to receive needed psychological therapy out of fear of possible adverse influences on accuracy can delay critically needed support and intervention.

These dilemmas become all the more complex in "historic abuse" cases, for example, CSA cases that are pursued only after victims reach adulthood, often because when the victims were young, they failed to disclose (London, Bruck, Ceci, & Shuman, 2005) or their disclosures were questioned (Read, Connolly, & Welsh, 2006), precluding prosecution at that time. However, in recent years, many states have extended their statutes of limitations to permit criminal and civil charges to move forward when adults allege that CSA occurred years if not decades earlier. In such cases, therapy in childhood can raise the issue of false memory in adulthood (Read et al., 2006).

For such reasons, the topic of whether psychological counseling affects CSA memory accuracy has been of considerable interest to both psychologists and legal professionals (Ghetti et al., 2006; Nadel, Campbell, & Ryan, 2007; Spinhoven, Van der Does, Van Dyck, & Kremers, 2006). Unfortunately, a paucity of empirical research exists on whether and how psychological counseling shapes memory. The present study took advantage of a unique opportunity to evaluate, using a prospective longitudinal design, the links between psychological counseling and the accuracy of long-term memory for CSA. The results provide much-needed insight into how psychological counseling relates to the accuracy of memory for trauma-related information, and hence, the study informs ongoing debates about the ramifications, during therapy, of raising or discussing the topic of childhood sexual abuse.

### Psychological Counseling as a Predictor of Memory Accuracy

There are several empirically supported reasons to expect that mental health counseling can benefit memory accuracy, although there is also the possibility that counseling could introduce or reinforce errors. Turning first to possible memory benefits, therapy may help maintain accurate recollection to the extent that it increases children's opportunities to rehearse their memories and reach a greater understanding and more coherent narrative of events; provides a supportive setting, within which children can think and talk about their experiences; and reduces psychopathology symptoms that otherwise may inhibit accurate recall.

Taking these in turn, rehearsal improves memory, including children's long-term autobiographical memory (Larkina & Bauer, 2012; Peterson, 2015), especially when semantic meaning is activated (Bjorklund & Causey, 2017): In psychological counseling, victims likely rehearse facets of the abuse as their experiences are discussed, often in search of greater meaning. In the process, improved understanding and a more coherent narrative of the event may result, which can also have positive effects on children's memory (Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997; Morris, Baker-Ward, & Bauer, 2010; Nelson & Fivush, 2004).

At the same time, therapy provides a supportive environment where children can talk about their prior abuse, which may make them more comfortable in disclosing and maintaining their reports. This may result in increased comfort in talking about a larger range of abuse-related details, possibly to multiple individuals. Indeed, studies have consistently linked the support of nonoffending caregivers, forensic interviewers, and psychological researchers during or following CSA disclosure to increased accuracy of CSA memories and willingness of victims to discuss their abuse histories (Alexander et al., 2005; Goodman et al., 2003; Hershkowitz, Lamb, & Katz, 2014; Saywitz, Wells, Larson, & Hobbs, 2016).

Finally, insofar as mental health counseling decreases trauma-related psychopathology, benefits to long-term memory may ensue. Child abuse victims who report high trauma-related symptomology and evince associated indices of past trauma (e.g., cortisol response) show increased commission errors to specific and misleading questions compared to child victims who report lower levels of such symptoms and indices (Eisen, Goodman, Qin, Davis, & Crayton, 2007). Moreover, individuals with increased depressive symptoms tend toward overgeneral memory (Valentino, 2011; Williams et al., 2007), that is, are inclined to recall gist-level statements (e.g., when asked to recall a specific happy event, stating, "I had a birthday party when I was young") rather than details of the event. In alleviating psychopathology symptoms, therapy may contribute to memory correctness and completeness. Thus, to the extent that therapy can help decrease trauma-related symptoms, it may also be related to an increase in memory report accuracy.

Yet, therapeutic conversations may also increase errors. For instance, therapists may raise incorrect information regarding the CSA event, and victims may incorporate that information into their subsequent reports. Or through conversations in therapy, incorrect information told by children to mental health professionals could inadvertently be reinforced. Postevent misinformation, including misinformation introduced by others in social situations, can have deleterious effects on a subset of children's and adults' memory reports (Bruck & Ceci, 1999; Otgaar, Howe, Brackmann, &

Smeets, 2016; Principe & Schindewolf, 2012). Children, particularly preschoolers, can at times be misled or tricked to recall details of events that they did not themselves experience (Principe, Haines, Adkins, & Guiliano, 2010). Controversial therapeutic techniques, such as therapists' cocreating recovered memory of abuse, have been linked to highly incredible allegations of satanic ritual abuse made by children and adults (Bottoms, Shaver, & Goodman, 1996). Together, this research has suggested that, for some people and in some circumstances, long-term memory accuracy may be particularly fragile, with a reduction in accuracy being larger when younger (compared to older) children take part in therapy.

The present study focused on psychological counseling attendance during or shortly after a CSA criminal prosecution, thereby increasing the likelihood that participants discussed the alleged abuse with their therapists. Rather than trusting retrospective reports of therapy attendance after long delays (Alexander et al., 2005; Ghetti et al., 2006), in our analyses we relied on reports of attending therapy that were obtained at or near the time of the original case. Approximately 14 years later, the child victims, now adults or older adolescents, were interviewed about the CSA they allegedly suffered in childhood. This enabled us to compare the former victims' current (e.g., adult) reports to the original documentation and determine how well the individuals remembered abuse-related experiences and whether psychological counseling related to memory.

