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Long-Term Memory in Adults Exposed to Childhood Violence: Remembering Genital Contact Nearly 20 Years Later

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Abstract

Recent changes in statutes of limitations for crimes against children permit accusations of decades-old child sexual abuse to be considered in court. These laws challenge scientists to address the accuracy of long-term memory of genital contact. To examine theoretical, clinical, and legal concerns about long-term memory accuracy, children who in the 1990s (Time 1) were 3 to 17 years old and experienced a documented child maltreatment medical examination that included genital touch were interviewed between 2012 and 2014 (Time 2), as adults, about the medical experience. Almost half of the adults reported the childhood genital contact. Child sexual abuse and greater depression in adulthood predicted greater memory accuracy. No participant falsely reported chargeable offenses that did not occur, even when such offenses had been falsely suggested in a childhood interview. Some participants erred with regard to specific and misleading questions implying less egregious acts. Ramifications for theory and application are discussed.

Keywords

maltreatment, longitudinal memory

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There are some memories that time may never erase, but questions arise as to whether genital contact experienced in childhood is one of them. Recent research confirms the possibility of false memories of childhood sexual encounters, including as intensified in vulnerable individuals by debated clinical techniques (Bottoms, Shaver, & Goodman, 1996; Lilienfeld, 2015; Loftus, 1996). Yet clinical and memory theories should also address the matter of enduring memories for genital touch actually experienced in childhood.

Currently, there is a pressing need for scientific studies on this topic because in "historic" child sexual abuse cases (where prosecution occurs years after the alleged assault), the accuracy of adults' memory for childhood genital contact is paramount, with concerns about inaccuracies amplified when the adults have trauma histories (Conway, 2013; Howe, 2013; Loftus, 1996; Otgaar, Muris, Howe, & Merchkelback, 2017). Society is grappling with how to respond to such cases (D. A. Connolly, Chong, Coburn, & Lutgens, 2015; Howe & Knott, 2015; Wells, Morrison, & Conway, 2014), as reflected in prosecutions of Penn State coach Jerry Sandusky, Michigan State athletic physician Larry Nassar, Bay Area child psychiatrist William Ayres, former Speaker of the U.S. House of Representatives Dennis Hastert, and in the U.S. Senate's Judiciary Committee hearings on the confirmation of Judge (now Justice) Brett Kavanaugh. As few, if any, published studies have analyzed the accuracy of adults' memories for a verified abuse-related childhood event that includes concurrently documented genital contact, the question of how accurately adults remember such experiences has gone largely unanswered (but see Alexander et al., 2005; Widom & Morris, 1997; Williams, 1994). To shed light on this issue, we analyzed adults' memories for verified childhood genital contact after an 18-to-20-year delay.

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Long-Term Memory for Significant Childhood Events

In general, memories fade over time for both children and adults (Hirst et al., 2015; La Rooy, Pipe, & Murray, 2007), making adults less sure of their childhood memories and more subject to suggestive influences (Loftus & Pickrell, 1995). Yet memories of highly emotional (compared to neutral) events are often less susceptible to forgetting (LaBar & Cabeza, 2006; Yonelinas & Ritchey, 2016): Individuals who experienced traumatizing events, such as a natural disaster, an impending airplane crash, or an injury necessitating an emergency room visit, recall the event years and sometimes even decades later (Bauer et al., 2016; Fivush, McDermott Sales, Goldberg, Bahrick, & Parker, 2004; McKinnon et al., 2015; Peterson, 2015; Van Abbema & Bauer, 2005). For example, adolescents and adults accurately remember injuries and assaults experienced 6 to 13 years prior (Goodman et al., 2003; Greenhoot, McCloskey, & Glisky, 2005).

Young children's ability to remember details of a medical event decreases over an initial 3-month period and becomes stable by 6 months (Ornstein et al., 2006). However, for children old enough to remember a stressful medical test, delays of months or years do not necessarily increase inaccuracies or suggestibility (Quas et al., 1999). Even when encoding occurred in the second year of life, during what later is typically labeled a period of "childhood amnesia," a subset of older children and adults remember salient and distinctive emotional events despite significant delays (McDermott Sales, Fivush, Parker, & Bahrick, 2005; Peterson 2015; Usher & Neisser, 1993; Williams, 1994). Still, young age and long delays typically predict the waning accuracy and decreasing detail of long-term memory, including of child sexual abuse (Goodman et al., 2003), and predict adults' susceptibility to false suggestion (Howe & Knott, 2015; Qin, Ogle, & Goodman, 2008).

There are factors, however, that guard against false childhood recollections (e.g., Pezdek, Finger, & Hodge, 1997). Relatively strong memories of negative, consequential childhood experiences combined with age improvements in metacognitive abilities, such as accurately realizing that one does not know an answer (Koriat, Goldsmith, & Pansky, 2000; Lyons & Ghetti, 2010), may support the ability of many adults either to accurately report salient childhood events that occurred decades prior or to use a conservative response strategy (e.g., saying, "I don't remember") if one has forgotten or is unsure of what happened. There is disagreement, however, about the contribution of forgetting to recollection error, as well as about the role that lack of confidence in one's memory plays in resisting false suggestions (Loftus, 1996; Rubin & Wenzel, 1996; Wickens, 1998; Wixted, 2004). There are legitimate concerns that delay can lead to increased guessing, schema-driven commission errors, and false memories (e.g., Kleider, Pezdek, Goldinger, & Kirk, 2008). Although few studies of memory accuracy have included delays as long as 20 years (Bahrick, Bahrick, & Wittlinger, 1975), it seems likely that, as the time between an event and a memory task increases, individual differences will be evident in the adoption of a conservative versus liberal response strategy, the latter of which could increase suggestibility (Singer & Wixted, 2006).

Individual Differences and Memory

Individual differences in trauma history and psychopathology may affect the accuracy of long-term memory for stressful life events. In this regard, maltreatment history and posttraumatic stress disorder (PTSD) have been of much interest, especially to clinicians. Some researchers find that maltreatment history and/or PTSD symptomology are associated with increased accuracy of remembering abuse-related experiences (Alexander et al., 2005; Eisen, Goodman, Qin, Davis, & Crayton, 2007). For example, children with a history of sexual abuse omit fewer details regarding a forensic anogenital examination than children with no such history (Katz, Schonfeld, Carter, Leventhal, & Cicchetti, 1995). Prior childhood sexual victimization, especially when associated with PTSD, may provide a knowledge structure within which to encode abuse-related acts or increase the saliency (including trauma relevance) of such experiences (Baker-Ward et al., 2015; Frankenhuis & Weerth, 2013).

