
Explaining the Forgetting and Recovery of Abuse and Trauma Memories: Possible Mechanisms

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Much attention has been focused on memories of abuse that are allegedly forgotten or repressed then recovered. By retrospectively surveying more than 1,400 college women, the authors investigated (a) the frequency with which temporary forgetting is reported for child sexual abuse experiences as opposed to other childhood abuse and traumas and (b) exactly how victims characterize their forgetting experiences in terms of various competing cognitive mechanisms. Rates of forgetting were similar among victims who experienced sexual abuse, physical abuse, and multiple types of traumas. Victims of other types of childhood traumas (e.g., car accidents) reported less forgetting than victims of childhood sexual abuse or multiple types of trauma. Most victims' characterizations of their forgetting experiences were not indicative of repression in the classic Freudian sense but instead suggested other more common mechanisms, such as directed forgetting and relabeling. The implications of these findings for psychological theory, clinical practice, and law are discussed.

A great deal of public and professional attention has recently focused on adults' memories of trauma, particularly childhood sexual abuse memories that are reportedly temporarily forgotten. Some argue that these memories are forgotten and then resurface after being "repressed" for many years. Freud originally conceptualized repression as a defensive process that keeps emotionally laden and otherwise debilitating memories out of conscious awareness, resulting in amnesia (Briere, 1992; Eriksen & Pierce, 1968; Freud, 1920/1966; van der Kolk, 1994). Theoretically, these

memories continue to exist in the unconscious but are consciously inaccessible while repressed.

Surveys reveal that this basic concept of repression is widely accepted among many practicing therapists (Bottoms, Diviak, Goodman, Tyda, & Shaver, 1995; Poole, Lindsay, Memon, & Bull, 1995). Some maintain that repression might be more likely to occur specifically in response to experiences of childhood sexual abuse (e.g., Bass & Davis, 1988) and that repressed memories must be recovered to obtain relief from anxiety and life problems associated with them (e.g., Terr, 1994). Such beliefs have led to specific therapeutic practices and legal policies. For example, some therapists promote the use of highly suggestive retrieval techniques to dislodge forgotten sexual abuse memories (Bass & Davis, 1988; Fredrickson, 1992), and specific laws have been passed in many states to accommodate recovered memory abuse allegations made beyond normal statutes of limitations (Bowman & Mertz, 1996; Brown, Schefflin, & Hammond, 1998; Gothard & Ivker, 2000).

Others challenge the concept of repression, arguing that it enjoys little scientific support (e.g., Holmes,

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1990; Kihlstrom, 1996; Lindsay & Read, 1994; Loftus, 1993) and that established cognitive processes can account for forgetting and subsequent recall of traumatic memories (Kihlstrom, 1995, 1996). It has been suggested that clinical recovery of forgotten trauma memories could be harmful (Loftus, 1997; McElroy & Keck, 1995), clinical practices aimed at memory recovery might create false memories (Lindsay & Read, 1995; Loftus, 1993; Poole et al., 1995; Schooler, Bendixen, & Ambadar, 1997; Tsai, Loftus, & Polage, 2000), laws accommodating repressed memories could pose threats to defendants' due process rights, and repressed memory testimony should not be allowed in court (Reagan, 1999).

The importance of this issue and the extent of the controversy surrounding it are underscored by the fact that the American Psychological Association itself initiated an official working group to consider memories of childhood abuse. The group members could not agree on several central aspects of the debate, stating in their final report that members differed "markedly on a wide range of issues," including "the tentative mechanisms that may underlie delayed remembering" and "the presumed 'special' status of memories of traumatic events" (APA Working Group, 1998, p. 933; see also "First Report," 1998).

Many questions about temporary forgetting remain unanswered. How common is the experience of temporary forgetting of childhood experiences such as sexual abuse or physical abuse? Does the frequency of forgetting such abuse experiences differ from the frequency of forgetting other traumatic events, such as serious accidents?¹ What psychological mechanisms are responsible for victims' experiences of temporary forgetting? Do victims' reports of temporary forgetting represent an absolute inability to access repressed memories, followed by recovery of those memories? Or do these reports merely represent victims' intentional failure to retrieve memories that are cognitively accessible? We designed the current research to address these questions by examining victims' own explanations for their experiences of temporarily forgetting past abuse and trauma.

CHILDHOOD SEXUAL ABUSE: A UNIQUE TARGET FOR FORGETTING?

Many surveys designed to uncover victims' temporary forgetting experiences have focused exclusively on childhood sexual abuse experiences (e.g., Briere & Conte, 1993; Elliot & Briere, 1995; Herman & Schatzow, 1987; Williams, 1995; but see Elliot, 1997, and Fish & Scott, 1999; for review, see Epstein & Bottoms, 1998). The relation between sexual abuse and

temporary forgetting revealed in these studies has led many to contend that there is something distinct about sexual abuse that leads to subsequent forgetting. For example, some argue that sexual abuse is unique because it is more secretive, embarrassing, or shameful than other types of childhood abuse and trauma and that these affective reactions lead sexual abuse victims to repress their abuse to cope (Bass & Davis, 1988; Blume, 1990; Fredrickson, 1992). In her betrayal trauma theory, Freyd (1996) argued that sexual abuse victims experience betrayal and shame as a consequence of being abused by a trusted adult and that the abuse and betrayal must be forgotten to preserve essential attachments with the abuser. Research shows that shame is related to increased psychological distress in victims of childhood sexual abuse (e.g., Coffey, Leitenberg, Henning, Turner, & Bennet, 1996; Feiring, Taska, & Lewis, 1998). Furthermore, abuse by a family member might lead to higher rates of forgetting than abuse by a stranger (Williams, 1994; but see Loftus, Polonsky, & Fullilove, 1994). It seems plausible, then, that in an effort to avoid this shame, victims would try to avoid thoughts about their shame-inducing experiences (i.e., their abuse). Because victims of other types of trauma (e.g., car accidents, surgeries, hospitalizations) do not experience betrayal or shame, they would be expected to forget their experiences less often than sexual abuse victims.

