Published in final edited form as:
J Consult Clin Psychol. 1998 December ; 66(6): 948–957.

A Comparison of Normal Forgetting, Psychopathology, and Information-Processing Models of Reported Amnesia for Recent Sexual Trauma

Mindy B. Mechanic, **Patricia A. Resick**, and **Michael G. Griffin**
Department of Psychology and Center for Trauma Recovery, University of Missouri—St. Louis

Abstract

This study assessed memories for sexual trauma in a nontreatment-seeking sample of recent rape victims and considered competing explanations for failed recall. Participants were 92 female rape victims assessed within 2 weeks of the rape; 62 were also assessed 3 months postassault. Memory deficits for parts of the rape were common 2 weeks postassault (37%) but improved over the 3-month window studied (16% still partially amnesic). Hypotheses evaluated competing models of explanation that may account for reported recall deficits. Results are most consistent with information-processing models of traumatic memory.

The nature of memories for traumatic events, particularly sexual trauma, has garnered considerable attention in popular (e.g., Begley, 1994; Fanning, 1995a, 1995b; Woodward, 1993; 1994), scholarly (e.g., Pope, 1996; Williams, 1994a; 1994b), and legal arenas (Loftus, 1993). With some exceptions (e.g., Cloitre, Cancienne, Brodsky, Dulit, & Perry, 1996; Koss, Figueredo, Bell, Tharan, & Tromp, 1996; Tromp, Koss, Figueredo, & Tharan, 1995), the majority of the literature on traumatic memory falls loosely into one of three basic types: experimental trauma analogue or in situ field studies; studies of autobiographical memory for personally experienced traumas; and nonempirical clinical case reports.[1] Experimental analogue studies use college student and normal adult samples to compare memories for neutral events with memories for traumatic analogue events varying in their degree of arousal, emotional intensity, and personal impact. Despite strong internal validity and precise measures of recall accuracy, there are questions about whether memories for trauma analogue events generalize to memories for personally experienced traumatic events, particularly sexual trauma, which is not modeled in analogue studies.

Offering greater ecological validity, research using nonexperimental or quasi-experimental paradigms in clinical or general population samples provides information about important qualities of autobiographical memory for personally experienced sexual trauma yet are limited by a host of factors. These include verifiability of memories, problems with retrospective recall, and a broad range of developmental and contextual influences among research participants at the time they experienced the trauma that may have differentially influenced encoding, storage, and retrieval of trauma memories.

Correspondence concerning this article should be addressed to Mindy B. Mechanic, Department of Psychology, University of Missouri—St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121. Electronic mail may be sent to mbmechanic@umsl.edu.

[1]For reviews of relevant literatures focusing on adults, see Christianson (1992a, 1992b), Heuer and Reisberg (1992), and Koss, Tromp and Tharan (1995). The literature on children's memory for traumatic events is beyond the scope of the present project.

The available literature on memory for personally experienced sexual trauma focuses primarily on adult accounts of prior childhood sexual abuse,[2] leaving a large gap in our understanding of memory for recently experienced adult sexual trauma.[3] The study of recently experienced sexual trauma in adults may provide insight into processes that operate in the early stages of traumatic memory (e.g., dissociation), with less measurement interference than retrospective recall of remote events. The present research compared competing models of memory for sexual trauma in the context of a prospectively studied, nontreatment-seeking sample of adult female survivors of recent sexual assault.

Although it is readily acknowledged that both once-learned material and memories of prior autobiographical experiences can be subject to failed, confabulated, or incomplete recall (Christianson, 1992b; Heuer & Reisberg, 1992; Riccio, Rabinowitz, & Axelrod, 1994; Siegel, 1995) there is less consensus as to the mechanisms responsible for observed errors and deficits. Nowhere has this issue been more acrimoniously debated than in the literature on adult memory for childhood sexual trauma, in which disagreement abounds as to the legitimacy of the major explanatory constructs for recall deficits: dissociation (Briere & Conte, 1993; Chu, Matthews, Frey, & Ganzel, 1996; van der Kolk & Fisler, 1995; Yates & Nasby, 1993), amnesia (Elliott & Briere, 1995), repression (Herman & Schatzow, 1987), and ordinary or motivated forgetting (Hembroke & Ceci, 1995; Loftus, Garry, & Feldman, 1994; Loftus & Ketcham, 1994).[4] This issue has already been debated with respect to eyewitness memory, with some scholars claiming that crime witnesses are subject to the same Ebbinghaus forgetting curve as laboratory participants, which is characterized by a rapid decay of recall over time (Loftus, 1979). Others have argued that memory among real-life crime witnesses is subject to unique processes, with little loss of detail or accuracy over a long (5–6 months) interval, even among witnesses who felt threatened or traumatized (Cutshall & Yullie, 1989; Fisher, Geiselman, & Amador, 1989; Yullie & Cutshall, 1986).

Tests of alternative models of memory can shed light on the nature of traumatic memory. Some researchers (Hembroke & Ceci, 1995; Loftus, 1979; Loftus et al., 1994) have argued that failure to recall traumatic events, such as sexual abuse or being a witness of a crime (Loftus, 1979), "can be understood as normal forgetting that follows the same laws as forgetting all sorts of life events" (Loftus et al., 1994, p. 1180). If simple forgetting is indeed the parsimonious model that explains memory failure for both ordinary and traumatic events, then memories for traumatic events should operate according to the norms documented for memories of ordinary events; for example, recall should peak just following the event, with rapid decay shortly thereafter (i.e., the classic Ebbinghaus decay curve). Alternatively, other processes, such as hypermnesia (i.e., improvement in recall with time and effort), may be more characteristic of memories for traumatic events (e.g., Erdelyi, 1985). Hypermnesia effects have been documented (Burke, Heuer, & Reisberg, 1992; Scrivner & Safer, 1988). Reviewing some of the literature on hypermnesia, Cloitre (1995) concluded that different kinds of cognitive effort (e.g., free associating, fantasizing, and just plain thinking) result in hypermnesia and that this effect is more likely to occur when traumatic material can be processed imaginally rather than verbally. Thus, the improved recall effect, including recovery of previously unavailable memories, may result from the effortful use of strategies that facilitate emotional and information processing of traumatic material. Both the adult eyewitness literature and experimental memory research provide support for the idea that memory for emotionally

[2]See Scheflin and Brown (1996) for a review of amnesia in adult recall of childhood sexual abuse.