Another mental health problem of particular interest is depression, which is associated with a child maltreatment history (Brown, Cohen, Johnson, & Smailes, 1999), increased overgeneral memory (Williams & Broadbent, 1986), and increased rumination and recall of negative life events (e.g., S. L. Connolly & Alloy, 2018; Hertel & El-Messidi, 2006; Matt, Vázquez, & Campbell, 1992). Greater rumination of negative childhood experiences may keep such memories alive, leading to greater accuracy.

It has also been proposed, however, that individuals with trauma-related psychopathology, such as PTSD or depression, are less conservative in responding and more likely to err in reporting events (Otgaar et al., 2017; Windmann & Krüger, 1998). Coupled with a trauma history, PTSD and depression may thus be predictors of increased correct memory of negative life events but also of greater error (e.g., susceptibility to misleading questions). The hypothesized memory errors related to maltreatment may be driven by mental

health symptomology, perhaps resulting from trauma, rather than by maltreatment itself (Eisen et al., 2007; Goodman et al., 2016).

Furthermore, gender differences in memory for emotional childhood events have been documented, with males compared to females remembering fewer emotional childhood experiences (Davis, 1999). Such differences may be particularly likely for an emotional event that is sexual in nature, such that males may be more reluctant than females to remember or disclose sexual details (thereby increasing the extent of omission errors; Ullman & Filipas, 2005; Widom & Morris, 1997).

Effects of Misleading Questioning in Childhood on Adult Memory

Increased memory error may occur after children are exposed to false suggestions in interviews (Ceci & Bruck, 1995); yet when memory is strong, misleading questions can increase the accuracy of long-term memory in children and adults (Peterson, Parsons, & Dean, 2004; Putnam, Sungkhasettee, & Roediger, 2017; Quas et al., 2007). Moreover, memory rehearsal (e.g., via repeated interviews or conversations with others regarding the event) may reinstate accurate memory but can also lead to error (Cordon, Pipe, Sayfan, Melinder, & Goodman, 2004; Ornstein et al., 2006; Peterson, 2015; Peterson, Pardy, Tizzrard-Drover, & Warren, 2005). However, the effects of prior misleading interviews in childhood on the accuracy of adults' memory after an almost 20-year delay for an event involving genital contact have not been previously published.

The Present Study

This project is part of a longitudinal study of memory in children exposed to violence. In 1994 (Time 1), because of suspicions of child maltreatment, authorities removed participants from their homes and placed them in a forensic hospital unit for evaluation (not for illness), where participants experienced an anogenital exam by a physician as part of a 5-day child-maltreatment investigation. As the anogenital exam was part of the standardized forensic medical procedure for the hospital unit, virtually all children received such an exam, and it followed a set format, including the doctor administering both visual and manual inspection and penetration of the genital and rectal areas to enable swabbing for venereal disease. Researchers were present during the anogenital exam and documented what occurred, including all genital and anal contact.

Nearly 20 years later, between 2012 and 2014, 30 participants were located and interviewed as adults about their memories of the experience. On the basis of aforementioned research, we predicted that participants who were older at Time 1 and female would be more likely to report genital touch, but also that some of the youngest Time 1 participants (i.e., 4 years old) would accurately remember such contact—an abuse-related analogue for a legally chargeable act that did occur. We also examined accuracy in response to specific and misleading questions, including questions that could lead to memory errors with legal relevance. Given research showing that prior experience of sexual abuse in childhood may provide a framework for encoding and/or may increase the personal significance of genital touch (Katz et al., 1995), we predicted that individuals with (vs. without) a child sexual abuse history would be more likely to remember this documented event. As to the possible influence of psychopathology on memory, it was predicted that higher levels of current PTSD symptoms and greater depression would be associated with more accurate memory of the anogenital exam, including the genital contact, but also to greater error in response to misleading questions. Finally, exposure to a misleading interview in childhood was expected to be related to inaccuracy of memory in adulthood.

Method

Participants

At Time 1 (1990s), when they experienced an anogenital examination as part of a forensic investigation of maltreatment allegations, the 30 participants ranged in age from 4 to 17 years (M = 8.37 years, SD = 3.61; 20 females). They ranged in age from 23 to 36 years (M = 27.80 years, SD = 3.55) when interviewed at Time 2, approximately 20 years later (M = 19.03 years, SD = .32, range = 18 to 20), about their memories of the examination involving genital contact. Participants included non-Hispanic Whites (13.3%), African Americans (80%), and Latinos/as (6.7%). For analyses, ethnicity was coded as African American = 1 and non–African American = 0 (M = .80, SD = .41). As adults, participants also tended to be single (67%) and of low socioeconomic status (57% reported making less than $20,000 per year). Half of the Time 2 participants (n = 15) were interviewed (with open-ended, specific, and misleading questions) about the anogenital exam at Time 1, whereas the other half had not been interviewed about the exam at Time 1 (see Eisen, Qin, Goodman, & Davis, 2002, for details).

A central hypothesis of the present study concerned memory in adults with Time 1 histories of child sexual abuse compared to those with no Time 1 history of that

type of maltreatment. Thus, children classified as child sexual abuse victims were those whose Under the Rainbow (UTR) cases were determined to be "indicated" for child sexual abuse by the Department of Child and Family Services (DCFS) after extensive investigations by local law enforcement, child-welfare authorities, and UTR specialized staff (i.e., medical, mental health, and social work professionals). DCFS records were also checked for past indicated sexual abuse. For the present research, if the child had an indicated case of sexual abuse at or prior to Time 1 (even if he or she had experienced other forms of maltreatment, such as neglect, which was common, or physical abuse), the child was considered a sexual abuse victim (n = 19). If the child had no known sexual abuse case (current or past at Time 1), the child was not considered a sexual abuse victim (n = 11), although the child might have suffered founded physical or psychological abuse or neglect, or had no founded child abuse case (e.g., 4 neglect, 3 nonabused controls). As discussed below, Time 1 maltreatment status was unknown for 3 participants. For the present study, child sexual abuse status was coded as child sexual abuse history = 1 and no such history = 0 (M = .70, SD = .47).[1] At Time 2, 5 participants reported having experienced sexual assault as an adult and 25 reported no such experiences. There was no significant difference in Time 2 report of adult sexual assault between those who had experienced child sexual abuse as of Time 1(19%) and those who had not (10%), Fisher's Exact Test, p = 0.285, *ns*.