## Alternative Predictors of Memory Accuracy

### Multiple Factors

Multiple factors influence long-term memory for CSA. Of these, some may reflect "third variables" that relate to both likelihood of therapy attendance and memory performance, requiring that these be considered in conjunction with therapy to ascertain the potential unique contribution of therapy to memory. This study focused on three such variables: abuse severity, relationship to the defendant, and PTSD symptoms.

In prior work, abuse severity has been associated with both increased and decreased memory accuracy (Alexander et al., 2005; Goodman, Quas, & Ogle, 2010; Ogle et al., 2013). In the context of CSA, severe events may be more important to survival and to one's sense of self and thus better retained in autobiographical memory (Bower & Sivers, 1998; Nairne & Pandeirada, 2008). This trend, however, is not universal: In individuals who attempt to psychologically remove themselves from memories of painful events, more severe abuse may have detrimental effects on long-term memory accuracy (Edelstein et al., 2005; Goodman et al., 2010). Severe abuse is associated with dissociation (Freyd, 1996) and cognitive avoidance of traumatic experi-

ences (Epstein & Bottoms, 2002), which arguably decrease recollection (Goodman et al., 2016). Although severity of abuse could be associated with less accurate memory of CSA, growing evidence has indicated that, by and large, negative events of high arousal, especially when relevant to survival, which likely includes severe CSA, tend to be remembered particularly well (Alexander et al., 2005; McKinnon et al., 2015; Nairne & Pandeirada, 2008).

A victim's relationship to the defendant (parental vs. nonparental figure) could also predict memory accuracy. Victims related to their abusers may cognitively block abuse information due to the internal conflict of being maltreated by someone who is supposed to provide love and care (Freyd, 1996; Freyd, DePrince, & Zurbriggen, 2001). Victims who attempt to keep painful abuse-related memories out of their awareness because of a close relationship with the perpetrator may demonstrate less accurate long-term memory for abuse-related experiences.

Finally, PTSD symptoms should be considered as possibly related to memory in CSA victims. Such symptoms are relatively common in child victims of sex crimes, although many CSA victims do not meet criteria for a PTSD diagnosis (Kendall-Tackett, Williams, & Finkelhor, 1993; Messman-Moore & Bhuptani, 2017; Widom, 1999). Severity of PTSD symptomology in victims of CSA predicts memory accuracy for the assault (Alexander et al., 2005). Moreover, higher levels of PTSD symptomology at the time of memory retrieval predict more specific memories of childhood (Ogle et al., 2013). However, memory errors and memory dissimilarities among individuals with and without PTSD or other trauma symptoms are also of note (McKinnon et al., 2015). Here, for participants who received therapy as children, current PTSD symptomology could mediate the relation between therapy and memory performance.

In summary, severe abuse, close relationship to the defendant, and PTSD symptoms each may contribute to a significant relation between psychological counseling and memory and are thus statistically considered in analyses, as presented later in this paper.

## The Present Study

The data analyzed here come from a longitudinal project that examined the long-term mental health, legal attitudes, and memory outcomes of alleged CSA victims (see Goodman et al., 2003; Quas et al., 2005, for methodological details). The analyses reported in the present article have not been published previously. Participants were involved in criminal prosecutions from 1985 to 1987 in three Western jurisdictions (Time 1). At that time, they and their (nonoffending) caregivers were invited to participate in a study on the effects of legal involvement on children. Details concerning the participants' CSA and legal experiences were gathered as the criminal case progressed, including whether

participants were attending psychological counseling during the prosecution or shortly thereafter. Most of the CSA information was verified objectively (e.g., through police reports, court documents, medical evidence), although some details (e.g., timing of the acts when no objective record existed) were based solely on the participants' original statements.

Participants were then interviewed 10 to 16 years later (Time 2), first briefly via phone; second through mailed questionnaires; and finally via in-depth, in-person interviews. Information reported at Time 2 was compared to that gathered in Time 1 to derive three types of memory scores: proportion of correct responses, proportion of overreporting responses (compared to Time 1 documentation, CSA was described at Time 2 as more severe, or exaggerated details regarding the CSA were included), and proportion of underreporting responses (compared to Time 1 documentation, CSA was described at Time 2 as less severe, or information regarding the CSA was omitted).

The following hypotheses were advanced: First, psychological counseling would be associated with better memory for CSA, as reflected in increases in the proportion of correct responses and decreases in overreporting or underreporting of abuse-related information. To the extent that potential benefits of psychological therapy on memory, as mentioned earlier, reflect robust predictors of accuracy (e.g., memory rehearsal, which commonly occurs during therapy), therapeutic intervention should predict better long-term memory for documented CSA experiences (Bjorklund & Causey, 2017; Howe, 2011; Nadel et al., 2007). Second, given research reviewed earlier, abuse severity, victim–defendant relationship, and PTSD symptoms would be related to memory accuracy, but psychological counseling would significantly predict memory for CSA even after accounting for these factors. Finally, because preschoolers are often more susceptible to suggestion than are older children (Ceci & Bruck, 1995; Goodman & Reed, 1986), participants who entered therapy (during or shortly after the prosecution) at a young age (compared to participants who were young and did not attend therapy and compared to older participants generally) would be subject to greater long-term memory error at the Time 2 interview.