It has also been suggested that childhood sexual abuse is forgotten more often than other abuse and trauma because forgetting is related to the extent to which victims think or talk about their experiences. Because victims' experiences of other types of childhood trauma (e.g., surgeries, car accidents) are generally known and not shameful, they might be discussed more with others, thought about more, and consequently forgotten less than abusive experiences. That is, rehearsal leads to better recall (e.g., Klatzky, 1980; Schank & Abelson, 1977). In contrast, abuse victims are less likely to discuss their abuse with others (e.g., Peters, Wyatt, & Finkelhor, 1986) because of shame or because the individuals to whom they might turn for support are the perpetrators themselves. As victims avoid rehearsing their abusive memories, they might experience directed forgetting, a typical memory process (for review, see MacLeod, 1998).

There are also reasons to expect forgetting not to be unique to childhood sexual abuse experiences. For example, because much childhood trauma (e.g., physical abuse, emotional abuse, severe accidents, surgeries) is arguably as stressful to recall as sexual abuse, its victims should be similarly motivated to avoid rehearsal of such memories, leading to subsequent forgetting. In fact, studies by Melchert (1996)

and Melchert and Parker (1997) revealed that college students report similar rates of forgetting across memories of different types of abuse: childhood sexual abuse (18%, $n = 13$, and 20%, $n = 22$, respectively), physical abuse (21%, $n = 13$, and 12%, $n = 9$, respectively), and emotional abuse (18%, $n = 15$, and 15%, $n = 15$, respectively). Feldman-Summers and Pope (1994) found similar forgetting rates across memories of intrafamilial sexual abuse (53%, $n = 19$) and intrafamilial physical abuse (48%, $n = 16$) in their sample of psychologists. Finally, Elliot (1997) explored rates of temporary forgetting for sexual abuse (42%, $n = 49$), physical abuse/assault (22%, $n = 28$), and other types of noninterpersonally violent trauma (11%, $n = 25$). Although she did not statistically examine differences in forgetting rates across these categories, her data nonetheless reveal that temporary forgetting was not unique to sexual abuse experiences.

In the present research, we sought to explore further forgetting rates across various types of childhood abuse and trauma. Replication of previous studies was necessary because the studies included small samples of victims (and one, Feldman-Summers & Pope [1994], used psychologists, a very specialized sample), leading to even smaller numbers of individuals who forgot each type of abuse ($n = 13$ to 22), making the generalizability of findings questionable. Second, we extended previous research in important ways by asking respondents not only about their memories of childhood abuse but also about other childhood traumas such as violent crimes, accidents, and hospitalizations (hereafter referred to as "other trauma"), some of which have not been explored in previous studies. Third, we studied the implications of whether victims had experienced multiple forms of abuse and trauma, a not uncommon experience among victims (Goodman, Bottoms, Redlich, Shaver, & Diviak, 1998; Rossman & Rosenberg, 1998). Compared to victims of isolated trauma incidents, multiple trauma victims might experience unique reactions such as more severe psychological sequelae (Goodman et al., 1998). Because repression is believed to be an extreme psychological reaction to the most severe traumatic experiences (e.g., Briere & Conte, 1993; Freud, 1954; Herman & Schatzow, 1987; Terr, 1994), multiple trauma victims might report significantly more forgetting than other victims. Previous researchers failed to explore multiple trauma status when examining forgetting rates (e.g., Elliot, 1997; Melchert, 1996; Melchert & Parker, 1997), and thus, they could have missed an important predictor of forgetting.

Fourth, by measuring victims' experiences of shame and betrayal, we sought to test Freyd's (1996) betrayal trauma theory, for which there is currently little empirical support. Specifically, Freyd's theory predicted that childhood sexual abuse victims would report forgetting at higher rates than victims of some other types of trauma and that this forgetting would be related to betrayal, shame, and victimization by a trusted adult. Finally, as we discuss in detail next, one of our central goals was to examine victims' characterizations of their forgetting experiences to gain insight about the extent and possible causes of their temporary forgetting.

TEMPORARY FORGETTING OF TRAUMA: A PRODUCT OF FREUDIAN REPRESSION?

To date, researchers have typically investigated the prevalence of temporary forgetting by asking general screening questions such as, "Was there ever a time when you could not remember your forced sexual experience?" (Briere & Conte, 1993) or "Was there ever a period of time when you had less memory of your abuse than you do now?" (Elliot & Briere, 1995). Forgetting rates vary considerably across studies, with 16% to 64% of victims reporting some temporary forgetting of their childhood sexual abuse experiences (e.g., in clinical samples: Briere & Conte, 1993 [59%]; Herman & Schatzow, 1987 [64%]; Loftus, Polonsky, et al., 1994 [31%]; and in nonclinical samples: Elliot & Briere, 1995 and Elliot, 1997 [42%]; Epstein & Bottoms, 1998 [30%]). In addition, Williams (1992, 1994) interviewed 129 women for whom a target incident of childhood sexual abuse was documented during a hospital visit 17 years earlier. When asked to describe all their childhood abuses, 38% failed to report the target incident (which the interviewer did not specifically mention), even though most of those women reported other abuse experiences that were as traumatic or embarrassing. Of the 75 women who did report the target abuse, 16% said they had experienced a "time when they did not remember that the abuse had happened to them" (Williams, 1995). Finally, using a somewhat different methodology, Golding, Sanchez, and Sego (1996) found that 13% of 613 college students reported that they "had recalled a repressed memory" of any kind. The most often cited repressed event was sexual abuse (for 23%, or approximately 18, of the 13% who repressed a memory of any kind).