[3]This excludes the research using children as participants. For exceptions in the adult literature, see Cloitre et al. (1996), Elliott (1997), Koss et al. (1996), and Tromp et al. (1995).

[4]Each of the terms *repressed*, *dissociated*, *amnesic*, or *forgotten memories* conveys a different set of mechanisms hypothesized to account for problems recalling a traumatic event. The controversy surrounding these terms reflects the debate about the underlying processes by which trauma memories are thought to be retrievable. Without reference to the etiological mechanism, the terms *forgotten* or *amnesic memories*are used descriptively throughout this article to refer to failed recall of parts or all of a memory for sexual trauma.

charged events may improve over time (e.g., Christianson, 1992b; Heuer & Reisberg, 1992; Scrivner & Safer, 1988).

Prospective designs using recent victims of documented sexual trauma minimize a number of potential threats to validity associated with the passage of time and are well suited to examining the processes by which trauma memories are recalled, recovered, or forgotten. Using a nontreatment-seeking sample of recent adult female victims of sexual assault, we evaluated several hypotheses based on three competing explanatory models of memory for sexual trauma: (a) simple forgetting, (b) psychopathology, and (c) information processing. First, a model proposing simple forgetting as the mechanism by which recall deficits occur was evaluated with the following hypotheses: (a) If memory for traumatic events operates in a fashion similar to memory for ordinary events, then recall of traumatic memories from the sexual assault would be expected to decrease over time, and (b) if simple forgetting is the appropriate explanation for traumatic recall deficits, then recall deficits should be generalized (i.e., problems recalling the traumatic event should not be trauma specific).

Alternatively, if normal forgetting does not explain recall deficits for recent traumatic memories, then perhaps the presence of competing psychopathology (Rogers, 1995) or global distress better accounts for recall deficits. Increased psychopathology was associated with recall deficits for childhood sexual abuse memories (Briere & Conte, 1993; Elliott & Briere, 1995) and for traumatic memories of Operation Desert Storm in Gulf War veterans (Southwick, Morgan, Nicolaou, & Charney, 1997). Because memory impairment is often exhibited in depressive symptomatology and can be a function of diminished concentration, or a narrowing of perceptual focus (Christianson, 1992b) associated with fear, anxiety, or posttraumatic symptomatology (Siegel, 1995), it is plausible that traumatic recall deficits could co-occur with —and may result from—common sequelae of trauma, such as depressive, anxiety-based, or posttraumatic symptomatology.

A set of alternative hypotheses were generated to test the idea that trauma-specific processes are responsible for deficits in memory for traumatic events. Some models of information processing of traumatic events (Brewin, Dalgleish, & Joseph, 1996; Epstein, 1994) propose that emotional memories are not unitary and that, although verbally accessible memories may be reasonably detailed, conditions of narrowing of attentional focus at the time of the traumatic event may result in memories that are only selectively accessible. Consequently, we hypothesized that the presence of peritraumatic dissociative experiences and perceived life threat during the rape would interfere with emotional or information processing so that recall of the event would be reduced.

Models of social–cognitive information processing that emphasize the importance of cognitive content in processing traumatic events—that is, the meaning the event holds for the survivor (e.g., Horowitz, 1986; Janoff-Bulman, 1989; McCann & Pearlman, 1990; Resick & Schnicke, 1992,1993)—set the stage for predictions about expected relationships between recall deficits and the cognitive meaning associated with the trauma. Horowitz (1986) proposed that the processing of traumatic material is in the service of a “completion tendency” in which survivors strive to integrate conflicting information about traumatic events with their existing beliefs. Thus, when an individual is exposed to an event (such as a rape) that conflicts with that individual’s prior beliefs (e.g., “The world is a safe place” or “He was my boyfriend, I thought I could trust him”), cognitive integration to reconcile the conflicting information is necessary for recovery. Two cognitive processes, assimilation and accommodation, are central to this integrative effort. Assimilation occurs when individuals alter new information so that their original schemas may remain intact (e.g., “This wasn’t really a rape,” “If only I had…” [undoing], or “I must have done something bad to provoke this because people you care about don’t victimize you” [self-blame]). Alternatively, accommodation occurs when old

schemas are altered to integrate the new discrepant information (e.g., "This neighborhood is a dangerous place" or "Sometimes people you love hurt you"). Because it may be easier to distort a single event than reconfigure an entire belief system, assimilation is believed to be the more common outcome (Janoff-Bulman, 1989).

Accordingly, we suggest that when a rape is committed by a known and trusted other, it is probably schema discrepant, and assimilation rather than accommodation should be the more likely outcome. Some support for this notion comes from prior work showing that women raped by known offenders, compared with those raped by strangers, were more likely to show evidence of assimilation by 3 months postrape (Mechanic, Resick, & Griffin, 1994). Assimilation should decrease the likelihood of emotional or information processing of the trauma experience, increasing the likelihood of recall deficits. Thus, we hypothesized that women raped by men they knew would be more likely to suffer from memory failure for parts of the rape compared with women raped by strangers.