## Method

### Participants

Seventy-one participants (76% female;  $M_{\text{age}} = 24.20$  years, range = 17.25 to 30.83) answered the questions of interest for this study and completed the in-person interview (Alexander et al., 2005). Characteristics of the sample are presented in Table 1. Victims' age ranged from 3 to 16 years at the time of the original police reports. With respect to ethnic background, 52 (73.2%) were Caucasian non-

Hispanic, and 19 were ethnic minorities (5.6% African American, 9.9% Hispanic, 1.4% Asian American, and 9.9% multiethnic). Participants' Time 1 parental socioeconomic status (SES) scores ranged from .00 (unemployed) to 97.16 on the 100-point scale of the 1989 Socioeconomic Index (Nakao & Treas, 1992, as printed in Entwisle & Astone, 1994).

To determine the representativeness of the Time 1 subsample of 71 participants compared to the larger Time 1 sample ( $N = 218$ ; Goodman et al., 1992), we conducted a one-way analysis of variance, with age at the time of police report as the dependent variable and inclusion in the subsample as a between-subjects factor (0 = not included, 1 = included). It revealed that at Time 1, participants in the subsample were significantly older ( $M = 10.19$ , 95% confidence interval [CI: 9.36, 11.03]) than participants who were not included in the subsample ( $M = 8.85$ , 95% CI [8.26, 9.43]),  $F(1, 216) = 6.83$ ,  $p = .010$ . Chi-square analyses revealed a significant difference as to ethnicity,  $\chi^2(1, N = 216) = 8.22$ ,  $p = .004$ , but not as to gender,  $\chi^2(1, N = 218) = .018$ ,  $p = .894$ . Proportionally there were somewhat fewer minority participants in the present study than at Time 1. Age and ethnicity are thus considered in the preliminary analyses presented later.

## Measures

**Time 1 demographic measures.** Relevant Time 1 demographic questions concerned participant age (in years) at

Table 1  
*Means and Standard Deviations (SDs) for Key Variables of Interest*

Variable	<i>M</i>	<i>SD</i>
Victim age (years, at police report)	10.15	3.58
Victim gender <sup>a,b</sup>	.76	.43
Socioeconomic status <sup>c</sup>	40.35	19.86
Minority status <sup>b,d</sup>	.27	.45
Abuse severity <sup>e</sup>	4.76	1.81
Relationship to perpetrator <sup>b,f</sup>	.21	.41
PTSD criteria met <sup>g</sup>	3.73	1.96
Testifying <sup>b,h</sup>	.37	.49
Delay (years)	14.39	1.5
Psychological counseling attendance <sup>b,i</sup>	.68	.47
Proportion correct abuse questions	.72	.17
Proportion overreporting responses	.14	.17
Proportion underreporting responses	.14	.17

*Note.*  $N_s = 71$  for all variables except PTSD criteria met ( $N = 66$ ). PTSD = posttraumatic stress disorder. Unadjusted means and *SDs* are reported.

<sup>a</sup> 0 = male, 1 = female. <sup>b</sup> Dichotomous variables. <sup>c</sup> Coded using the 1989 Socioeconomic Index (range = 0 to 100; Nakao & Teas, 1992, as printed in Entwisle & Astone, 1994). <sup>d</sup> 0 = nonminority status and 1 = minority status. <sup>e</sup> Determined by composite score of abuse duration, extent of sexual contact, injury, and level of force on a 12-point scale, with higher scores indicating more severe child sexual abuse. <sup>f</sup> 0 = nonparental figure, 1 = parental figure. <sup>g</sup> Scores ranged from 0 to 6 criteria met. <sup>h</sup> 0 = no, 1 = yes. <sup>i</sup> During or shortly after the child sexual abuse prosecution was coded as 0 = no, 1 = yes.

the time of the police report, gender (0 = males, 1 = females), SES, and minority status (0 = nonminority, 1 = minority). SES scores were based on 1980 census data concerning the parents' level of education and income. Participants with two working parents were assigned the higher score of the two.

**Time 1 Sexual Assault Profile (SAP).** Information associated with the sexual assault and legal case (e.g., age at the end of the CSA) was recorded on a modified SAP (Conte & Berliner, 1984; see Goodman et al., 1992). Included was the question "Is this child receiving psychological counseling?" (0 = not attending, 1 = attending). Of the 71 participants in the present study, 48 were receiving psychological counseling during the CSA prosecution or shortly thereafter (i.e., during Time 1 data collection), whereas 23 were not.

Abuse severity was determined by a composite score of abuse duration, extent of sexual contact, level of force, and extent of injury and ranged from 2 to 9 on a 12-point scale (Alexander et al., 2005; Goodman et al., 1992), and relationship to the defendant was coded as nonparent (e.g., 0 = neighbor, teacher, stranger) or parent (1 = parent, stepparent). Of the 71 cases where information regarding level of corroboration (0 = no corroboration, 1 = corroboration) was available, 44 had corroborating evidence (e.g., medical evidence, an eyewitness, defendant confession). For interrater reliability of coding of the two scaled variables in the present study (abuse severity and relationship to defendant), proportion of agreement of .80 or higher was obtained. Relationship to defendant was then dichotomized, as above, for analyses. Interrater reliability on the SAP overall ranged from .67 to 1.00 (see Goodman et al., 1992, and Quas, Goodman, & Jones, 2003, for details on reliability of coding).