It is not clear exactly what is meant by failure to report past abuse experiences or by affirmative responses to queries about temporary forgetting (e.g., Loftus, Garry, & Feldman, 1994; Pope & Hudson,

1995). As we have noted (Epstein & Bottoms, 1998), there is no evidence that affirmative responses necessarily indicate a complete absence of memories followed by recovery of those memories (i.e., Freudian repression), as opposed to a variety of other psychological experiences (Schooler et al., 1997; Schooler & Hyman, 1997). There are several plausible alternative interpretations for victims' experiences of temporary forgetting. For example, some individuals who said they forgot might have actually done so because they experienced a period of common retrieval failure (e.g., Melchert, 1996; Schooler, 1996). That is, we often lose from conscious memory things we have experienced or learned until we encounter appropriate retrieval cues that stimulate pathways necessary for "recovering" (remembering) such memories (Kihlstrom, 1995; Klatzky, 1980). Abuse victims will not think about their abuse during every waking moment and might not think about it for days, weeks, or even months until encountering some stimulus that cues recall. The abuse memory was not necessarily unavailable or repressed while it was not accessed, yet this experience might be interpreted and reported on surveys as temporary forgetting by victims who are naive to academic theories of memory function.

Alternatively, some victims who report temporary forgetting might have always remembered an event but thought about it differently during certain periods of their lives. For example, victims might reinterpret past experiences in ways that are less upsetting or threatening, enabling them to avoid thoughts about these experiences and associated negative affect (e.g., Femina, Yeager, & Lewis, 1990; Kihlstrom, 1996). Or victims might have childhood experiences that they label as abusive or traumatic only years later, after maturing and understanding the negative implications of the experiences (e.g., Melchert, 1996). This relabeling process is not temporary forgetting per se, but some victims might report it as such.

Finally, some respondents who report temporary forgetting might have "forgotten" their abuse during a certain time period because they purposely chose not to think about it or to retrieve accessible memories, not because the memories were really unavailable and unconsciously blocked (Bjork, 1989; Lindsay & Read, 1995; Loftus, 1993; Melchert & Parker, 1997). For example, an adult in Williams's (1995) study of temporary forgetting referred to her documented childhood sexual abuse experience in this way: "I just blocked it out. I may not have completely forgot, I just didn't think about it" (p. 663). In a similar study by Femina et al. (1990), an adult woman failed to report childhood physical and sexual abuse that she had

reported years earlier during an adolescent interview. When challenged with documentation of the abuse, she explained that she "didn't say 'cuz I wanted to forget." At the time of her adolescent interview, she had said, "I try to block all this out of my mind" (p. 229). These are examples of deliberate, directed, or intentional forgetting caused by active cognitive avoidance of otherwise accessible, but threatening, memories (Bjork, 1989; for review, see MacLeod, 1998). Avoiding thinking about events can lead to subsequent forgetting, either through selective rehearsal (i.e., some thoughts are rehearsed and others are not, leading to forgetting for the unrehearsed thoughts; MacLeod, 1998) or retrieval inhibition (i.e., some thoughts are actively inhibited or avoided, leading to suppression of the thoughts at the time of retrieval, e.g., Geiselman & Bagheri, 1985; Geiselman, Bjork, & Fishman, 1983). Unlike repressed thoughts, however, intentionally forgotten memories appear to remain accessible in conscious memory and are often retrievable with appropriate cues (e.g., Geiselman et al., 1983; Golding & MacLeod, 1998). Another variant of conscious avoidance is known as "thought suppression" (Wegner, 1989, 1994). Commenting on the differences between repression and intentional forgetting, Golding and Long (1998) noted, "The conscious aspect of this act makes suppression different from repression . . . suppression suggests only that we are not thinking of the thought at a particular time, whereas repression implies that we may never get a thought back" (p. 82).

There is another reason to doubt that the mechanism responsible for forgetting reported in previous studies is necessarily indicative of repression. Classic Freudian repression is often interpreted as a complete absence of conscious memories for an event. Some victims, however, might have forgotten only portions—not all—of their abuse or trauma, thus allowing them to retain awareness that they experienced the traumatic event, even if they did not retain all memories of the experience. Researchers who failed to differentiate individuals who completely forgot all details of their abuse for some period from victims who merely forgot portions (e.g., Melchert, 1996; Melchert & Parker, 1997) might have overestimated the prevalence of complete forgetting, followed by memory recovery. In fact, researchers who assessed complete forgetting separate from partial forgetting have found that complete forgetting is less prevalent than partial forgetting (e.g., Elliot, 1997; Fish & Scott, 1999; Gold, Hughes, & Hohnacker, 1994; Herman & Schatzow, 1987).

Only one researcher has addressed qualitative differences in victims' perceptions of their temporary

forgetting experiences. In two studies (Melchert, 1996; Melchert & Parker, 1997), victims were asked to characterize the nature of their forgetting experiences in response to specific questions. These studies were excellent first attempts to examine this issue, but they left several issues unanswered, issues we address in the current study. Specifically, neither of those studies examined whether victims' forgetting experiences involved partial or complete forgetting, which is an important distinguishing factor among victims. Thus, we measured degree of forgetting. In addition, we tested many more participants ($N = 1,411$) than in Melchert's (1996) ($N = 429$) and Melchert and Parker's (1997) ($N = 553$) studies, allowing for replication that would increase confidence in the generalizability of findings. As Melchert himself noted, subsamples in his study were insufficient to adequately support certain analyses. Furthermore, a significant proportion of victims in Melchert's (58%) and Melchert and Parker's (53%) studies reported experiencing more than one type of childhood abuse, but these multiple-trauma victims were dropped from analyses comparing forgetting rates across abuse type. This eliminated a large number of respondents in each sample ($n = 80$ and $n = 88$, respectively). Examining only victims of isolated traumas could produce artificial estimates of forgetting. In our study, we examined relations between multiple victimization status and forgetting, allowing for statistical comparisons that included all reports of abuse and trauma. Finally, the questions used by Melchert (1996; Melchert & Parker, 1997) to assess the nature of victims' forgetting were not mutually exclusive or designed to explore specific cognitive mechanisms that might explain forgetting. Some questions measured why victims thought they forgot (e.g., "Because I was afraid of remembering it," Melchert & Parker, 1997, p. 132), whereas others measured the mechanism responsible for forgetting (e.g., "If I remembered, I would feel terrible, so I pushed it out," Melchert & Parker, 1997, p. 132).