Time 2 participants (n = 30) were not significantly different from Time 1 participants who did not take part in the Time 2 interview (n = 183) in terms of age, gender, ethnicity, and memory accuracy at Time 1 for either the exam generally or the genital contact specifically, ts(15–30) < |1.87|. The Time 2 sample, however, contained more child sexual abuse victims than the original sample, $t(27) > |3.31|$, p = .001. The sample size was based on prior research, including effect sizes, on long-term memory for emotional events (Peterson, 2015; Talarico & Rubin, 2003).

Measures and procedure

The longitudinal study was approved by the university's institutional review board and carried out in accordance with the provisions of the World Medical Association Declaration of Helsinki. At Time 1, consent for follow-up had been obtained. At Time 2, researchers located the participants' current physical or postal address, email address, and/or phone number by extensively searching available databases, including Google, LexisNexis, and TLO, and social network sites, such as Facebook and MySpace. Contacts were made (via phone, email, and/or letter) to participants, inviting them to take part in the research.

Once participants were reached, trained female researchers "blind" to Time 1 measures, including to memory performance and maltreatment history, confirmed participants' identity (i.e., name, birthdate, race, gender, and city in which the participant grew up). Participants were told that the study's purpose was to interview children who had grown up in Chicago in the 1990s. After consent was obtained and confidentiality ensured, participants answered a series of demographic and background questions, which allowed for rapport building before the memory portion of the interview commenced.

For the memory interview, participants were cued to the target event by our saying that we wanted to ask about the time they stayed at a hospital unit, the UTR program, in the 1990s as a child or adolescent, and that "there were a lot of other children" there. Of note, participants were never informed of the purpose of their stay at the hospital, including that they were at the UTR as children as part of a forensic evaluation investigating maltreatment allegations. Participants were first asked a free-recall question concerning their general experience at the UTR program ("Please tell me everything you remember about being there"). They were then prompted to provide any additional information they could remember ("Is there anything else you remember about it? Even the smallest details are of interest to us.").

Participants were then asked to recall everything they could remember about the medical exam at the UTR, the one where "small white patches [electrode patches] and wires were placed on your chest to measure your heart beat." Note that for this part of the Time 2 interview, like the initial free-recall question, no cues were given to inform participants that they had received an anogenital exam. Two free-recall questions were asked: "Please tell me everything you remember about the doctor examination in as much detail as possible" and "Is there anything else you remember about it?"

One open-ended question (e.g., "What parts of your body did the doctor examine?") and 25 closed-ended questions about the examination followed. Closed-ended questions consisted of 16 specific (e.g., "Did the doctor have you bend over?") and nine misleading questions that presumed false information (e.g., "When the doctor gave you the shot/inoculation, was it in your upper arm, upper thigh, or in your buttocks?" though participants did not receive an inoculation) designed to assess memory accuracy and suggestibility, respectively. Inaccurate responses for nine of the specific and seven of the misleading questions were commission errors (e.g., choosing an option when asked, "Did the

nurse wash off your whole body at the start of that medical exam or was it during it?" when in fact the children's bodies were not washed then), and inaccurate responses for seven of the specific and two of the misleading questions were omission errors (e.g., agreement to "I know it is hard to remember back all that time, but there wasn't a chair in the room, was there?" when in fact there always was a chair in the exam room). As both commission and omission errors to misleading questions index suggestibility, they were combined as incorrect responses. A subset of the closed-ended questions ($n = 7$) asked about forensically relevant details that might well be related to an investigation of inappropriate or abusive behavior on the part of the doctor or nurse (e.g. "Did the doctor take your clothes off at the start of the exam?" when, in fact, the doctor did not).

Two of these seven forensically relevant questions concerned memory of the genital contact that actually did occur during the anogenital exam ("Did the doctor examine your genitals [private parts] during that examination?"; if participants responded "yes," they were asked, "Did the doctor examine both your genital and rectal areas or just the genital area?" as a follow-up); this permitted us to examine omission errors of acts that were potentially chargeable legally. Two of the seven abuse-related questions concerned acts that did not occur and that (as with genital touch) could also, on their own, potentially lead to legal charges ("Did the doctor or nurse hit you during that medical exam?" "At the end, did the doctor kiss you?"). This allowed us to examine potentially chargeable commission errors. At the end, participants were asked one final question ("Do you remember anything else about your doctor exam that day?"). Questions were roughly balanced for correct yes and no answers.

Participants also completed a battery of psychopathology measures (all with strong psychometric properties and appropriate for age and race/ethnicity). Of note here, at Time 2 they completed the 40-item Trauma Symptom Checklist (TSC; Elliot & Briere, 1992) and the 49-item Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). For our sample, relevant means and standard deviations on these measures were: TSC total score, $M = 23.92$, $SD = 14.08$; TSC depression, $M = 6.17$, $SD = 3.91$; PTSD avoidance, $M = .70$, $SD = .67$; and PTSD arousal, $M = .82$, $SD = .83$. To assess how frequently participants had discussed their memory of the UTR program, Time 2 participants were also asked, "How frequently have you discussed your stay at Mt. Sinai Hospital with others?" Participants responded using a 5-point scale (1 = *never*, 6 = *very frequently),* $M = 1.58$, $SD = .88$.[2]

All participants were debriefed at the end of the interview (e.g., told that it was normal not to remember everything from the UTR, asked how they were doing). As many participants did not remember portions of the event in question or the UTR at all, special attention was paid to assure the participants that some questions might not have applied to them and that we asked the same questions regardless of an individual's specific experience. At debriefing, participants were given information on support hotlines they could contact.

After completion of the interviews, research assistants (RAs) blind to hypotheses transcribed and deidentified the interviews (removing any identifying information not relevant to the accuracy of the medical examination). Of central interest was memory for the documented genital contact (i.e., vaginal or penile touch). Interview responses across free-recall, open-ended, and closed-ended questions were coded on a checklist for report of genital contact, false denial of genital contact (omission errors), and "don't know"/"don't remember" responses. Participants' answers to the Time 2 specific questions were scored as proportion correct, commission errors, omission errors, and "don't know"/"don't remember" replies. Responses to Time 2 misleading questions were coded as proportion correct, incorrect, and "don't know"/"don't remember" responses. To analyze the accuracy of participants' overall reporting, including monitoring of their lack of report, particularly after such a long delay, a genital report variable was created to capture not only participants' rates of correct and incorrect responding but also their "don't know" responses (−1 = incorrect recall, 0 = don't know, 1 = correct recall).

Results

Descriptive and correlational analyses

Information on key variables is presented in Tables 1 and 2. For the variable indexing discussion of the hospital visit, mean imputation replaced missing data for 4 people. All significant effects are reported.