Similarly, because of the literature linking prior victimization history and dissociation (e.g., Briere & Runtz, 1988; Sandberg & Lynn, 1992) and the personal meaning that rape holds for repeatedly victimized women (e.g., "I can't believe/accept that this happened again"), we expected that more extensive victimization histories would be found among women who reported amnesia for parts of the current rape. The use of disengaging or avoidant strategies to cope with the rape was expected to be associated with amnesia because of the decreased opportunities for emotional or information processing when the event is kept out of active memory. Finally, perceptions of life threat during the sexual assault were also expected to be associated with traumatic recall deficits because of the narrowing of attention and focus and the resultant diminished opportunities for processing under conditions of perceived life threat.

Method

Participants

Participants (N = 92) were part of a larger study evaluating factors associated with recovery from rape-related trauma. Participants were recruited through police, hospital, and victim service agencies. Cards describing the study were handed out to rape victims by police officers responding to the scene, by victim service volunteers at the hospital emergency room, or at victim service agencies. In addition, postcards describing the study were mailed by the police to victims who filed a police report. Both mailed and hand-delivered cards described the research, provided the researchers' telephone number, and contained a return postcard that victims could mail to find out more about the study or to schedule an appointment to participate.

Mean age of the sample was 29.2 years (SD = 7.8; range = 18–51). Participants had an average education of 12.6 years (SD = 2.3; range = 9–20). Sixty-two percent were single, 13% were married, and the remainder were separated or divorced. Sixty percent of the sample earned less than $5,000 in the past year. Seventy percent were African American, 27% were Caucasian, and 3% were Hispanic. Police reports were filed by 94% of the rape victims. Because this sample was predominantly police identified, it was not surprising that the majority of the women were raped by men who were complete or virtual strangers (60%). In contrast, 12% were raped by a very casual acquaintance, 4% by a date, 2% by a coworker, 11% by friends, 2% by boyfriends, and 9% by ex-intimate partners.

Materials

Self-Report Measures

History of Victimization Questionnaire (HVQ; Resick, 1988)—The HVQ is a 56-item measure that extensively surveys adult and childhood exposure to victimization using face-

valid questions. Rational methods were used to create subscales for a subset of the items. To assess child physical abuse, we created three subscales by summing items that measured mild, moderate, and severe child physical abuse. Mild physical abuse included 4 items, such as spanking on the buttocks and slight push or shove. Moderate physical abuse included 4 items, such as being hit on body with a fist and being hit with a belt, cord, stick, or object on buttocks. Severe physical abuse included 5 items, such as being hit in the face or head with a fist, being locked in a closet, being burned or scalded, and being thrown down stairs or against a wall. Internal consistency (coefficient alpha) was acceptable for each subscale: .77, .86, and .83, respectively.

Two single items measured child sexual abuse. One item assessed sexual fondling committed by an adult when the participant was under 17 years of age. The second item assessed penetrative sex (oral, anal, or vaginal) committed by an adult when the participant was less than 17 years of age. Age at the time of abuse was reported by participants for both of the sexual abuse questions. An additional item measured exposure to intimate partner violence as an adult, which was coded into a binary category of presence versus absence of adult intimate partner violence.

Participants were also queried about the number of times they were exposed to high-magnitude, high-impact traumatic events during adulthood, excluding the current sexual assault: (a) rape or sodomy, (b) attempted rape or sodomy, (c) nonrape sexual assault, (d) physical assault resulting in permanent injuries, and (e) physical assault with minor injuries. Each of these items were rated on a categorical frequency scale (0 times, 1–3 times, 4–10 times, 11–20 times, and 21+ times). To develop an index of extreme exposure to high-magnitude trauma, we created a summary score by assigning a score of 1 for each high-impact victimization experience that a participant reported experiencing 11 or more times in her life. Scores on this summary variable could range from 0 to 5. Adult female reports of childhood victimization have been shown to be generally valid, with some tendency toward underreporting (Widom & Morris, 1997; Widom & Shepard, 1996).

Coping Strategies Inventory (CSI; Tobin, Holroyd, Reynolds, & Wigal, 1989)— The CSI taps cognitive strategies used to cope with a stressful event and is composed of eight subscales, each with four items. Respondents rate the extent to which they used each strategy to cope with the rape during the past 2 weeks on a scale ranging from 1 (*not at all*) to 5 (*very much*). The Problem Avoidance and Wishful Thinking subscales assessed cognitive avoidance. Internal consistency (coefficient alpha) for each of the subscales was reported to be .72 and .78, respectively, and 2-week test-retest reliability coefficients were .71 and .68, respectively (Tobin et al., 1989). In a previous study of flood victims, alpha coefficients were .71 and .77, respectively, for the Problem Avoidance and Wishful Thinking subscales (Resick, Mechanic, & Griffin, 1997).

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961)—The BDI is a widely used self-report scale for measuring depressive symptoms. This 21-item scale has established cutoffs for measuring the severity of depression and has norms for rape victims measured over time (Atkeson, Calhoun, Resick, &. Ellis, 1982; Resick & Schnicke, 1993).

Rape Aftermath Symptom Test (RAST; Kilpatrick, 1988)—The RAST is a 70-item instrument measuring a variety of fears and other symptoms often present following rape. Based on the Symptom Checklist—90—Revised (SCL-90-R, Derogatis, 1983) and the Modified Fear Survey (MFS; Veronen & Kilpatrick, 1980), the RAST has two subscales consisting of the 30 SCL–90–R (RAST-SCL) and the 40 MFS (RAST-MFS) items that most successfully discriminated rape from nonrape victims. We also included the original 21 MFS

phobic (MFS–PH) items that are not included in the RAST. Items are rated on a 5-point Likert scale that indicates the degree of disturbance currently associated with each item. Items are summed to yield subscale scores. Adequate reliability and validity data on the RAST have been reported, with good internal consistency (α = .95) and test–retest reliability (*r* = .85) over a 2.5-month period (Kilpatrick, 1988). Scores on the instrument successfully discriminated victims from nonvictims at several time points (Kilpatrick, 1988). This instrument was used to measure the presence of postrape distress and psychopathology.