Although Melchert's (1996; Melchert & Parker, 1997) studies provided some insight into the myriad reasons that victims might experience forgetting, they are not decisive in determining the cognitive mechanisms to which victims attribute their forgetting. Thus, we asked victims to choose among four theoretically derived descriptions of the specific cognitive mechanisms detailed above. We predicted that victims in our study would be more likely to report that their temporary forgetting was a product of active cognitive avoidance, retrieval failure, and relabeling than a product of repression (a complete absence of memories followed by memory retrieval), supporting the

theory that common cognitive mechanisms can account for the majority of temporary forgetting reports. We also expected that victims would be more likely to report forgetting part rather than all of their experiences. This might indicate that although traumatic memories decay, they are rarely forgotten entirely. (Alternatively, partial memory could result from incomplete encoding of the original event.)

METHOD

Participants

Participants were 1,411 college women who participated in return for psychology course credit at four geographically diverse institutions: the University of Illinois at Chicago (64%), Chicago State University (13%), Randolph-Macon Woman's College (in Virginia) (7%), and University of California, Davis (15%). The sample was ethnically diverse (21% African American, 22% Asian American, 37% Caucasian, 14% Hispanic/Latino, and 6% other) and ranged in age from 18 to 60 years ($M = 21$ years).²

Materials

Personal History Questionnaire

As part of a larger survey study, experiences of and memory for childhood sexual abuse, physical abuse, and trauma were assessed in three sections of our Personal History Questionnaire.

Measures of abuse and trauma experiences. In three separate sections of the survey, respondents were asked to indicate whether they had ever experienced sexual abuse, physical abuse, and other types of trauma. Sexual abuse was assessed with the following question:

When you were 17 years old or younger, did you ever have any of the following experiences with someone at least 5 years older than you? (Note: This could mean that you did these things to someone or someone did them to you).

The following specific experiences were as listed:

- (a) Viewed or took part in child pornography; (b) Exhibitionism (inappropriately exposed to adult's genitals); (c) Fondling (touching) genitals, breasts, or buttocks directly or through clothing; (d) Oral sex (mouth/genital contact); (e) Anal sex (penetration of anus with genitals, fingers, or other object); (f) Attempted vaginal intercourse (attempted penetration with penis, fingers, or other object); (g) Completed vaginal intercourse (penetration with penis, fingers, or other object).

We identified respondents as abuse victims if they answered either this or the initial question affirmatively. This method avoided underestimating the true number of abuse victims because some individuals who have had abusive experiences fail to self-label as victims (Martin, Anderson, Romans, Mullen, & O'Shea, 1993; Silvern, Waelde, Baughan, Karel, & Kaersvang, 2000). Our definition was modeled after work by researchers such as Elliot (1997), Finkelhor (1979), Loftus, Polonsky, et al. (1994), and others so that our results could be compared to previous research. The definition in terms of age of victim and perpetrator is ecologically valid, having been modeled after state laws. For example, in Illinois, sexual conduct or penetration between adolescents aged 13 to 17 and a person at least 5 years or older is defined as a Class 2 felony (aggravated criminal sexual abuse), regardless of whether the activity was between dating partners [720 ILCS 5\12-16(d)]. Similar laws exist in other states such as Alaska, California, and Idaho (see National Center for Prosecution of Child Abuse, n.d.).

The question assessing physical abuse experiences was of a similar format, based on definitions used by Straus and Gelles (1988). Specifically, physical abuse was assessed with this question:

When you were 17 years old or younger, did you ever have any of the following experiences where someone at least 5 years older than you used excessive physical force on you that resulted in welts, bruises, bleeding, or other physical injuries?

Response alternatives were the following:

(a) You were spanked, whooped, or whipped and it resulted in welts, bruises, bleeding, or other physical injuries; (b) You were slapped or choked and it resulted in welts, bruises, bleeding, or other physical injuries; (c) You were punched, kicked, or beaten up and it resulted in welts, bruises, bleeding, or other physical injuries; (d) You were hit with an object and it resulted in welts, bruises, bleeding, or other physical injuries.

After completing that initial question in the sections on sexual and physical abuse, participants were also asked, "When you were 17 years old or younger, were you a victim of childhood [sexual abuse/physical abuse]?" As for sexual abuse, we considered respondents to be physical abuse victims if they answered either this or the initial question affirmatively.

Finally, the trauma-screening question was modeled after a survey designed by Falsetti (1996). Specifically, the respondent was asked, "When you were 17 years old or younger, did you ever have any of the following experiences? Note: Please do NOT report

sexual or physical abuse in this section." Response alternatives were the following:

(a) Severe car accident, (b) Other type of severe accident, (c) Been in a fire, (d) Victim of a major crime, (e) Witnessed domestic abuse, (f) Witnessed a murder, (g) Emotional or verbal abuse, (h) Neglect that threatened your health, (i) Surgery/hospitalization.