Report of genital contact. As can be seen in Table 1, across the entire Time 2 memory interview (collapsing across free-recall, open-ended, and closed-ended questions), a slight majority of the participants (57%) failed to report the documented genital touch (e.g., said they did not remember what parts of their bodies were examined), including 2 participants who denied that such touch had occurred (e.g., said the doctor examined their upper bodies but not their private areas). However, 13 (43%) of the participants correctly reported it. For the

Table 1. Percent of Adults Who at Time 2 Reported Time 1 Genital Contact, Denied Genital Contact, or Said "Don't Know," Analyzed by Time 1 Age Group and Gender

	Age group at Time 1			Gender		*M*
Type of genital contact report[a]	3–5 years (*n* = 7)	6–10 years (*n* = 15)	11–15 years (*n* = 8)	Male (*n* = 10)	Female (*n* = 20)	(*N* = 30)
Reported genital contact	28.6%	40.0%	62.5%	20.0%	55.0%	43.3%
Incorrect denial of genital contact	14.3%	6.7%	0%	20.0%	0%	6.7%
"Don't know" across all question types	57.1%	53.5%	37.5%	60.0%	45.0%	50.0%

[a]Collapsed across free-recall, open-ended, and closed-ended questions.

subset of respondents who were asked specifically about anal touch ($n = 11$), omission errors were more frequent for anal (55%) compared with vaginal/penile (7%) contact, $t(10) = -3.46$, $p = .006$.

Lost memory. Five out of 30 (17%) participants did not remember, or at least did not disclose, being at the UTR hospital unit at all (i.e., evincing a "lost memory"). For the overall sample, having a lost memory of the UTR was not significantly correlated with age ($r = -.05$; $p = .808$) but was significantly correlated with gender, even with age partialed ($r = -.44$, $p = .016$): Males (40%) were more likely than females (5%) to express having no knowledge of ever being at the UTR program. Not recalling the UTR was also significantly related to higher total TSC scores, $r = -.37$, $p = .048$ (with age partialed; with gender partialed, $r = .28$, *ns*).

Child age. Being older at Time 1 was associated with a greater likelihood of accurately reporting genital contact at Time 2, $r = .40$, $p = .027$. No participant who was over the age of 11 when the genital touch occurred falsely denied it. Of those who remembered Time 1 genital contact, 1 adult was only 4 years old (53 months) at the time. Four additional participants were of this age at Time 1, 3 of whom said "don't know" at Time 2 and 1 of whom incorrectly denied genital touch had occurred. None of the 30 participants was younger than 4 years old at Time 1.[3]

Correlations controlling for child age. Partial correlations, statistically controlling for Time 1 age, assessed whether other potential theorized predictors (e.g., gender, depression, PTSD symptoms) related to long-term memory of the anogenital examination (Table 3). Consistent with the lost-memory findings, males (vs. females) were significantly less likely to report genital contact and more likely to omit information. Males also had lower short-term memory (STM) scores at Time 1, but Time 1 STM ($M = 43.87$, $SD = 7.47$) was not significantly correlated with memory performance. The Time 1 memory-interview

Table 2. Proportion of Correct, Incorrect, and "Don't Know" Responses to the Time 2 Memory Closed-Ended Questions About the Anogenital Examination

	Age group at Time 1			Gender		*M*
Question type	3–5 years (*n* = 7)	6–10 years (*n* = 15)	11–15 years (*n* = 8)	Male (*n* = 10)	Female (*n* = 20)	(*N* = 30)
Specific questions						
Correct	.17 (.20)	.34 (.29)	.33 (.30)	.22 (.23)	.33 (.30)	.30 (.28)
Commission	.05 (.08)	.05 (.05)	.06 (.07)	.05 (.07)	.06 (.06)	.05 (.06)
Omission	.04 (.09)	.03 (.08)	.03 (.05)	.08 (.11)	.02 (.03)	.04 (.07)
"Don't know"	.73 (.37)	.58 (.36)	.58 (.39)	.65 (.39)	.60 (.36)	.61 (.36)
Misleading questions						
Correct	.15 (.28)	.17 (.19)	.12 (.13)	.14 (.24)	.16 (.17)	.16 (.20)
Incorrect	.23 (.22)	.17 (.20)	.24 (.28)	.23 (.24)	.19 (.22)	.20 (.22)
"Don't know"	.62 (.37)	.65 (.34)	.64 (.36)	.63 (.40)	.65 (.32)	.64 (.34)

Note: Means are accompanied by standard deviations in parentheses. Misleading questions incorrect = commission + omission errors.

Table 3. Partial Correlations of Key Variables Controlling for Participant Age at Time 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Gender[a]	1.00																	
2. Ethnicity	0.09	1.00																
3. Time 1 STM	0.42*	−0.01	1.00															
4. Time 1 Memory Interview	0.21	0.08	−0.04	1.00														
5. CSA Status[b]	0.09	0.10	0.15	−0.04	1.00													
6. Time 2 Genital Contact Report	0.38*	0.05	0.001	0.05	0.48*	1.00												
7. Time 2 Specific Correct[e]	0.14	0.09	0.32	0.13	0.27	0.25	1.00											
8. Time 2 Specific Comm[e]	0.04	0.33	0.22	0.16	0.23	0.38*	0.70**	1.00										
9. Time 2 Specific Omissions[d]	−0.37*	0.15	−0.15	0.19	−0.28	−0.13	0.41*	0.52**	1.00									
10. Time 2 Specific DK[d]	−0.03	−0.15	−0.25	−0.16	−0.19	−0.23	−0.96**	−0.81**	−0.61**	1.00								
11. Time 2 ML Correct[d]	0.06	0.15	0.10	−0.001	0.21	0.33	0.72**	0.59*	0.40*	−0.73**	1.00							
12. Time 2 ML Incorrect	−0.10	0.20	0.13	0.03	0.05	−0.02	0.62**	0.71**	0.46**	−0.69**	0.34	1.00						
13. Time 2 ML DK	0.03	−0.22	−0.14	−0.02	−0.16	−0.17	−0.82**	−0.79**	−0.52**	0.87**	−0.79**	−.84**	1.00					
14. Time 2 Total TSC	0.29	0.02	0.17	0.08	0.32	0.11	0.34	0.09	−0.11	−0.25	0.09	0.03	−0.07	1.00				
15. TSC-Depression	0.17	0.10	0.07	−0.01	0.27	0.17	0.50*	0.22	−0.13	−0.39*	0.26	0.26	−0.32	0.79**	1.00			
16. PTSD Avoid Severity	−0.04	0.09	0.08	0.09	0.63**	0.09	0.13	0.26	−0.14	−0.12	0.07	0.12	−0.12	0.39	0.31	1.00		
17. PTSD Arousal Severity	0.21	−0.19	−0.03	0.09	0.62**	0.26	0.08	0.02	−0.25	−0.01	−0.08	−0.13	0.14	0.73**	0.44*	0.64**	1.00	
18. Discussing Hospital Visit[f]	0.21	−0.09	0.15	−0.06	0.13	0.27	0.36*	0.25	−0.14	0.29	0.31	0.27	−0.35	0.16	0.30	−0.12	−0.09	1.00