**Time 2 Post-Traumatic Diagnostic Scale (PDS).** The PDS, completed at Time 2, measures posttraumatic stress symptomology (Foa, Cashman, Jaycox, & Perry, 1997). Victims can meet up to six PTSD criteria. The current study focused on the number of PTSD criteria satisfied rather than relying on a PTSD diagnosis (Alexander et al., 2005). PTSD symptomology scores here ranged from 0 to 6. The PDS reveals high reliability, with internal consistency scores ranging from .78 to .84 for the criteria (Foa et al., 1997).<sup>1</sup>

**Time 2 memory questions.** The Time 2 memory questions covered a variety of topics (e.g., disclosure, memory, legal involvement) and included a number of specific questions about the target CSA incident(s). These questions probed for details of the abuse (e.g., "How old were you when the sexual abuse/assault first happened?"; "What was the defendant's name?"; "What was the defendant's relationship to you? [e.g., parent, stepparent, teacher, neighbor, stranger, etc.]"). For some details, response options were presented corresponding to those used for coding information by Goodman et al. (1992), thus allowing for direct

comparison between current reports and the original documentation. For example, a question about type of sexual acts included four options: exhibitionism, nongenital contact (e.g., fondling of the breasts), genital contact (including oral sex but no vaginal or anal penetration), and vaginal or anal penetration–intercourse.<sup>1</sup>

## Procedure

The university Institutional Review Board approved the study. At Time 1, data regarding demographics, specific abuse details (e.g., type of sexual activity, relationship to the defendant, corroborative evidence), ongoing psychological counseling attendance, and legal case involvement were gathered from nonoffending caregivers, participants, and/or court observations and records (Goodman et al., 1992). At Time 2, trained researchers conducted an initial phone interview. For scientific and ethical reasons, participants were not informed that the study concerned child sexual abuse or memory. Rather participants were simply told that this was a study of children's experiences growing up in their community and that a wide range of topics would be addressed. After the phone interview, questionnaires (including the PDS) with instructions were mailed to participants. If completed questionnaires were not returned, the PDS was administered over the phone. Later, during in-person interviews at Time 2, participants were asked by clinically trained psychologists (blind to individuals' prior experiences and to the hypotheses of this study) about the abuse and legal case history details recorded at Time 1. Participants and caregivers were thanked and paid for their participation.

## Memory Coding

Time 2 in-person memory interviews were coded for whether participants' answers at Time 2 matched facts recorded at Time 1 (Alexander et al., 2005). When necessary for clarification, participants' responses to the phone interview or mailed questionnaires were consulted. Eleven points of information were relevant to memory for the CSA (i.e., perpetrator's name, perpetrator's age, sexual acts, victim's age at onset and conclusion of acts, child–perpetrator relationship, child–perpetrator living arrangements, frequency and duration of CSA, and force and coercion involved; Alexander et al., 2005). Seven of the 11 questions

<sup>1</sup> Other mental health indices (composite scores) collected during Time 1 (i.e., Child Behavior Checklist: Achenbach & Rescorla, 2000) or Time 2 (i.e., Dissociative Experiences Scale: Bernstein, & Putnam, 1986; Youth Self Report: Achenbach, 1997; Behavior Symptom Index: Derogatis, 1983; Beck Depression Inventory: Beck, & Beamesderfer, 1974; Trauma Symptom Inventory: Briere, Elliott, Harris, & Cotman, 1995) were not significantly related to memory accuracy or inaccuracy ( $r_s < .16$ ). For a full list of measures at Time 1 and Time 2, please see Goodman et al. (1992) and Quas et al. (2005) or contact Gail S. Goodman.

involved responses that could be coded as either overreporting (CSA was described as more severe or additional details regarding the CSA were included) or underreporting (CSA was described as less severe or information regarding the CSA was not included). Memory accuracy was determined by the total proportion of correct or incorrect (overreporting or underreporting) answers, which was calculated by dividing the number of correct or incorrect responses by the total possible points. From these, three primary dependent measures were of interest: proportion of correct answers regarding the CSA, proportion of CSA-related overreporting responses, and proportion of CSA-related underreporting responses.

Four raters, blind to hypotheses, obtained reliability for coding the interviews. They each independently coded 12% of the participants' interview responses and obtained reliability for the three dependent variables, as measured by proportion agreement, ranging from .83 to .99 ( $M = .93$ ) for each pair of raters. The remaining 88% of transcripts were divided among the raters for coding.

## Results

### Preliminary Analyses

Means and standard deviations of key variables are presented in Table 1. Correlations among them are presented in Table 2. Because neither gender nor ethnicity was significantly related to any of the memory variables of interest, they are not considered further. SES, however, was significantly related to proportion correct. It was thus entered, along with age, in the first model of the regression analyses. Variance inflation factor (VIF) scores among predictors entered into the same model ranged from 1.00 to 1.15, indicating that collinearity between variables was not problematic (VIF scores larger than 10 typically indicate high

collinearity; Cohen, Cohen, West, & Aiken, 2003). Normality violations of the variables were not indicated (skew and kurtosis fell between  $-1.96$  and  $+1.96$ ).