All trauma and abuse victims were also asked additional questions that allowed us to test previously mentioned hypotheses derived from Freyd's (1996) theory. First, they were asked, "How did you feel as a result of your experience?" Respondents could write in an answer and/or choose from the following responses: angry, fearful, exploited/taken advantage of, ostracized/rejected, betrayed, guilty, embarrassed/shameful, powerless/helpless, and responsible/blameworthy. Second, abuse victims were asked, "What was your relationship to the abuser (the person who abused you)?" As mentioned above, some victims could have reported specific events of abuse without self-labeling as having been abused; therefore, this question was preceded with the statement: "Note: When we refer to your 'abuse' experience, we mean the event you reported above." Possible responses included parent, stepparent, family member, non-family member/friend/trusted adult, acquaintance, or stranger. Finally, we asked victims, "Approximately how old were you when the traumatic experience happened?" Including this question allowed us to identify cases likely to involve infantile amnesia, the importance of which has been noted elsewhere (Epstein & Bottoms, 1998; Loftus, Polonsky, et al., 1994; but see Elliot & Briere, 1995). Although the validity of any retrospective self-report can be questioned, research on the pervasiveness of infantile amnesia provides good reason to question the authenticity of abuse and trauma reports allegedly occurring prior to about 3 years of age (e.g., Fivush & Hamond, 1990; Howe & Courage, 1993; Malinowski, Lynn, & Sivec, 1998).

Measures of temporary forgetting. All participants who said they experienced abuse or trauma were asked, "Was there ever a time when you could not remember [your sexual abuse/your physical abuse/this traumatic] experience?" (answered "yes" or "no"). Those who answered affirmatively were then asked three additional questions in the following order: (a) "Before going on with the survey, please define exactly what you mean above by 'could not remember' " (answered with an open-ended response); then, (b) "Do you mean that you forgot some but not all memories of the event?" (answered "yes" or "no"); then, (c)

"Which one of the following answers best describes why you experienced a time when you could not remember some or all of [your sexual abuse/your physical abuse/this traumatic] experience?" Response alternatives, which were counterbalanced to guard against order effects, were (a) "Because during that time you experienced the same type of common forgetting that everyone experiences for non-traumatic, everyday events (such as forgetting the name of your third grade teacher)" (indicating retrieval failure); (b) "Because during that time you did not label your experience as traumatic (that is, you knew you had experienced it, but did not consider it a traumatic event)" (indicating relabeling); (c) "Because during that time you purposely avoided thinking about this traumatic experience" (indicating active cognitive avoidance); and (d) "Because during that time you had absolutely no conscious memories of this traumatic experience for reasons other than those listed above" (indicating repression).³ Forgetting questions were modeled after those used by previous researchers, including Briere and Conte (1993), Feldman-Summers and Pope (1994), Melchert (1996), Melchert and Parker (1997), and Williams (1995), and suggestions made by Loftus (1993) and Loftus, Polonsky, et al. (1994). Forgetting response alternatives were theoretically derived and designed to be improvements over prior research, as discussed previously. Note that our method does not allow for victims to indicate more than one mechanism for a particular forgetting event, which we believe is theoretically justifiable.

Finally, because it might be argued that this survey measured victims' implicit theories for explaining forgetting rather than their actual psychological experiences, an additional section of the survey instructed both nonvictims and non-forgetting victims to *imagine* having experienced and temporarily forgotten childhood abuse or trauma. Then, they were asked to complete the same forgetting questions as did the "real" forgetters. Specifically, they were instructed to choose which one of these same four forgetting mechanisms they thought would best explain their hypothetical forgetting.

Procedure

Participants either received our measures in a take-home packet that they returned in a sealed envelope, or they completed our measures during an experimental session in a large room where at least two chairs separated them from other participants. Signed informed consent forms were returned separately from surveys to ensure complete anonymity.

RESULTS

Reports of Childhood Abuse, Trauma, and Forgetting

Overall, 26% ($n = 372$) of respondents reported at least one instance of childhood sexual abuse, which was consistent with previous research (e.g., Finkelhor, Hotaling, Lewis, & Smith, 1990 [27%]; Martin et al., 1993 [25%]). This number excludes 20 cases in which the participant volunteered to us that the sexual experience was consensual sexual activity with her boyfriend. (It is possible, given our definition of sexual abuse, that our data still include a few such cases, but we do not believe the number is likely to be large, and those cases are still legally considered abusive. The fact that 20 participants volunteered this information signals to us that our question was worded so that participants realized we were not trying to capture boyfriend/girlfriend experiences perceived by participants as consensual.)

In addition, 27% ($n = 386$) of the sample reported experiencing physical abuse, and 54% ($n = 766$) reported one or more other types of trauma (including, e.g., hospitalizations, witnessing domestic abuse, death of a parent, history of depression). In light of our primary research objective—to compare memory for sexual abuse experiences to other discrete traumatic experiences—we excluded trauma reports that were not comparable to sexual abuse on several important dimensions: (a) experiences that were only witnessed because the quality of memories for witnessed events can differ from memories for directly experienced events (e.g., Tobey & Goodman, 1992), (b) experiences that left objective evidence as lingering reminders (e.g., parental death or divorce), and (c) emotional and psychological disorders (e.g., history of depression) that are ongoing emotional states rather than discrete "events." Consequently, we eliminated reports of witnessing domestic abuse ($n = 221$), witnessing a murder ($n = 17$), death of a family member or friend ($n = 95$), parental divorce ($n = 37$), mental/physical illness of family member ($n = 55$), respondent's own mental illness ($n = 14$), immigration to a new country ($n = 8$), and a family member's trouble with the law ($n = 8$). This left 599 reports of experiencing (a) a severe car accident (21% of the 599 other trauma reports, $n = 124$), (b) another type of severe accident (9%, $n = 55$), (c) a fire (7%, $n = 43$), (d) major crime victimization (6%, $n = 35$), (e) emotional or verbal abuse (50%, $n = 296$), (f) severe neglect (3%, $n = 20$), and (g) surgery or hospitalization (53%, $n = 318$).