Note: $N = 30$, except child sexual abuse (CSA) status, $N = 27$, and PTSD variables, $N = 25$. STM = short-term memory; Comm = commission; DK = "Don't Know"; ML = misleading.
[a]0 = male, 1 = female. [b]0 = non-African American, 1 = African American. [c]0 = not CSA, 1 = CSA. [d]−1 = incorrect recall of genital contact, 0 = don't know, 1 = correct recall of genital contact. [e]Time 2 memory variables are all proportion scores (closed-ended questions). [f]Imputed values.
*$p < .05$. **$p < .01$.

Table 4. Age, Gender, Time 2 Depression, and Time 1 Child Sexual Abuse (CSA) Status Predicting Time 2 Memory for the Anogenital Exam

	Genital contact correct				Proportion specific correct				Proportion specific omission			
Model	*b*	*SE*	β	*t*	*b*	*SE*	β	*t*	*b*	*SE*	β	*t*
Model 1												
Age	.06	.03	.33	1.78†	.02	.02	.28	1.40	<.001	.004	.02	0.09
Gender	.33	.24	.25	1.36	.03	.13	.04	0.21	−.08	.03	−.48	−2.60*
		R^2 = .20				R^2 = .08				R^2 = .22		
		$F(2, 24) = 3.08^t$				$F(2, 24) = 1.09$				$F(2, 24) = 3.46$*		
Model 2												
Depression	.01	.03	.08	0.40	.04	.01	.52	2.92**	−.001	.004	−.07	−0.36
		ΔR^2 = .006				ΔR^2 = .25				ΔR^2 = .004		
		$F(3, 23) = 2.03$				$F(3,23) = 3.80$*				$F(3, 23) = 2.26$		
Model 3												
CSA	.59	.25	.47	2.38*	.09	.12	.15	.72	−.05	.04	−.27	−1.27
		ΔR^2 = .16				ΔR^2 = .02				ΔR^2 = .05		
		$F(4, 22) = 3.26$*				$F(4, 22) = 2.92$*				$F(4, 22) = 2.15$		

Note: Depression = TSC depression subscale score; CSA: 0 = not CSA, 1 = CSA; Genital contact correct: –1 = incorrect recall of genital contact, 0 = don't know, 1 = correct recall of genital contact, n = 27.
†$p < .10$. *$p < .05$. **$p < .01$.

variable (i.e., having had a Time 1 memory interview) was not significantly related to gender, ethnicity/race, or Time 2 memory performance.

Regarding psychopathology, total TSC scores were not significantly correlated with the memory variables shown in Table 3. Contrary to our predictions, Time 2 depression was not significantly related to report of genital contact, but consistent with prediction, greater depression was significantly correlated with greater memory accuracy as assessed by specific questions (correct and "don't know" responses). The PTSD avoidance and anxiety scores were not significantly associated with memory performance and were not unique predictors in preliminary regression analyses; thus, they were maintained for control purposes only, as needed. Having engaged in more discussion of the hospital visit was associated with increases in the proportion of correct answers to specific questions at Time 2. Because ethnicity, STM, total TSC score, and experience of a Time 1 memory interview were not significant predictors of memory in correlational and preliminary regression analyses, they are not considered further.

Unique predictors of memory nearly 20 years later

The regression models discussed below tested the unique predictors of long-term memory of the medical examination. The first set of analyses concerned memory of genital contact. The second set concerned the adults' accuracy in response to closed-ended questions about the anogenital examination generally. Throughout, in each of the sets of regressions, unless indicated otherwise, Time 1 age and gender were tested in the first model, depression was added in the second model, and child sexual abuse status was added in the third model (Table 4).[4]

Genital contact. In the regression analyses of genital contact memory, the first model was not significant, p = .065, although there was a trend for those who were older at Time 1 to be more likely in adulthood to remember the childhood genital contact (p = .088), as would be expected. Gender was not a significant predictor. When depression was added, the model was also not significant. However, in the final model, with child sexual abuse status included, the model was significant: Having been a child victim of sexual abuse at Time 1 was a significant predictor in adulthood of accurately reporting of childhood genital touch experienced during the UTR medical exam.

Because frequency of discussion about the hospital visit was expected to affect memory, we conducted the regression analysis above but with the hospital-visit discussion (imputed) variable added in the third model, and then with child sexual abuse status added in the last model. The model for frequency of discussion was not significant, R^2 = .32, $F(4, 22) = 2.58$, p = .065, $R^2\Delta$ = .11. However, the model that included child sexual abuse status was significant, R^2 = .467, $F(5, 21) = 3.66$, p = .016, $R^2\Delta$ = .15; child sexual abuse remained a significant predictor of adulthood memory of childhood genital contact even after controlling for frequency of discussions: child sexual abuse status, b = .56, SE = .23,

β = .45, $t(21) = 2.39$, $p = .026$. In two sets of regressions, when the PTSD variables were separately entered in second models followed by entering depression in the third models, the second models were not significant, *p*s ≥ .078, but in the third models, child sexual abuse status remained a significant predictor, *b*s ≥ .72, *SE*s ≥ .32, βs ≥ .58, *t*s ≥ 2.24, *p*s ≤ .038 (*n*s = 22).

Closed-ended questions. We were also interested in unique predictors of Time 2 accuracy in answering specific and misleading questions about the anogenital examination. For proportion of correct responses to specific questions, Model 1 was not significant (Table 4). However, when depression was added, the model was significant, and depression predicted greater memory accuracy. When child sexual abuse status was added, the model was also significant, but child sexual abuse status was not a significant unique predictor.

We also conducted the regression above but with the discussion variable added in a second model, with depression added in the third model, and child sexual abuse status added in the last model. The second model, $R^2 = .18$, $F(3, 23) = 1.65$, $p = .205$, $R^2\Delta = .09$, $p = .118$, and the frequency of discussion (imputed) variable, $b = .10$, $SE = .06$, β = .32, $t(23) = 1.62$, $p = .118$, were not significant. In contrast, the model that included depression was still significant, $R^2 = .36$, $F(4, 22) = 3.08$, $p = .037$, $R^2\Delta = .18$, and depression remained a significant predictor of memory accuracy in answering specific questions, $b = .03$, $SE = .01$, β = .47, $t(22) = 2.50$, $p = .021$. Similarly, when the PTSD variables were entered in second models followed by entering depression in the third models, the models with the PTSD variables were not significant, *p*s > .576, but in the third model, depression remained a significant predictor, *b*s ≥ .04, *SE*s ≥ .015, βs ≥ .54, *t*s ≥ 2.64, *p*s ≤ .017, (*n*s = 25).