Interview Measures

Trauma interview (Resick, 1986: Resick, Jordan, Girelli, Hutter, & Marhoefer-Dvorak, 1988)—This structured interview provides descriptive information for the current and previous traumas. Items were culled from prior research with rape victims. The trauma interview yielded information on (a) perceptions of life threat during the assault, (b) reported change in alcohol use subsequent to the rape, (c) postrape mental health treatment, and (d) conversations with others about the rape. For perceptions of life threat, the interviewer rated two items. The first item focused on how much of the time during the rape the respondent thought about being killed or seriously injured, and the second item asked the victim to rate her perceived likelihood of being killed or seriously injured during the rape. Because of skew, both items were recoded as dichotomous variables. Responses to the first item were coded into the following two categories: (a) thought about it none, little, or some of the time during the rape and (b) thought about it most or all of the time during the rape. The second item was recoded as a dichotomous variable into the following two categories: (a) thought [she] would definitely or probably not be killed and (b) believed it was likely or certain that [she] would be killed. Reported change in alcohol use was coded as increased, decreased, or stayed the same. Conversations about the rape with others were measured by having the respondent indicate the number of persons (excluding doctors, lawyers, counselors, and other officials) site talked with about the rape over the previous 2 weeks.

Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar et al., 1994), The PDEQ is an eight-item interviewer-administered measure of dissociative experiences occurring during a traumatic event. The PDEQ taps a variety of dissociative experiences, including depersonalization, derealization, time distortion, and out-of-body experiences. Two items were deleted from the measure, one, comparison of self to others at the trauma scene, because of a lack of relevance to this population and the other, diminished pain, because of possible confounds with physiological pain responses. Respondents rated the proportion of time during the rape that they experienced dissociative reactions using a 5-point scale ranging from 1 (*none of the time*) to 5 (*all of the time*). Internal consistency of the remaining six items was .68. Two items (time distortion and body distortion) with low item–total scale correlations were dropped. The remaining four items (α = .69) were used in our analyses. Convergent validity was supported by an association between the PDEQ and the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; *r* = .41) and with posttraumatic stress disorder (PTSD) symptoms of intrusion (*r* = .50), avoidance (*r* = .39), and arousal (*r* = .39) in male veterans (Marmar et al., 1994). With battered women (Resick, Mechanic, Griffin, & Astin, 1996), the PDEQ was highly correlated with the DES (*r* = .75), and rape victims with high scores on the PDEQ showed evidence of depressed physiological responding (Griffin, Resick, & Mechanic, 1997).

Clinician Administered PTSD Scale (CAPS; Blake et al., 1990)—The CAPS is an interviewer-administered diagnostic interview that measures PTSD and has been found to have excellent psychometric properties (Blake et al., 1995). For each symptom, a clinician rates two separate dimensions, frequency and intensity of symptoms, on a scale ranging from 0 to 4. For

a symptom to be considered clinically significant, it must meet threshold criteria on both dimensions (i.e., at least a 1 on frequency and a 2 on intensity).

Two items on the CAPS pertain specifically to issues of memory. One item (Item 7) assesses amnesia for all or parts of the traumatic event, and another (Item 28) focuses on generalized memory deficits, independent of traumatic memory recall problems. The CAPS amnesia item is presented to the participant by asking the frequency item first, followed by the intensity item, only if the frequency item is endorsed. If the frequency item is not endorsed (rating = 0, 100% of memory available), the intensity item is automatically rated as 0, and the interviewer proceeds to the next interview question. Otherwise, the interviewer asks more detailed questions to rate the item. The CAPS amnesia items are (a) frequency ("Have you been unable to remember important parts of the event [e.g., names, faces, sequences of events]? How much of the event have you had difficulty remembering in the past month?") and (b) intensity ("How much difficulty do you have recalling important parts of the event?"). The interviewer follows up these standard CAPS questions with additional probes (e.g., "If I asked you to describe the entire event from A to Z, do you think that you would be able to do so, or would there be important parts missing?"). The participant is asked to estimate how much of the event is not recalled and to describe the parts she believes are missing. On the basis of the responses to all of the questions and probes, the interviewer rates the frequency and intensity items on a 5-point scale ranging from 0 to 4. The rating scales for the CAPS Item 7 are listed in Table 1.

Amnesia was operationally defined by dividing the sample into those participants who scored at least a 1 on frequency and 2 on intensity on CAPS Item 7 versus those whose scores fell below this threshold criterion. This rating system is used throughout the CAPS to establish the clinical significance of each symptom (Blake et al., 1995). Twenty pairs of interviews were randomly selected for reliability analysis. There was 100% agreement on the classification of participants into reported amnesia and no reported amnesia groups.

The general memory items were as follows: (a) frequency ("Have you had difficulty remembering things from the recent past?" "Is this different from how you were before the rape?" "How much of the time have you had difficulty remembering things in the past month?") and (b) intensity ("How much difficulty did/do you have remembering things from the recent past?"). The interviewer follows up these standard CAPS questions with additional probes (e.g., "What kinds of things have you forgotten?" and "Did you forget important things, like appointments?"). This item was rated by the interviewer on a 5-point scale. If the item was endorsed, the interviewer continued by asking the intensity item. In rating the item, the interviewer is instructed to include observations of short-term memory deficits observed in the interview and to obtain examples of things that have been remembered well and things that have been remembered poorly. After probing, the interviewer also rates this item on a 5-point scale. Intraclass correlation coefficients using Brennan's (1983) formula between two raters on the general memory frequency and intensity ratings for 20 randomly chosen interviews showed excellent levels of agreement on ratings of both dimensions of general memory impairment (intraclass *r*s = .99).