### Main Analyses

The main hypotheses, which focused on therapy predicting participants' CSA memory accuracy, were tested via linear regression analyses. First, to test the main hypotheses, we entered Time 1 demographic variables (victim age and SES), followed directly by adding psychological counseling attendance in a second model. However, to evaluate whether psychological counseling was related to memory accuracy, even when other potential predictors were considered, we reconducted the aforementioned regression but added CSA severity, participants' relationship to the defendant, and PTSD criteria met in the second model prior to including psychological counseling in the third model. This second series of regression analyses was conducted separately for each of the three dependent variables. In the next sections, each regression series is described in turn per dependent variable. However, because five participants were missing PTSD criteria met scores (approximately 10% of the data), the SPSS Multiple Imputation function was used to create 10 imputed data sets for the analyses involving PTSD criteria met in the next sections.

**Proportion correct for abuse-related questions.** When age and SES were entered, the model was statistically significant (see Table 3). The only significant predictor was participants' Time 1 SES: Higher SES predicted a greater proportion of correct answers to abuse-related questions. When psychological counseling was added, the model was also significant. Psychological counseling significantly predicted proportion correct memory of the abuse.

To examine whether psychological counseling remained a significant unique predictor of the proportion of correct

Table 2  
Correlation Matrix Among Key Variables of Interest

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Victim age (at police report)	—											
2. Victim gender	.12	—										
3. Socioeconomic status	.04	-.40**	—									
4. Minority status	-.06	.12	-.10	—								
5. Abuse severity	.03	.11	.004	.08	—							
6. Relationship to perpetrator	.36**	.21	-.06	-.08	.05	—						
7. PTSD criteria met	.19	.01	.004	-.14	.05	.03	—					
8. Testifying	-.06	-.12	-.06	.13	-.03	-.11	.16	—				
9. Delay from age at reported end of abuse to age at Time 2 interview	.14	-.06	.10	-.02	-.03	.30*	-.15	.00	—			
10. Psychological counseling attendance	-.21	.03	.07	-.06	.40**	.06	.05	.09	.04	—		
11. Proportion correct abuse questions	.16	-.08	.32**	-.12	.13	.01	.16	.15	.13	.24*	—	
12. Proportion overreporting to abuse questions	.07	.15	-.10	-.01	-.33**	.15	-.06	-.15	-.11	-.32**	-.60**	—
13. Proportion underreporting to abuse questions	-.19	-.13	-.18	.13	.18	-.22	-.30*	-.05	.11	.11	-.38**	-.19

Note.  $N = 71$  except for correlations with PTSD criteria met ( $N = 66$ ). PTSD = posttraumatic stress disorder.  
\*  $p < .05$ . \*\*  $p < .01$ .

Table 3  
 Linear Regressions Predicting Proportion Memory Scores for CSA Abuse-Related Questions

Model and variable	Correct				Overreporting				Underreporting			
	<i>b</i>	<i>SE</i>	$\beta$	95% CI	<i>b</i>	<i>SE</i>	$\beta$	95% CI	<i>b</i>	<i>SE</i>	$\beta$	95% CI
First model												
Victim age	.007	.005	.15	[-.003, .018]	.003	.006	.07	[-.008, .015]	-.009	.006	-.19	[-.020, .002]
Victim SES	.003	.001	.32**	[.001, .005]	-.001	.001	-.11	[-.003, .001]	-.002	.001	-.18	[-.004, .001]
$R^2$			.13				.02				.07 <sup>†</sup>	
<i>F</i>			4.94*				.56				2.47	
Second model												
Counseling attendance	.09	.04	.26*	[.013, .172]	-.11	.04	-.31*	[-.194, -.027]	.03	.05	.09	[-.057, .121]
$R^2$			.19				.11				.08	
<i>F</i>			5.30**				2.74 <sup>†</sup>				1.81	
$\Delta R^2$			.07*				.09*				.007	

Note. CSA = child sexual abuse; CI = confidence interval; SES = socioeconomic status.

<sup>†</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

responses when CSA severity, defendant relationship, and PTSD criteria met were considered, these variables were added to the demographic variables in a second model; they were not significant predictors ( $ps \geq .288$ ). When psychological counseling was added in a third model, the model was significant across all of the imputations ( $R_s^2 \geq .20$ ),  $F_s(6, 64) \geq 2.60$ ,  $ps \leq .026$ ,  $\Delta R_s^2 \geq .05$ ,  $p = .043$  (pooled significance level), with attending counseling predicting more correct answers to abuse-related questions ( $b = .09$ ),  $t(68) = 2.02$ ,  $p = .043$ , 95% CI [.003, .180].

#### Overreporting responses to abuse-related questions.

The second set of analyses predicted proportion of abuse overreporting responses (reporting the abuse as more severe or adding more details at Time 2 than were documented at Time 1). As shown in Table 3, the first model, with demographics as the predictors, was not significant. The addition of psychological counseling approached significance ( $p = .05$ ), with counseling attendance significantly negatively predicting abuse overreporting responses: Participants who received therapeutic intervention (compared to those who did not) reported fewer additional details about the abuse at Time 2 than at Time 1.