For proportion of specific omission errors, age and gender were again entered in the first model, which was significant. Although age was not a significant predictor, gender significantly predicted more omission errors. The other models and predictors for proportion of specific omission errors were not significant. There were no other significant models for specific questions (proportion of commission and "don't know" responses). Furthermore, there were no significant models for proportion of misleading questions (proportion of correct, incorrect, and "don't know" responses).

Discussion

Controversies about memory accuracy in historic child sexual abuse cases challenge clinical and cognitive researchers to examine, and theorists to explain, the accuracy or inaccuracy of reports of childhood genital contact that actually occurred (Skeem, Douglas, & Lilienfeld, 2009). There is a pressing clinical, societal, and scientific need to know whether individuals who have experienced childhood trauma can accurately remember genital contact decades later and to identify factors that promote accurate reporting of childhood events (e.g., Goodman, Goldfarb, Quas, & Lyon, 2017).

A main goal of this study was to examine the accuracy of adults' long-term memory, after a nearly 20-year delay, for genital contact and related events experienced in childhood. Almost half of the adults (43%) correctly disclosed genital touch that occurred during a childhood medical exam. Most participants (93%) either accurately reported the touch or stated that they did not know if the touch occurred; only 2 participants incorrectly denied the genital touch (7%). Whereas most participants utilized a conservative response strategy (e.g., saying "don't know") in answering closed-ended questions regarding the exam, some participants revealed suggestibility, mainly as a tendency to falsely report schema-consistent information. Although genital touch during medical exams is not at issue in most child sexual abuse cases, it is the alleged crime in some historic prosecutions (e.g., *People of the State of Michigan v. Lawrence Gerard Nassar*, 2018; *State of California v. William Ayers*, 2013). Such touch also serves as an analogue to child sexual abuse that can be scientifically studied to examine memory.

Predictors of long-term memory of significant childhood events

Child age. The 30 individuals tested ranged widely in age (4 to 17 years) at Time 1. Across this age range, one would expect older compared to younger children to better remember the forensic experience (Peterson, 2015), and for this age pattern to carry over into adulthood. In the present study, correlational analyses indicated the expected age effect, with adults who were older at Time 1 being more likely than adults who were younger at Time 1 to remember the genital touch, although the finding was not quite significant in regression analyses when gender was also considered. In this regard, it is relevant that even 1 of the youngest participants (53 months old at the time of the exam) recalled the genital contact. As noted by Peterson (2015), this long-term accurate memory of information encoded around or shortly after the time of infantile amnesia is particularly of note because even though many adults cannot remember events from this early period of development, some individuals who were quite young at the time of encoding are able to remember an emotional event decades later (McDermott Sales et al., 2005; Usher & Neisser, 1993). For some adults, accurate recollections

of events experienced at an early age can include memory of genital contact.

Child sexual abuse. Consistent with Eisen et al.'s (2007) results, child sexual abuse status at Time 1 predicted accurate reporting of genital touch. It is possible that the anogenital part of the exam was particularly relevant or salient for these children or that they were sensitized to such contact (Goodman, Rudy, Bottoms, & Aman, 1990). For example, for participants with a child sexual abuse history, the forensic medical exam (i.e., as part of a maltreatment investigation) likely had additional importance in determining if they would be placed in foster care or returned home. Moreover, if at Time 1 the children falsely denied that sexual assault occurred when it actually had taken place, they might have feared that the medical exam would reveal the truth, making the exam stand out in memory (Lyon, 1995). Furthermore, compared to the other adults interviewed, those with child sexual abuse histories, even in childhood may have had a richer semantic knowledge base regarding genital contact within which to encode the exam (Howe, 2011), and this may have aided accurate reporting or inference (rather than stating "don't know") 20 years later.

Like Eisen et al. (2007), Katz et al. (1995) found that children in maltreatment evaluations show particularly robust memories of genital touch if the investigations were for sexual abuse. Of importance, particularly to historic child sexual abuse cases, the present study adds that such findings hold even after delays of 20 years, regardless of whether or not an earlier memory interview was administered.

Psychopathology. One goal of this study was to determine whether individual differences in trauma-related psychopathology predicted memory accuracy or error. Although PTSD symptoms were not significantly related to memory performance, participants who were more depressed at Time 2 more accurately answered specific questions about the anogenital exam. Because depressed individuals ruminate on past negative incidents (Hertel & El-Messidi, 2006), their memory of distressing childhood experiences may be better preserved than that of individuals who are less depressed. Although this study did not directly address rumination or the "chicken-and-egg" question of whether memory for negative events drives depression or, alternatively, depressed individuals focus on negative life experiences (Everaert, Bronstein, Cannon, & Joormann, 2018), the present research indicates that depression is associated with comparatively accurate memory of negative childhood occurrences endured almost 20 years earlier.

Gender. When interviewed about emotional childhood events, adult males tend to remember less than do adult females (Davis, 1999), including about child sexual abuse (Widom & Morris, 1997). In the present study, compared with females, males were more likely to exhibit "lost memory" for being at the UTR, were less likely to report genital contact (correlational analyses), and were more likely to make omission errors in answering specific questions (regressions). Furthermore, the 2 individuals who denied that they experienced genital touch were both males. The anogenital exam differed slightly for males and females, but both genders experienced swabbing of their genital and anal areas, as well as visual and manual inspection. In adulthood, males may find it emotionally difficult to discuss experiences relevant to childhood victimization or may have avoided thinking about emotional childhood memories generally.

Time 1 memory interview and UTR discussion

In this study, the Time 1 interview, which included specific and misleading questions, did not taint memory reports after an almost 20-year delay. The questions asked at Time 1 varied considerably as to the format of the questions, and they covered a wide range of information about the anogenital exam, concerning fairly innocuous information (e.g., "Was there a sink in the room?" which there was) to misleading but not abuse-related questions (e.g., "When you went to the doctor's room, there was a little boy from the playroom with you, wasn't there?" when in fact there was not), to highly inappropriate legally chargeable acts (e.g., "Did the doctor or nurse hit you?" "How many times did the doctor kiss you?" "Did the doctor take her/his clothes off?" none of which the doctor or nurse did). Yet accuracy did not significantly differ between those participants who had a Time 1 interview and those who did not, and the correlations with Time 2 inaccuracy (e.g., commission errors) were low. Overall, as far as we could detect with a relatively small sample, there was no apparent memory-malleability effect in relation to the content of the Time 1 questions intruding into the adults' long-term memory reports.