Several analyses examined the discriminant and convergent validity of these single-item measures. First, to show evidence of discriminant validity, the general memory impairment and amnesia items were expected to be uncorrelated with each other. Second, it was predicted that general memory deficits would be significantly associated with increased depression, fear, and anxiety, whereas reported amnesia would be independent of general psychopathology. Reported amnesia did not correlate with general memory deficits or with psychopathology (all *r*s < .08, *ns*, *n* = 89). We found significant associations between reported general memory deficits and depression, fear, and anxiety using the following measures: the BDI, the RAST–SCL, the RAST–MFS, and the MFS-PH items, *r*s ranged from .38 to .46 (*p*s < .01, *n* = 84).

Procedure

Participants who completed all aspects of the study were seen for a total of four visits. The first two of these visits (Time 1 [T1]) occurred within approximately the first 2 weeks following the rape. The second two visits (Time 2 [T2]) were held at approximately 3 months postrape. The two sets of visits were essentially the same. During the initial visit, participants completed multiple self-report measures programmed into a laptop computer, participated in a lab paradigm, and went through an interview to assess a variety of rape reactions and trauma history. On a subsequent day, structured diagnostic interviews were conducted. Participants were interviewed by a master's or doctoral-level clinician who was experienced with PTSD and sexual trauma and who was unaware of the hypotheses investigated in this report.

Results

Most analyses were examined with 92 participants evaluated during the T1 assessment. A few analyses used 62 participants assessed at T1 and T2. To evaluate potential threats to internal validity, we compared study completers and dropouts on all relevant measures. Dropouts were women who could not be contacted by phone or mail and those who failed to return for their follow-up visits.

No differences in rates of reported amnesia at T1 were found between completers and dropouts, $\chi^2(1\ N = 92) = 1.80$, *ns*. Completers and dropouts did not differ on (a) avoidance measured using the total score for the Avoidance subscale of the CAPS, frequency $t(90) < 1.0$, *ns*, and intensity $t(90) = -1.32$, *ns*; (b) any of the measures of anxiety or depression, BDI $t(87) < 1.0$, *ns*, MFS–PH $t(82) = -1.52$, $p = .13$, and RAST−MFS, $t(82) = -1.29$, $p = .20$; and (c) dissociative symptoms measured by the PDEQ and CAPS Intrusion, Avoidance, or Arousal Posttraumatic Symptomatology subscales, all *t*s$(90) < 1.0$, *ns*. However, dropouts were more likely than completers to report coping by problem avoidance, $t(84) = -2.34$, $p = .02$, and wishful thinking, $t(84) = -2.19$, $p = .03$, and to report greater somatic complaints as assessed by the RAST–SCL, $t(86) = -1.97$, $p = .05$.

Ordinary Forgetting Model

If memories for the trauma follow the process of ordinary memory retention and forgetting, then reported amnesia for the event should increase over time on the basis of the principle of memory decay. This did not occur. On the basis of the CAPS guidelines, 37% ($n = 34$) of all participants at T1 reported significant levels of amnesia for parts of the rape when assessed 2 weeks posttrauma. For participants who completed both T1 and T2 assessment, 32% ($n = 20$) reported clinically significant amnesia at T1. By 3 months postrape, only 16% ($n = 10$) of the completers reported significant amnesia. Both the frequency and intensity of amnesia, scored continuously, significantly declined from T1 to T2 according to a paired sample *t* test, $t(61) = 2.90$, $p = .005$, and $t(59) = 2.90$, $p < .005$, respectively (for frequency, T1 $M = 0.58$, $SD = 0.90$; T2 = 0.24, $SD = 0.56$; for intensity, T1 $M = 1.03$, $SD = 1.5$; T2 $M = 0.45$, $SD = 1.1$). The frequencies for each category of reported amnesia measured at T1 and T2 are presented in Table 1.

If trauma-related memory failure is a function of generalized memory deficits, then women who report amnesia for the rape would be expected to show greater generalized memory deficits than women without recall deficits. At T1, no significant differences in generalized memory deficits were reported between women with and without reported amnesia on either the frequency (for amnesia, $M = 1,0$, $SD = 1.4$; for full recall, $M = 0.80$, $SD = 1.4$) or intensity dimension (for amnesia, $M = 0.80$, $SD = 1.2$; for full recall, $M = 0.80$, $SD = 1.3$) at T1, *t*s$(87) = < 1.0$, *ns*.

Psychopathology Predictions

If reported amnesia is a consequence of psychopathology, then the reported-amnesic women should have higher levels of psychopathology than the full-recall group. Three indexes of rape-related anxiety from the RAST were evaluated at T1: (a) RAST–MFS, (b) RAST–SCL, and (c)MFS–PH. The reported amnesia and the full-recall groups did not differ significantly on any of the anxiety measures, all *t*s (82) < 1.0, *ns*.[5] No differences in levels of reported depression were observed between the two groups on the BDI and the PTSD intrusive or arousal symptoms as measured by mean scores from the CAPS summary scales, *t*s (90) < 1.0, *ns*. Means and standard deviations for continuously scored measures testing psychopathology and information-processing hypotheses are listed in Table 2.

Information-Processing Model Hypotheses

Trauma-related explanations for amnesia examined several variables derived from the trauma literature: (a) peritraumatic dissociation, (b) victim–perpetrator relationship, (c) victimization history, (d) avoidance of trauma-related material, and (e) perceptions of life threat during the rape.

In accord with the hypotheses, rape victims with reported amnesia at T1 had significantly greater levels of peritraumatic dissociation than nonamnestic victims on the PDEQ, $t(90) = -2.48$, $p = .015$. As hypothesized, women raped by known offenders (58%) were more likely than those raped by strangers (29%) to report significant levels of amnesia at T1, $\chi^2(1, N = 92 = 6.69$, $p = .01$.