Relations Between Trauma Type and Temporary Forgetting

Our first analyses considered whether forgetting occurs at higher rates for victims of sexual abuse and multiple traumas than for other victims. In these analyses, we included four mutually exclusive categories of trauma type: sexual abuse, physical abuse, other trauma, and multiple trauma. That is, women who reported more than one type of trauma were grouped together into one "multiple trauma victim" category. This allowed us to include in our analyses individuals who experienced multiple traumas without violating the statistical assumption of mutual exclusivity of cell members (Hays, 1988). Note that Melchert (1996) and Melchert and Parker (1997) examined emotional abuse victims separately but did not consider multiple victim status. Only 52 of our 296 emotional abuse victims reported experiencing emotional abuse only (the remainder reported other types of abuse/trauma and were considered multiple trauma victims). Of these 52, only 2 reported forgetting, making it statistically impossible to consider these victims separately. Furthermore, exclusion of emotional abuse reports did not alter the pattern of results reported here. Consequently, we included emotional abuse in our "other trauma" category.

As shown in the top half of Table 1, 14% of those who experienced only sexual abuse, 11% of those who experienced physical abuse, 6% of those who experienced other trauma, and 17% of those who experienced multiple traumas or abuses reported experiencing "a time when they could not remember" the experience (or, in the case of multiple trauma victims, one of the experiences). A chi-square analysis revealed that rates of forgetting differed significantly across trauma type, $\chi^2(3, N = 862) = 13.75, p < .01$. Consistent with previous research (e.g., Feldman-Summers & Pope, 1994; Melchert, 1996; Melchert & Parker, 1997), post hoc pairwise comparisons revealed that rates of forgetting were similar for sexual and physical abuse, $\chi^2(1, N = 203) = .50$. Contrary to predictions, multiple abuse/trauma victims did not report forgetting at higher rates than sexual and physical abuse victims (both $\chi^2 < 1.97, p > .16$). As predicted, however, victims of other types of trauma did report statistically less forgetting than childhood sexual abuse and multiple trauma, $\chi^2(1, N = 298) = 5.58, p < .05$ and $\chi^2(1, N = 659) = 13.02, p < .001$, respectively. Note, however, that differences between categories are relatively small and that when a more stringent statistical correction (i.e., a Bonferroni correction) is applied to account for multiple comparisons, forget-

TABLE 1: Temporary Forgetting Rates as a Function of Type of Trauma Experienced

| | Type of Trauma | | | |
|-------------------------------|----------------|----------------|--------------|------------------|
| | Sexual Abuse | Physical Abuse | Other Trauma | Multiple Traumas |
| Mutually exclusive categories | | | | |
| Total N | 104 | 99 | 194 | 465 |
| Forgot abuse n | 15 (14%) | 11 (11%) | 12 (6%) | 78 (17%) |
| Overall categories | | | | |
| Total N | 372 | 386 | 599 | |
| Forgot abuse n | 51 (14%) | 35 (9%) | 38 (6%) | |

NOTE: "Overall categories" of sexual abuse, physical abuse, and other trauma include multiple trauma victims, who are each represented in more than one category. "Mutually exclusive categories" of sexual abuse, physical abuse, and other trauma do not include multiple trauma victims, who were categorized separately as shown for the statistical analyses presented in the text.

ting rates for childhood sexual abuse and other types of childhood trauma no longer differ statistically.

These forgetting rates are not entirely comparable to those obtained by previous researchers who failed to separate out multiple trauma victims (e.g., Melchert, 1996; Melchert & Parker, 1997). To allow for direct comparison, we provide forgetting rates irrespective of multiple trauma status at the bottom of Table 1. Those rates differ little from mutually exclusive rates.

Emotional Reactions and Forgetting

Our next analyses tested the basic tenets of Freyd's (1996) theory regarding the relation of forgetting to shame, betrayal, and the relationship to one's victimizer. Victims were grouped according to whether they (a) reported experiencing abuse at the hands of a parent or stepparent and (b) experienced shame or betrayal (shame and betrayal were analyzed separately). These victims were compared to all other victims, that is, to victims who experienced abuse perpetrated by someone other than a close caregiver and/or victims who did not experience shame or betrayal.

In partial support of Freyd's (1996) theory, the prevalence of forgetting reported by childhood sexual abuse victims who were abused by a trusted caregiver (parent or stepparent) and who experienced betrayal (42%, $n = 5$) was significantly higher than the prevalence of forgetting reported by other victims (15%, $n = 46$), $\chi^2(1, N = 320) = 6.16, p < .05$. Although not statistically significant, a similar trend was found in the forgetting rates of sexual abuse victims who were abused by a trusted adult and experienced shame (28%, $n = 5$) as compared to other sexual abuse victims (15%, $n = 46$), $\chi^2(1, N = 320) = 2.00, p = .16$.

TABLE 2: Percentage of Respondents Who Attributed Their Temporary Forgetting to Each of the Four Forgetting Mechanisms

| Trauma Type | Attributed Forgetting to | | | |
|---|----------------------------|------------|-------------------|------------|
| | Active Cognitive Avoidance | Repression | Retrieval Failure | Relabeling |
| Sexual abuse | | | | |
| Actual forgetters (<i>n</i> = 47) | 26 | 17 | 4 | 53 |
| Hypothetical forgetters (<i>n</i> = 403) | 56 | 9 | 4 | 31 |
| Physical abuse | | | | |
| Actual forgetters (<i>n</i> = 29) | 38 | 17 | 10 | 34 |
| Hypothetical forgetters (<i>n</i> = 397) | 48 | 7 | 6 | 38 |
| Other types of trauma | | | | |
| Actual forgetters (<i>n</i> = 35) | 31 | 29 | 11 | 29 |
| Hypothetical forgetters (<i>n</i> = 410) | 46 | 6 | 13 | 36 |

NOTE: Multiple trauma status was not considered separately in analyses of these data; thus, victims of multiple trauma could be represented in more than one trauma-type category. "Actual forgetters" refers to victims who reported that they experienced a period during which they forgot some or all of their abuse or trauma experience. "Hypothetical forgetters" refers to victims and nonvictims who were asked merely to imagine having experienced temporary forgetting of abuse or trauma. The total numbers of actual forgetters in each trauma category in Table 2 differ slightly from the numbers reported in Table 1 (under "Overall categories") because a few participants failed to complete the questions about forgetting mechanisms.