The results provide insight into whether prior interviews in childhood predict long-term memory of emotional experiences (Ornstein et al., 2006; Peterson, 2015; Peterson et al., 2005). In line with Ornstein et al.'s (2006) and Peterson's (2015) results, we found that having a prior interview did not adversely or positively affect the overall accuracy of later memory. Similarly, discussion of the UTR experience with others, which could be a source of rehearsal of accurate or inaccurate

information, generally did not significantly predict memory accuracy, as indicated with regression, although having engaged in more discussion of the hospital visit was associated with increases in the proportion of correct answers at Time 2 to specific questions, as revealed in correlational analyses. It should be noted, however, that discussion of the UTR experience was self-reported as occurring infrequently, perhaps because the child maltreatment investigation was often considered a shameful or unpleasant part of childhood.

Memory and suggestibility

We examined memory and suggestibility for true information that was documented during the medical exam and for information that was false. The robustness of memory for what actually occurred may vary depending on the consequentiality, salience, and taboo nature of the act (Goodman et al., 1990). For example, to the extent that anal touch is more taboo than genital touch, it is of interest that participants who recalled experiencing genital contact underreported anal contact when asked about it directly. Although differences in disclosure of overall genital compared to anal touch may have arisen from children's failure to encode the anal touch at Time 1, an alternative possibility is that individuals may be more reluctant to disclose a rectal than a genital exam because of societal and socioemotional factors (e.g., embarrassment; Saywitz, Goodman, Nichols, & Moan, 1991).

For abuse-related events that did not occur, no participant falsely reported that either the doctor or nurse committed a highly inappropriate abuse-related act (i.e., hitting or kissing the participant). At Time 2, most participants (57%) correctly denied having been hit or kissed by the doctor or nurse, and no participant made a commission error to these two questions. Instead, the remaining 43% of participants stated that they did not know whether these events had occurred. The individuals who indicated they did not know if they had been hit or kissed by the doctor or nurse may have been able to use metacognitive strategies to monitor the absence of their memories (Koriat et al., 2000). Note that no commission errors were made to these two questions, even though the acts had been falsely suggested to half of the adults when they were children at Time 1. Thus, as far as we could detect, there was no Time 1 carryover effect on Time 2 memory for the highly inappropriate acts over the almost 20-year delay.

Despite participants correctly denying the criminally chargeable acts of being hit or kissed, some participants falsely affirmed other abuse-related information at Time 2, including in response to both specific and misleading questions. For instance, in response to the Time 2 specific question, "Did the doctor take your clothes off at the start of the exam?" (which the doctor did not do), 7 of 30 (23%) individuals gave affirmative responses. And in response to the Time 2 misleading question, "Why did the doctor take a picture of you?" (when in fact the doctor had not taken a picture of them at Time 1), 3 of 30 (10%) participants erred. Thus, when asked in a specific or misleading manner at Time 2, closed-ended questions about plausible acts led to a certain percentage of commission errors, including for some of the script-consistent, abuse-related questions (e.g., "Did the doctor have you bend over?" to which 4 of 30 [13%] agreed, when in fact the doctor did not). Still, participants' Time 2 error rates were relatively low overall, especially for specific questions.

The participants revealed similar patterns of suggestibility at Time 1 (Eisen et al., 2002). Then, the children, particularly the young ones, were suggestible about low-inappropriate abuse-related acts but, as seen here again at Time 2, were resistant to error for highly inappropriate acts. As these low-inappropriate abuse acts were quite plausible (i.e., schema typical) for an examination (e.g., many doctors do bend participants over to check for scoliosis), participants may be relying on a medical exam schema as the basis for their recollections. This interpretation is bolstered by the finding that no participants incorrectly recalled nonschematic highly inappropriate abuse-related actions.

Participants' false reporting of schema-typical information may call into question whether the participants who disclosed genital touch were also relying on a medical-exam schema. However, anogenital exams are not schema-typical for most hospital visits, in contrast with annual checkups for older children. Moreover, this explanation is undercut by the fact that many participants who recalled the genital touch did so in free recall when no mention of a forensic exam or a child-abuse investigation had been made and no question about it had been posed. Note also that 8 participants who were age 10 or younger at Time 1, for whom an anogenital exam is not schema-typical, reported the genital contact. Furthermore, when asked about childhood medical exams, children often do not disclose genital or anal touch in free recall, even after much shorter delays, without additional prompting (e.g., Saywitz et al., 1991).

Thus, although the Time 1 misinformation did not result in distortion of later memory, Time 2 misinformation was associated with error. This pattern is consistent with a source-monitoring notion that memory-trace strength comparison (comparing memory traces of the Time 1 actual event to memory traces of the misinformation) is predictive of memory distortion. When misinformation fades over 20 years, its distorting effect on

report accuracy may fade, too. But when misinformation is presented at Time 2 and memory traces for a long-ago event are relatively weak, as likely occurred at Time 2, misinformation can reveal its distorting effect on accuracy.

However, at Time 2, although participants revealed suggestibility in response to misleading questions, they were generally resistant to commission errors and responded conservatively (with "I don't know"). Time thus seems to lead to some suggestibility for misleading questions but, overall, to conservative reporting in adulthood.

Responding conservatively almost 20 years later is surprising, because no participant reported "don't know" to the genital touch question when asked as children at Time 1. At first glance, reporting not knowing might be expected, as the intervening time delay would likely result in significant forgetting (Hirst et al., 2015). Indeed, approximately 17% of the participants did not recall being at the hospital at all. A "don't know" response may indicate that participants' memory has degraded so much that the event is no longer accessible or, alternatively, may indicate an inability or unwillingness to retrieve the memory at the time of the interview (Wagenaar & Groeneweg, 1990). Thus, it may be that these participants accurately tracked whether or not they correctly remembered (metacognition skill; Koriat et al., 2000) or that they were conservative responders who needed additional rapport building, cues, or memory reinstatement to retrieve and disclose the event (McNally, 2005).

Caveats/constraints on generality

Because of a small sample size, statistical power to detect effects was limited in this study. In the future, the findings here could help inform clinicians' understanding of the potential accuracies (and inaccuracies) in clients' disclosure of traumatizing events that occurred during childhood. However, especially given the reduced power present here, replication is needed before any such conclusions or recommendations can be made.