Several analyses assessed heightened risk for amnesia as a function of victimization history. First, rape victims who reported amnesia at T1 were compared with full-recall victims on the three child physical abuse indexes. Contrary to expectations, no differences were found on measures of mild, moderate, or severe child physical abuse, *t*s (89) < 1.0, *ns*. Histories of childhood sexual fondling and penetrative sex committed by an adult were compared. Although 63% of the women who reported amnesia described sexual fondling during childhood, compared with 38% of the full-recall group, this finding was not statistically significant, $\chi^2(1, N = 92) = 3.4$, $p = .06$. Approximately one third of each group reported a history of childhood penetrative sex committed by an adult; however, women who reported amnesia for parts of the rape were marginally more likely to have experienced childhood penetrative sex at an earlier age (64% younger than 12 years old) compared with those who did not report recall deficits (30% younger than 12 years old), $\chi^2(1,N = 31) = 3.3$, $p = .06$.

Women with reported amnesia at T1 were not more likely to report a history of adult intimate partner violence (59% vs. 44%), χ^2 (1, $N = 92$) = 1.97, *ns*. Fifteen percent of the women who reported amnesia and 5% of the women without reported recall deficits reported a high-magnitude, high-impact trauma history, although this was not a statistically significant difference.

Contrary to expectations, the Problem Avoidance and Wishful Thinking subscales of the CSI did not differ significantly between the two groups, *t*s (84) < 1.0, *ns*. Analysis of effortful avoidance using the CAPS showed a nonsignificant trend toward greater intensity of avoidance in those with reported amnesia compared with those without reported recall deficits, $t(90) = -1.87$, $p = .065$.

[5]Because of missing data the degrees of freedom are as follows: for RAST–MFS,*n* = 84,*df* = 82; for RAST–SCL *n* = 88 *df* = 86; and for MFS–PH, *n* = 87, *df*=85. Degrees of freedom in the remaining analyses also sometimes vary because of missing data.

Two questions assessing perceptions of life threat during the rape were evaluated. In contrast to predictions, participants reporting amnesia for parts of the rape were less likely than those without amnesia to believe they would be killed during the rape (41% vs. 66%), $\chi^2(1\ N = 92) = 5.2$, $p = .02$, and less likely to report spending much or most of the time during the assault thinking about being killed (62% vs. 83%), $\chi^2\ (1, N = 92) = 5.0$, $p = .02$.

The association between perceived life threat and recall deficits was unexpected, and we suspected that it could be a function of acquaintanceship status. As predicted, 65% of the women raped by strangers reported a high degree of certainty that the rape would result in death compared with 35% of the women raped by known offenders, $\chi^2(1\ N = 92) = 7.08$, $p = .008$. Further, 85% of the women raped by strangers thought about being killed or seriously injured most or all of the time compared with 50% of the women raped by known perpetrators, $\chi^2(1, N = 92) = 12.08$, $p < .001$.

Post Hoc Analysis of potential Threats to Validity

Several additional analyses examined the possible effects of potential threats to the finding: (a) increased alcohol use, (b) obtaining mental health services, and (c) frequency of discussing the rape with others.

Postrape Alcohol Use—At T1, 21% of the total sample reported increased alcohol consumption during the postrape period. Twenty-six percent ($n = 9$) of those with reported amnesia and 17% ($n = 10$) of the victims without reported recall deficits described increased postrape alcohol use, $\chi^2(1, N = 92) = 1.1$, *ns*. At T2, an equal proportion of the full-recall (11%) and reported amnesic (10%) groups reported increased alcohol use from T1 to T2, $\chi^2(1, N = 61) < 1.0$, *ns*.

Postrape Mental Health Treatment—Women with and without reported amnesia at T1 were compared on their use of postrape counseling or therapy. At T1, an equal percentage (24%) of victims with and without reported amnesia at T1 received early postrape counseling. Of those reporting amnesia at T1, 21% ($n = 7$) received one session, whereas 3% ($n = 1$) received two sessions. Within the full-recall group, 12% ($n = 7$) received one session, 5% ($n = 3$) attended two sessions, and 4% reported going to five or more counseling sessions ($n = 2$).

At T2 ($n = 62$), women were asked to report the total number of postrape therapy sessions they attended. Women with and without reported recall deficits at T2 did not differ in their likelihood of receiving counseling since the rape (30% vs. 40%), $\chi^2(1, N = 62) < 1.0$, *ns*. There were also no significant differences in the number of sessions received (for reported amnesia, $M = 2.7$, $SD = 5.0$; for full recall, $M = 1.0$, $SD = 1.9$), $t(60) = 1.04$, *ns*. Women who reported memory improvement from T1 to T2 ($n = 14$) were compared with women who reported no improvement in memory from T1 to T2 ($n = 6$) and with those whose reported recall worsened from T1 to T2 ($n = 4$). Again, there were no differences in either the likelihood of having received postrape counseling (36% [improved] vs. 30% [unimproved or worse]), $\chi^2(1, N = 24) < 1.0$, *ns*, or in the number of sessions received (for improved, $M = 1.7$, $SD = 3.3$; for unimproved or worse, $M = 1.0$, $SD = 1.9$), $t(60) < 1.0$, *ns*.[6]

Frequency of Postrape Discussion About the Assault—Participants were asked to indicate the number of people they talked to about the assault in the 2-week period following the assault, excluding doctors, counselors, lawyers, and other officials. On average, women without recall deficits at T1 reported having talked to 8.2 ($SD = 8.5$) people about the assault,

[6]Women who never reported recall deficits ($n = 38$) were omitted form this analysis.

and those with recall problems talked about the rape with an average of 6.5 people (*SD* = 5.9), *t*(86) = 1.0, *ns*.