Forgetting rates for physical abuse victims who were abused by a trusted caregiver and who experienced shame (7%, *n* = 10) or betrayal (10%, *n* = 10) were not statistically higher than forgetting rates for other physical abuse victims (13%, *n* = 25, and 10%, *n* = 25, respectively), $\chi^2(1, N = 346) = 3.09$ and $\chi^2(1, N = 346) = .06$, respectively.

Victims' Characterizations of Their Forgetting Experiences

Our next analyses considered whether victims' perceptions of their forgetting indicated the constructs of active cognitive avoidance, repression, retrieval failure, or relabeling. To test our primary hypothesis that victims would be more likely to attribute their temporary forgetting to processes other than classic repression, we compared the proportion of individuals who attributed their forgetting to mechanisms other than repression (i.e., mechanisms that did not preclude retrieval of their memories, even if the victims temporarily failed to recall their memories) to the proportion of respondents who attributed their forgetting to a complete absence of memories (i.e., repression). Separate Cochran's *Q* tests (Hays, 1988) were conducted for each trauma type (i.e., sexual abuse, physical abuse, and other types of trauma). (Multiple trauma status was not considered separately in analyses of these data; thus, victims of multiple trauma could be represented in more than one trauma-type category.) As predicted, a significantly larger proportion of respondents attributed their forgetting to mechanisms other than repression for experiences of sexual abuse (83% vs. 17%, $Q = 20.45$, $p < .001$), physical abuse (83% vs. 17%, $Q = 12.45$, $p <$

.001), and other types of trauma (71% vs. 29%, $Q = 6.43$, $p < .05$) (see Table 2). For sexual abuse, the most common mechanism to which forgetting was attributed was relabeling (more than for other categories of trauma). Active cognitive avoidance was reported by a quarter of respondents, whereas retrieval failure was reported least often. For physical abuse and other traumas, relabeling and active avoidance were equally popular responses. The highest percentage of repression reports (29%) came from victims of other types of childhood trauma.

We also examined the responses of the nonvictims and non-forgetting victims who were asked merely to imagine that they temporarily forgot childhood abuse or trauma and to indicate which forgetting mechanism would explain their hypothetical forgetting. Similar Cochran's *Q* tests revealed that, as for actual forgetters, significantly more respondents chose mechanisms other than repression to explain their temporary forgetting of imagined experiences of sexual abuse (91% versus 9%, $Q = 271.86$, $p < .001$), physical abuse (93% versus 7%, $Q = 292.90$, $p < .001$), and other types of childhood trauma (94% versus 6%, $Q = 323.16$, $p < .001$) (see Table 2 for all means). Despite this similarity, the pattern of results between real forgetters and hypothetical forgetters still differed in important ways: Although real forgetters most often attributed their forgetting to relabeling, hypothetical forgetters most often attributed their forgetting to active cognitive avoidance. Real forgetters reported common memory processes least often, whereas hypothetical victims reported repression least often. In addition, we performed three separate chi-square analyses directly comparing the proportion of real

versus hypothetical forgetters who attributed forgetting to each of the four mechanisms. Although the pattern of results was similar for physical abuse reports, $\chi^2(3, N=451) = 5.24, p > .05$, they differed for experiences of sexual abuse, $\chi^2(3, N=459) = 14.69, p < .01$, and other types of childhood trauma, $\chi^2(3, N=451) = 18.07, p < .001$. Thus, women who imagined that they were abused and temporarily forgot the abuse did not provide the same responses as victims who actually experienced temporary forgetting, which is evidence that the real forgetters did not simply rely on generally held implicit theories about forgetting (or on some social desirability response bias) to answer our forgetting question.

It is informative to examine qualitatively respondents' descriptions of their forgetting experiences. Most victims gave open-ended descriptions of their forgetting experiences that were consistent with their choice of mechanism. For example, a woman who reported active cognitive avoidance said, "I don't think about it. I push it aside, to the back of my mind. When I do try, the memories are vague." A victim who chose retrieval failure reported that she simply forgot her physical abuse "in periods of my life when I felt happy." A victim who indicated relabeling explained, "Didn't think about it. Didn't know it was wrong." Of interest, the narratives of victims who attributed their forgetting to repression varied somewhat as a function of trauma category. Specifically, sexual abuse victims' descriptions were generally consistent with the controversial idea that repression involves a period of complete memory loss, followed by dramatic memory recovery; for example, "I would always say no whenever I was asked if I was ever abused. One day I was asked and said no, then I had a flashback." "I honestly couldn't remember until I was in college and people were talking about it. I remembered suddenly, and all the details came back and the hurt." "Didn't remember for most of my life. About 5 or 6 years ago I woke up in a nightmare." In comparison, victims who attributed forgetting of physical abuse and other traumas to repression (a) gave descriptions that were less compatible with stereotypical notions of classic Freudian repression; for example: "I had temporary amnesia for about one month following an asthma attack that occurred due to the abuse and forgot the entire event for around one month." "Sometimes I would black out for hours, not recalling previous events the following day"; (b) attributed their experiences to a loss of consciousness: "I didn't remember what happened because I was unconscious"; or (c) attributed forgetting to infantile amnesia: "I was very young, I can't remember what happened, I just know it did."

Forgetting and Infantile Amnesia

No sexual abuse victims in our sample reported forgetting abuse that ended prior to their 3rd birthday; however, there was one report of physical abuse and seven reports of other types of trauma that ended prior to age 3. Although only 21% of all trauma and abuse victims (combined) who reported forgetting attributed it to a total lack of memories (i.e., repression), 63% ($n = 5$) of the 8 victims who experienced trauma or abuse prior to age 3 characterized their forgetting in this manner. It would be difficult to draw any conclusions from this small number of cases, yet these percentages give some support for assertions that reports of trauma prior to age 3 differ qualitatively from other reports and, therefore, should be considered separately (Epstein & Bottoms, 1998; Loftus, Polonsky, et al., 1994). Even so, when we recomputed all main analyses in this study excluding these 8 victims who reported abuse or trauma ending prior to the offset of childhood amnesia, our results remained unchanged.