The analyses then considered whether controlling for abuse severity, relationship to the defendant, and PTSD criteria met affected the relation between psychological counseling and proportion of overreporting responses (i.e., the report at Time 2 of additional details or that the abuse as more severe than was documented at Time 1) to abuse-related questions. Although addition of these variables captured more of the variance ( $\Delta R_s^2 \geq .13$ ,  $ps \leq .025$ ), the model itself was significant in only one imputation ( $p = .046$ ); there was a trend for the rest ( $R_s^2 \geq .15$ ),  $F_s(5, 65) > 2.25$ ,  $ps = .056$  to  $.060$ . Abuse severity was a significant predictor ( $b = -.03$ ),  $t(65) = -2.95$ ,  $p = .003$ , 95% CI [-.052, -.011]. More severe abuse predicted fewer abuse-related overreporting responses. Neither number of PTSD criteria met nor relationship to the perpetrator was a signif-

icant predictor ( $ps \geq .221$ ). In the final model, which included receiving psychological counseling during or shortly after the CSA trial, attending psychological counseling did not significantly predict abuse-related overreporting responses ( $b = -.08$ ),  $t(64) = -1.85$ ,  $p = .064$ , 95% CI [-.173, .005].

#### Underreporting responses to abuse-related questions.

There was no statistically significant link between psychological counseling attendance and underreporting responses, coded here as Time 2 reporting that the abuse was less severe than documented at Time 1 or failing to report details at Time 2 that were recorded at Time 1. Neither the first model (age and SES) nor the second model (counseling attendance) was significant ( $ps \geq .093$ ).

The next set of models considered whether psychological counseling predicted abuse-related underreporting responses when abuse severity, relationship to the defendant, and PTSD criteria met were added to the demographic variables. The model ( $R_s^2 \geq .20$ ),  $F_s(5, 65) \geq 3.17$ ,  $ps \leq .013$ , and the amount of variance explained ( $\Delta R_s^2 \geq .13$ ,  $ps \leq .021$ ) were both significant. Relationship to the defendant and abuse severity were not significant predictors ( $ps \geq .080$ ). PTSD criteria met, however, significantly predicted less under reporting ( $b = -.02$ ),  $t(64) = -2.33$ ,  $p = .020$ , 95% CI [-.043, -.004]. In the final model, psychological counseling was not a significant predictor ( $p = .599$ ).

#### Interaction of age and psychological counseling.

Given research showing that preschoolers are more suggestible, at least under certain circumstances, than are older children, it is possible that younger participants would be more susceptible to underreporting or overreporting responses in memory due to therapy attendance. To test for this possibility, a third model was added including the interaction between psychological counseling and Time 1 age (with demographics entered in the first model and counseling added in the second model). The third model

(with the interaction term) did not significantly account for additional variance ( $ps \geq .285$ ), and the interaction term was not significant for any of the three dependent variables (proportion correct, proportion overreporting, and proportion underreporting). Thus, it did not appear that participants who were younger at the time of psychological counseling evidenced a different pattern of results than did participants who were older.

### Additional Analyses

The main analyses just presented focused on the role that psychological counseling played in victims' long-term memory for documented CSA. Although the expected associations were found, multiple factors contribute to long-term memory. The unique nature of the data set permitted examination of several other potential factors that could affect the interpretation of the findings. Specifically, the three factors were: the presence of corroborative evidence to support the CSA allegation, whether or not children testified during the prosecution, and the delay between the reported end of the CSA and the participants' Time 2 memory interview.

**Corroborative evidence.** Given the findings just presented, analyses were conducted to determine whether the key results held when only cases with corroborative evidence of the sexual abuse were considered. Because corroborative evidence adds support for the victim's recollection at Time 2, this provided a more stringent test of the hypotheses.

For predicting proportion correct, the first model was significant ( $R^2 = .19$ ),  $F(2, 41) = 4.79$ ,  $p = .013$ . In this first model, participants' Time 1 SES ( $b = .003$ ),  $t(41) = 2.68$ ,  $p = .011$ , 95% CI [.001, .006], significantly predicted correct responses. The second model, with the addition of counseling, was significant ( $R^2 = .27$ ),  $F(3, 40) = 4.85$ ,  $p = .006$ ,  $\Delta R^2 = .08$ ,  $p = .047$ . Receiving counseling was a significant predictor of accuracy for the corroborated cases ( $b = .10$ ),  $t(40) = 2.05$ ,  $p = .047$ , 95% CI [.001, .188].

When the relation between overreporting responses and psychological counseling for only the corroborated cases was considered, the first model was not statistically significant ( $R^2 = .05$ ),  $F(2, 41) = 1.12$ ,  $p = .337$ . The second model, with the inclusion of counseling, was significant ( $R^2 = .19$ ),  $F(3, 40) = 3.19$ ,  $p = .034$ ,  $\Delta R^2 = .14$ ,  $p = .012$ , with attending therapy significantly negatively predicting overreporting responses to abuse-related questions ( $b = -.13$ ),  $t(40) = -2.65$ ,  $p = .012$ , 95% CI [-.228, -.030]. Thus, even when considering only the corroborated cases, individuals who received therapeutic services were less likely to add new details or report the abuse as more severe at Time 2 compared to the evidence at Time 1.

Finally, the same analyses were considered but for underreporting responses about abuse-related information. The models were not significant  $ps \geq .187$ .