Discussion

The present study assessed memories for sexual trauma in a nontreatment-seeking sample of recent rape victims and considered competing explanations for recall deficits. Results indicated that deficits in reported memory for parts of a traumatic event were relatively common when assessed shortly after the trauma. Contrary to the simple-forgetting model that attributes recall deficits to decay and interference (Hembroke & Ceci, 1995; Loftus et al., 1994; Yates & Nasby, 1993), memories for rape did not operate like memories for ordinary events. Instead, women reported improvement in the completeness of reported memories for the trauma. This finding is consistent with the hypermnesia effect (Cloitre, 1995; Erdelyi, 1985) and the literature on eyewitness memory for crimes (Cutshall & Yullie, 1989; Fisher et al., 1989; Yullie & Cutshall, 1986). Thus, although the notion of simple forgetting has intuitive appeal, this conceptualization does not fit well with these data.

Neither generalized memory deficits nor increased psychopathology accounted for observed recall deficits. These findings contrast with Southwick et al. (1997), who found increased psychopathology among veterans with recall problems for Gulf War events. Perhaps the 2-year follow-up period used by South-wick et al. provided a longer window within which to assess the development of chronic trauma psychopathology associated with recall deficits. This contrasted with our focus on acute symptoms and early recall deficits. Also, differences between rape victims and National Guard reservists in perceived control over the trauma were likely in that the decision to enter the National Guard has volitional elements not present in sexual assaults.

Mixed support was obtained for predictions based on information-processing models. Recall deficits were associated with known perpetrator rapes and higher levels of peritraumatic dissociation. No significant differences were found in the use of effortful avoidant coping strategies and victimization histories, although our analyses of several variables just missed conventional significance cutoffs. Perceptions of life threat were inversely, rather than positively, associated with recall deficits.

Several methodological limitations are critical to note in interpreting the findings of this study. First, our test of the simple-forgetting model was admittedly a crude one that ideally should be tested more thoroughly using multiple measures. Second, we studied reports of memories, not memories per se, and we lacked the opportunity to verify memory accuracy as researchers are able to do in analogue studies. Nonetheless, in light of the reconstructive nature of all memories (Siegel, 1995), and the very personal nature of autobiographical experience, there is no gold standard by which we could evaluate accounts of autobiographical experience to arrive at “the truth.” Extrapolating from available research suggesting the general accuracy of emotional and traumatic memories (Cutshall & Yullie, 1989; Heuer & Reisberg, 1992; Williams, 1995; Yullie & Cutshall, 1986), we have no reason to suspect that our participants’ memories were any worse than those in other studies on real-life survivors. Finally, our measures of reported amnesia and general memory were limited by their brevity. Ideally, it would have been desirable to obtain a more thorough assessment of general memory functioning and recall deficits for the rape.

Support was mixed for hypotheses based on information-processing models of trauma, although the data were generally consistent with theoretical predictions. Robust differences in victimization histories were not found, although there were trends in the expected direction that are consistent with the literature (e.g., Elliott, 1997; Feldman-Summers & Pope, 1994;

Freyd, 1996; Williams, 1994a, 1995). It is possible that our measures were not sensitive enough to detect these differences, because we were unable to look at the effects of previous victimization history based on the victim–offender relationship in prior incidents. Freyd's theory of betrayal trauma implies that women who were sexually abused in childhood by trusted care-takers may have been more vulnerable to recall deficits for later sexual trauma, particularly if committed by a trusted other.

Surprisingly, recall deficits were associated with decreased perception of life threat. There are several explanations for this anomalous result. The finding may be an artifact of perpetrator status in that acquaintance rape victims reported less life threat than stranger rapes. Alternatively, women who felt a greater degree of life threat may have been faced with more novel situations during the rape, leading to fewer recall deficits than women exposed to more familiar situations. Moreover, in light of societal minimization of acquaintance rape, possibly the police (and significant others) treated rapes posing greater lethality to the victim (i.e., stranger rapes) more seriously than rapes without life threat (i.e., acquaintance rapes), leading to differences in the initial encoding and storage at crucial early stages when a victim tells and retells her story for the police and others. Increased rehearsal from repeated questioning by authority figures reminding the victim of the importance of recalling crucial details to facilitate the collection of evidence or the apprehension of a suspect could also have an impact on memory processes. It is impossible to rule out the many powerful social-contextual cues differentially associated with stranger and acquaintance rapes that may have affected the initial consolidation of memory traces.

Contrary to expectations, there were no major differences in the deployment of effortful avoidance strategies to cope with the rape. It is likely that this is an artifact of ceiling effects and restricted range on the effortful avoidance measures. Perhaps the construct of effortful avoidance would have greater discriminating power when measured further along in the recovery process. Although it may seem adaptive to cope by means of avoidance in the early aftermath of sexual assault—and most victims engage in such strategies early on—chronic avoidance may lead to long-term recall deficits.

Our findings are consistent with theories about the duality of information processing in emotional or imagistic versus rational or logical modes and with the general conclusion that individuals process traumatic events differently from ordinary events (Brewin et al., 1996; Epstein, 1994). Moreover, the independence of these two modalities of processing is consistent with clinical and research reports of amnesia and peritraumatic dissociation. Thus, whereas memory for a set of items on a grocery store list may be processed in a logical, rational mode, with memory errors following the classically observed decay curve, trauma memories, experienced emotionally and as incomplete sensory images, seem to show improved recall over time, especially under conditions that stimulate emotional processing (Elliott, 1997). It is worth noting that memory deficits were trauma specific; no generalized memory deficits were reported by women amnesic for parts of the rape.