Partial Versus Complete Forgetting

Separate binomial tests (Hays, 1988) for each trauma type revealed that victims were more likely to report forgetting "some but not all memories" of their experiences than to report forgetting all of their memories: for sexual abuse (72% partial vs. 28% complete, $p < .01$), physical abuse (77% partial vs. 23% complete, $p < .01$), and other trauma (69% partial vs. 31% complete, $p < .05$). A large percentage of women who reported experiencing a time when they had "absolutely no conscious memories" of their abuse or trauma reported only two questions earlier on the survey that they "forgot some but not all memories" of the event (75%, $n = 6$ for sexual abuse; 40%, $n = 2$ for physical abuse; and 60%, $n = 6$ for other trauma). If victims forgot or even repressed some aspects of their traumatic memories completely for some time but remembered other aspects, such a pattern of responses would have been an accurate portrayal of their experiences. For example, one woman remarked, "Because of too much abuse, I could not remember some of the abuse when it happened, but I remember most of it." If repression of abuse/trauma is defined strictly as a *complete* lack of conscious memories for an event, however, only individuals who reported having absolutely no conscious memories and forgetting all as opposed to some memories would be reporting something akin to classic Freudian repression. When we considered only victims who reported lacking conscious memories of their abuse or trauma *and* forgetting these memories completely, only 4% ($n = 2$) of

sexual abuse victims, 10% ($n=3$) of physical abuse victims, and 11% ($n=4$) of victims of other trauma reported what we defined as classic Freudian repression. When we further excluded individuals who experienced trauma before the offset of childhood amnesia, the number of pure "repression" reports became almost nonexistent ($n=2$ for sexual abuse, $n=2$ for physical abuse, and $n=1$ for other trauma). Together, this represents a 0.4% incidence rate of complete forgetting, followed by memory recovery (i.e., repression) among our 1,411 total respondents.

DISCUSSION

Our results reveal that temporary forgetting is not a unique sequelae of sexual abuse, occurring at a comparable rate for physical abuse memories, but forgetting is more commonly reported for sexual abuse memories than other types of trauma, such as car accidents. Contrary to classic psychoanalytic theory, victims were unlikely to characterize their forgetting as periods during which they had a complete inability to access memories of their abuse or trauma. Instead, most victims thought their forgetting was the product of common, active cognitive mechanisms, and most reported only partial forgetting.

Forgetting Rates for Various Types of Abuse and Trauma

Our rates of forgetting are generally consistent with rates found in Melchert and Parker's (1997) college sample (20% for sexual abuse and 12% for physical abuse), in Melchert's (1996) college sample (18% for sexual abuse and 21% for physical abuse), and in Elliot's (1997) community sample (22% for physical abuse). These rates are lower, however, than the 30% rate for sexual abuse in Epstein and Bottoms' (1998) similar (and larger, $N=1,712$) college sample and the 42% rate for sexual abuse in Elliot's community sample. The former discrepancy stems from the fact that although Epstein and Bottoms used the same eliciting question for forgetting, they used only one question to obtain child sexual abuse reports, a question that required respondents to self-identify as victims. Thus, all of the victims in their study self-labeled as victims, but only 48% of victims in the present study did. Victims who do and do not self-label might differ (Martin et al., 1993; Silvern et al., 2000). In fact, data we collected, but that are beyond the scope of this report, reveal that compared to victims who did not self-label, individuals who did self-label reported experiencing more ongoing emotional distress, which has been associated with temporary forgetting (e.g., Epstein & Bottoms, 1998; Williams, 1995). When we excluded

victims who did not self-label from the current sample, forgetting rates increased for sexual (20%) and physical abuse (15%). Even so, 20% is still lower than Epstein and Bottoms's 30% rate, suggesting that other factors might be involved. For example, their data were collected approximately 5 years before the present data. Since that time, media attention about repression and memory recovery has become more skeptical, with increased attention to false memory cases. Epstein and Bottoms's sample might have been less familiar than the current sample with the controversy, leading them to be more forthcoming about their experiences or less critical in assessing whether they experienced forgetting.

A major contribution of our research concerns the comparison of forgetting rates across various types of trauma. Consistent with Melchert's (1996; Melchert & Parker, 1997) finding of no difference in forgetting rates across abuse types, we found no statistical difference in forgetting rates for sexual abuse and physical abuse. In addition, multiple trauma victims reported forgetting at a rate statistically comparable to sexual and physical abuse victims. Null results should always be interpreted with care, especially when the number of participants involved in statistical comparisons is small. Even so, this finding suggests that forgetting is largely unrelated to the number of different types of victimizations an individual experiences (but see Fish & Scott, 1999). As compared to victims who experienced other types of trauma (e.g., hospitalizations, accidents), however, sexual abuse victims were more than twice as likely and multiple trauma victims were almost three times as likely to report forgetting. Although Elliot (1997) did not examine statistically the differences in forgetting rates across types of abuse and trauma, examination of her data reveals a similar trend for victims of nonabusive trauma to report less forgetting than victims of physical and sexual abuse.

What might account for this difference in forgetting rates? First, perpetrators of abuse, particularly sexual abuse, sometimes threaten victims to frighten them and ensure secrecy. This could dissuade children from talking about (and cognitively rehearsing) the event (Bottoms, Goodman, Schwartz-Kenney, & Thomas, in press). Perpetrators might even instruct victims to just "forget what happened" (the same instruction used in research on intentional forgetting, see Golding & MacLeod, 1998), fostering temporary forgetting. In fact, Fish and Scott (1999) found that victims of physical or sexual abuse who were told by their abuser to keep the abuse secret reported more temporary forgetting than other victims. Victims of other types of trauma are less likely to be dis-