**Testifying at trial.** Children who testified in their criminal case may have additional opportunities to rehearse the alleged CSA memories. To ensure that these individuals were not driving the relation between therapy and accuracy of memory, we conducted a new set of analyses: with age at the time of the police report and SES entered as predictors in the first model, whether the child testified in the CSA legal proceedings added to the second model, and whether the child received psychological counseling added to the third model. Including testifying did not significantly explain more of the variance for any of the dependent variables, proportion correct, overreporting responses, or underreporting responses ( $ps \geq .128$ ). After we controlled for testifying, psychological counseling significantly positively predicted proportion correct ( $b = .09$ ),  $t(66) = 2.21$ ,  $p = .031$ , 95% CI [.008, .167], and negatively predicted overreporting responses ( $b = -.11$ ),  $t(66) = -2.55$ ,  $p = .013$ , 95% CI [-.190, -.023]. Psychological counseling did not, however, significantly predict underreporting responses ( $b = .04$ ),  $t(66) = 0.77$ ,  $p = .443$ , 95% CI [-.055, .125]. Thus, children who testified during the prosecution were not driving the previously mentioned positive relations between counseling and memory accuracy.

**Delay.** To examine whether delay also explained the primary findings, we tested another set of models that included Time 1 age and SES in the first model, delay (number of years between the reported end of the CSA and the memory interview at Time 2) in the second model, and psychological counseling attendance in the third model. Delay was not a significant predictor for any of the three dependent variables (proportion correct, proportion overreporting, and proportion underreporting;  $ps \geq .173$ ). Further, counseling attendance significantly predicted proportion correct ( $b = .09$ ),  $t(66) = 2.27$ ,  $p = .027$ , 95% CI [.011, .171], and inversely predicted proportion overreporting ( $b = -.11$ ),  $t(66) = -2.59$ ,  $p = .012$ , 95% CI [-.192, -.025], although for the model, there was only a trend ( $p = .080$ ). Psychological counseling was not a significant predictor of proportion underreporting ( $p = .522$ ).

### Discussion

This article addresses an ongoing debate about the effects of psychological counseling on CSA victims' memory. As predicted, psychological counseling was positively associated with long-term memory accuracy; specifically, the data reveal that attending counseling was predictive of a higher proportion of correct responses about abuse-related information. Stated another way, individuals who received psychological counseling, such as therapy, at Time 1 generally had better memory at Time 2 for the earlier CSA-related

experiences. Further, despite concerns that therapy may lead to increased suggestibility, the analyses did not support this relation; therapeutic intervention was not associated with increased under- or overreporting responses, even for the participants who at Time 1 were younger children. In fact, psychological counseling negatively predicted overreporting (e.g., for corroborated cases). Even after statistically controlling for age, SES, abuse severity, relationship to the defendant, PTSD criteria met, testifying during the CSA prosecution, and delay since the end of the CSA to the memory test, and even after testing the Age  $\times$  Psychological Counseling interaction, as well as examining corroborated cases, therapy still uniquely predicted increased correct memory report and did not predict increased overreporting or underreporting responses.

There are a number of potential reasons why psychological counseling would be related to increased correct memory of the CSA years later. First, therapeutic conversations regarding the CSA experience itself and/or the CSA prosecution would have enabled rehearsal of the CSA details and might have also led to a more coherent narrative and greater understanding of what occurred, all of which then could have sustained participants' memory accuracy over time (Nadel et al., 2007). The likelihood of therapeutic discussion of the CSA and legal case is supported by the fact that participants' therapy attendance was measured during or shortly after the CSA prosecution, which increased the likelihood that therapeutic discussions focused around the prosecution and the victimization. Theoretical mechanisms behind the relation of psychological counseling and accurate memory could be investigated in the future by analyzing the content of participants' clinical discussions. Consideration of both the timing and content of counseling, including the quality of discussion, and whether these factors relate to memory, will help clinicians better understand the parts of their practice that enable later accurate memory retrieval without increasing memory errors.

Furthermore, therapy may have been related to decreased symptomology that, in turn, increased memory of the presumably traumatic event. Certain symptoms are thought to decrease memory accuracy as individuals distance themselves from the traumatic experience (Briere & Conte, 1993; Williams & Broadbent, 1986). If a reduction in symptomology due to therapy were driving the findings, one would expect the inclusion of indices of current psychopathology to result in psychological counseling's being nonsignificant. Here, statistically controlling for whether a current index of trauma-related psychopathology symptoms (PTSD criteria met) explained therapy's relation to memory accuracy, we found that it did not. PTSD criteria met was our only Time 1 or Time 2 measure of psychopathology that correlated with Time 2 memory performance. However, systematic information was not available on the exact reason why the child victims were in therapy, the type of psychological

counseling received, the length of the counseling, or the therapists' training, which anecdotally varied considerably (e.g., religion-oriented therapists, clinical social workers, PhD psychologists, and MD psychiatrists). Data on such factors could provide important insights into the mechanisms involved.