A forensic genital exam, although an analogue to sexual abuse, does not involve many of the psychological factors typical in child maltreatment cases. At Time 2, participants might have been more cautious in responding (e.g., to closed-ended questions) if a real police investigation was ongoing; or alternatively, they might have been less cautious if highly inappropriate interview techniques (such as coercion or overly lengthy interviews) were utilized. Although the Time 1 genital touch did indeed take place in the context of an ongoing child protective services investigation, even then there was no criminal investigation (nor the corresponding effect an investigation has on one's life) of the genital touch by the physician. An actual legal investigation of acts by the physician might have provided both richer recall and increased event saliency (La Rooy, Katz, Malloy, & Lamb, 2010). That said, a forensic medical examination conducted with children removed from their homes during an ongoing legal investigation of their caretakers (and other known individuals) may be emotionally difficult and more consequential than an ordinary genital examination, and therefore quite memorable.

For creating a memory-malleability effect, multiple interviews in adulthood might be needed to activate past suggestions in memory and then to confuse them with actual experience, leading to source monitoring errors (Johnson, Hashtroudi, & Lindsay, 1993). It may also be that individuals would be more suggestible when incorrect information is conveyed by an authority figure (e.g., police officer) or a perceived expert (e.g., therapist or another physician), or is supported by general consensus (e.g., Web sites or social media). Moreover, although there was no significant relation between our two Time 1 memory-interview groups in age, gender, race/ethnicity, and so forth, random assignment to groups rather than a quasi-experimental design is warranted to examine effects of a Time 1 interview on Time 2 responses after a nearly 20-year delay.

We were precluded from investigating "false memory" for the anogenital exam because all of the participants experienced one as part of the Time 1 child-maltreatment investigation. This also limited our ability to falsely implant a suggestion of having had such an examination at Time 1. Future researchers should consider this important issue, taking into account vital ethical limitations.

In addition to the caveats mentioned, boundary conditions on the generality of the findings should be considered (Simons, Shoda, & Lindsay, 2017). The sample here consisted largely of African Americans growing up in poverty, surrounded by community violence, in a large United States city and who, because of suspicions of maltreatment, experienced in childhood a forensic investigation that included a medical examination at a specialized hospital unit in the 1990s. Then, 20 years later, they engaged in an unexpected memory interview via phone by unknown researchers. Self-reports of psychological symptoms (depression, PTSD) were elicited. Cultural, cohort, situational, and/or methodological factors could affect the generalizability of the findings. Aside from caveats and boundary conditions, we have no reason to believe that the results depend on other characteristics of the participants, materials, or context.

Summary and Conclusion

A noteworthy proportion of individuals who experienced documented genital touch as children accurately recalled it almost 20 years later. Furthermore, adults who experienced child sexual abuse were more likely to report the genital touch, regardless of gender. Some participants were suggestible and incorrectly stated that the doctor or nurse engaged in abuse-related acts (e.g., the doctor taking the child's clothes off at the start of the exam). All of these acts were, arguably, schema-typical plausible acts that are not highly inappropriate for a medical examination. No participants falsely reported legally chargeable maltreatment that was suggested, sometimes in a misleading manner, in a prior interview that took place in childhood.

Our findings imply that theories of long-term memory of distressing events must consider the relation of the event to one's life course (Berntsen & Rubin, 2006; Frankenhuis & Weerth, 2013); the emotional or taboo nature of the acts (Christianson, 1992; Goodman et al., 1990); meta-cognitive abilities (Koriat et al., 2000), especially in relation to schema-expected, plausible acts (Pezdek et al., 1997); and trauma-related psychopathology, such as depression (Goodman et al., 2017). This study offers data to guide such theories, as well as insights into whether adults can accurately remember abuse-related acts visited upon them in childhood, thereby potentially affecting evaluation of their memories within therapeutic and legal contexts in historical child sexual abuse cases.

Action Editor

Scott O. Lilienfeld served as action editor for this article.

Author Contributions

D. Goldfarb, G. S. Goodman, and M. L. Eisen developed the Time 2 study concept. D. Goldfarb and G. S. Goodman devised the Time 2 study design. Time 2 testing and data collection were performed by D. Goldfarb, R. P. Larson, and G. S. Goodman, who were joined by J. Qin in advising on data coding and analysis. All authors were involved in the interpretation of the data. M. L. Eisen designed the Time 1 study and collected the data, and G. S. Goodman and J. Qin performed data coding and analyses. D. Goldfarb, G. S. Goodman, and R. P. Larson drafted the manuscript, and M. L. Eisen and J. Qin provided critical revisions. D. Goldfarb and G. S. Goodman contributed equally to this work. All authors approved the final version of the manuscript for submission.

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Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

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Notes

1. For the Time 1 study, the 27 children with known child maltreatment histories fell into the following maltreatment categories: sexual and/or physical abuse (66.6%), neglect (13.3%), or no known maltreatment (10%) (Eisen et al., 2002).
2. For further information about the questions asked, contact the second author.
3. Age and gender were not significantly associated, $r = .21$, *ns*, but age and child sexual abuse status were significantly related, $r = -.42$, $p = .028$. Participants who had a Time 1 memory interview did not significantly differ in age from those who did not have a Time 1 memory interview, at either Time 1, $t(28) = 1.39$, $p = 0.176$, or Time 2, $t(28) = 1.37$, $p = 0.183$.
4. Skew and kurtosis were acceptable for all variables entered into regression analyses (between –2 and + 2) except for specific question omission errors (skew = 2.76) and frequency of discussion (kurtosis = 2.32). All regression analyses that included these variables and produced significant findings were rerun with appropriate transformations (i.e., omission errors by log10 and frequency of discussion by square root), and the findings remained virtually unchanged. Specifically, child sexual abuse status remained a significant unique predictor of report of genital contact, $b = .55$, $SE = .24$, $\beta = .44$, $p = .030$, and depression remained a significant predictor of proportion of correct answers to specific questions, $b = .03$, $SE = .01$, $\beta = .45$, $p = .024$. For proportion of specific omission errors, gender was still significant, with a log10 transformation of the dependent measure, $b = -.02$, $SE = .01$, $\beta = -.46$, $p = .021$. Also relevant to the regressions reported in the main text, abuse-status information was missing from our Time 1 files for 3 participants. On the basis of Time 2 reports, two of the three missing data points were filled in as Time 1 non-child-sexual-abuse cases. The regressions were conducted on the $n = 29$ sample, and the results were virtually identical to those for the $n = 27$ sample, with the exception that the predicted effect of gender on omission errors reached significance only with a one-tailed test, $\beta = -.38$, $p = .03$; the beta remained substantial.

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