Of interest, therapy attendance predicted decreased overreporting responses. This relation, however, was not significant when severity of the CSA at Time 1 was statistically controlled, because participants who experienced more severe abuse reported fewer overreporting responses (e.g., fewer additional CSA details) at Time 2. Increased abuse severity may have led to more robust encoding of the event because of the emotionality of the CSA experience (Bower & Sivers, 1998; Goodman et al., 2003), and participants with more severe CSA may have chosen to attend therapy longer. That said, therapy attendance did significantly predict decreased overreporting responses for corroborated cases, which is a particularly stringent test of the hypothesis.

It should be mentioned, however, that severity ratings were based, in part, on participants' reports regarding the CSA at Time 1. Thus, severity was partially driven by participants' willingness to disclose the extent of the abuse. It may be that participants who had more severe cases were also those who had already fully disclosed many if not all of the details at Time 1.

It was of interest that Time 1 age was not a significant predictor of memory accuracy, even though children, across the wide age range tested (3–16 years old), typically show dramatic age differences in memory performance. That the Age  $\times$  Psychological Counseling interaction was also a nonsignificant predictor of memory accuracy may be due to the personal significance of the CSA experiences, resulting in equally robust memory regardless of age for the type of information tapped by the questions. SES, however, significantly predicted accuracy and deserves further study (e.g., Chae, Kulkofsky, Debaran, Wang, & Hart, 2016).

## Limitations

Of note, the memory responses from Time 2 in the present study were only as accurate as the original documentation. Participants may have provided inaccurate information when asked about their CSA and abuse-related experiences at Time 1. This is especially plausible for information that could not be objectively verified (e.g., through police reports, court documents). However, the models' significance held even when only corroborated cases were considered. Thus, to the extent that corroboration is support for the veracity of children's statements at Time 1, this is further evidence bolstering Time 1 psychological counseling's relation to more accurate memory at Time 2.

The interpretation of the analysis is limited here in that the participants were all alleged victims of CSA (some without physical documentation of the acts), and as such, this study was unable to include analyses of the relation between counseling and false reports of victimization. Further, all of the cases here were prosecution cases and not examples of where participants as adults allegedly recovered in therapy a lost memory of prior abuse (Bottoms et al., 1996; Loftus, 1993). Although psychological counseling during the pendency of the prosecution or shortly thereafter was not associated with an increase in overreporting responses (reporting additional details or greater abuse severity) or underreporting responses (downplaying severity or withholding details regarding the abuse) by these victims over a decade later, whether—and if so under what conditions—therapy attendance, on average, would increase the rate of false reports of maltreatment is still an unanswered question. Future work should consider whether any currently used therapeutic techniques would lead to such an increase. Given that the Time 1 data on attending psychological counseling services were obtained in the 1980s, it is worth noting that mental health services may have changed in important ways since then, possibly leading to different results than presented here.

The nature of the memory at issue in the study is long-term recollection of CSA. Participants were asked to describe maltreatment that occurred to them over a decade prior (16 years or more in some cases). These data are thus most informative for cases in which adults are asked to testify regarding abuse that happened during their childhood (e.g., historic CSA cases). This study does not reveal the effect of psychological counseling on children's memory accuracy while therapy is ongoing. In other words, does psychological counseling have a different effect when children are interviewed a month or two after counseling has started from when counseling and the event occurred years prior? This is an important and vital question for future work.

The study is correlational, and thus causal inference must be drawn with caution. A true experiment would require random assignment to psychological counseling compared to no counseling groups. Experimental research of that nature was not feasible given that Time 1 initially involved active prosecutions and Time 2 occurred over a decade later. That said, a study using an experimental design with random assignment to groups to investigate the effects of therapeutic intervention on true and false memory for traumatic events would be a welcome contribution to this important field of study. It would also be ideal to obtain objective information on each person's complete childhood abuse histories, which is important for considering how early trauma might affect memory generally and how current memory of previous abuse might be modulated by subsequent abuse or trauma. Moreover, abuse severity,

chronicity (single or repeated episodes), and abuse duration (length of time) are theoretically separable, and each may have different effects on memory. That said, it is problematic to have confidence in some of these potentially important variables because children may experience difficulty reporting them (e.g., chronicity, duration).

Finally, the sample size may not have been large enough to detect small effects of psychological counseling on later memory reports. This may have particularly been the case for the analyses of corroborated cases. That said, the unique nature of the data, including having documentation of participants' counseling attendance at Time 1 (rather than retrospective reports), allows for important insight into the issue of whether child victims should be made to wait to receive therapeutic intervention during a prosecution out of fear that it will degrade or distort their memory for the abusive event.

## Conclusion

This study provides evidence relevant to the debate over therapy's relation to the accuracy of memory for CSA, including in historic abuse cases when victims provide memory reports of decades-old sexual assaults. The data, albeit correlational, support the contention that therapy does not hurt and, indeed, may help victims' accurate recollection of prior traumatic events. This assumes, however, that the therapeutic techniques are not ones associated with false memory formation or other memory errors in vulnerable children (e.g., Bottoms et al., 1996; Melinder et al., 2010). Under that assumption, the findings have significant implications for psychological theory relevant to understanding long-term memory of childhood trauma and for the legal system and clinical practice. In addition to potentially providing emotional benefits, psychological therapy may predict better long-term memory of abuse-related experiences. In terms of application, this evidence may make legal authorities less hesitant to refer victims to psychological counseling, perhaps especially in corroborated cases. The findings may also encourage more children to seek needed therapy for sexual abuse experienced in childhood (Turner et al., 2007).

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