The implication of these findings for recovered memory issues are threefold. First, reported recovery of memory over time occurred with a relatively high frequency. Second, the finding that known perpetrators were found more often among the reported amnesic group is congruent with Freyd's (1996) conceptualization of betrayal trauma based on the primacy of attachment to close relationships and is also consistent with data from numerous studies on the adult recall of childhood sexual abuse. Third, processes of spontaneous disengagement (i.e., dissociation) observed in our sample have become increasingly implicated as playing a significant role in the encoding, storage, and retrieval of traumatic memories (Brewin et al., 1996; Freyd, 1996; Marmar et al., 1994; Siegel, 1995; van der Kolk & Fisler, 1995; Yates & Nasby, 1993; Yullie & Tollestrup, 1992), suggesting that dissociated states may interfere with initial encoding of

information in a coherent form, resulting in discontinuities between affective and narrative memories or creating gaps in narrative recall. In theory, dissociated memories have the potential to be recalled (Alpert, 1995) under the right retrieval conditions, unlike forgetting, in which information is unavailable for recall as a function of decay (i.e., storage) and would not be expected to improve under different retrieval conditions (Yates & Nasby, 1993).

Several observations are noteworthy. None of the women in our study lost their memory for the entire event, and reports of amnesia were restricted to memory deficits for parts of the experience. Second, the women in this study experienced a traumatic event that was not in dispute, as most were recruited from police reports. Third, the participants reported recovered memories that occurred without prompting from therapy, and treatment did not account for reported amnesia at T2. Finally, a number of potential threats to validity, such as increased alcohol use, sample attrition, differential treatment seeking, or increased conversations about the trauma, were ruled out.

It might be argued that our results have only limited generalizability to the issue of recovered memory because in most recovered memory cases the period of time between the original trauma and the delayed recall is often many years, whereas our research focused on the initial first 3 months. However, we believe that our data have relevance to this issue. First, Loftus et al. (1994) argued that the process of forgetting sexual trauma over the life span was akin to forgetting a grocery list, clearly a short-term memory task. If memory processes that occur over the span of a few minutes or hours (i.e., the grocery store analogy) are used as a framework for understanding recall of trauma memories from long ago, then memory over the course of 3 months is reasonable. Second, if we are to progress beyond the limited ecological validity imposed by laboratory simulations of memory for threatening events, to understand more fully the nature and course of memories for traumatic events in naturalistic contexts, then we must begin to tackle the issue of how memories operate within short intervals (e.g., several months) before we can understand what happens over decades. Earlier research using retrospective reports has been criticized because of the myriad intervening factors that could affect recall over time. Prospective studies avoid many of these problems. Finally, the issues pertaining to dissociation may bridge the gap between what we know about adult recall of childhood sexual abuse and adult sexual trauma. Thus, although much more work remains to be done in the area of memory for sexual trauma, we see this study as a fruitful early step in that process.

Acknowledgments

This work was supported by National Institute of Mental Health Grant RO1 MH46992-05. Portions of this research were presented at the annual meeting of the Association for the Advancement of Behavior Therapy, New York, Now York, November 1996.

We are grateful for the efforts of many people who made significant contributions to this project. Katie Berezniak, Dana Cason, Kate Chard, Lisa Ellis, Terese Evans, Linda Housman, Michelle Meyers, Lisa Parker, Gail Pickett, Monica Schnicke, and Terri Weaver served as clinical interviewers for this study. We also thank the St. Louis Metropolitan Police Department and the victim services agencies in St. Louis City and County for their assistance in participant recruitment.

References

Alpert JL. Trauma, dissociation, and clinical study as a responsible beginning. Consciousness and Cognition 1995;4:125–129. [PubMed: 7497098]

Atkeson B, Calhoun KS, Resick PA, Ellis E. Victims of rape: Repeated assessment of depressive symptoms. Journal of Consulting and Clinical Psychology 1982;50:96–102. [PubMed: 7056924]

Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Archives of General Psychiatry 1961;4:561–571. [PubMed: 13688369]

Begley S. you must remember this. Newsweek 1994 September 26;124(13):68–70.

Bernstein EM, Putnam FW. Development, reliability and validity of a dissociation scale. Journal of Nervous and Mental Disease 1986;174:727–734. [PubMed: 3783140]

Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, Keane TM. The development of a Clinician-Administered PTSD Scale. Journal of Traumatic Stress 1995;8:75–90. [PubMed: 7712061]

Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Klauminzer G, Charney DS, Keane TM. A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. The Behavior Therapist 1990;18:187–188.

Brennan, RL. Elements of generalizability theory. Iowa City, IA: ACT; 1983.

Brewin CR, Dalgleish T, Joseph S. A dual representation theory of posttraumatic stress disorder. Psychological Review 1996;103:670–686. [PubMed: 8888651]

Briere J, Conte J. Self-reported amnesia for abuse in adults molested as children. Journal of Traumatic Stress 1993;6:21–31.

Briere J, Runtz M. Multivariate correlates of child psychological and physical maltreatment among university women. Child Abuse and Neglect 1988;12:331–341. [PubMed: 3167621]

Burke A, Heuer F, Reisberg D. Remembering emotional events. Cognition 1992;5:73–79.

Christianson SA. Emotional stress and eyewitness memory: A critical review. Psychological Bulletin 1992a;112:284–309. [PubMed: 1454896]

Christianson, SA. Remembering emotional events: Potential mechanisms. In: Christianson, SA., editor. Handbook of emotion and memory; Research and theory. Hillsdale, NJ: Erlbaum; 1992b. p. 307-340.

Chu JA, Matthews JA, Frey LM, Ganzel B. The nature of traumatic memories of childhood abuse. Dissociation 1996;9:2–17.

Cloitre, M. Conscious and unconscious memory: A model of functional amnesia. In: Stein, DJ., editor. Cognitive science and the unconscious. Washington, DC: American Psychiatric Press; 1995. p. 55-88.

Cloitre ML, Cancienne J, Brodsky B, Dulit R, Perry S. Memory performance among women with parental abuse histories: Enhanced directed forgetting or directed remembering? Journal of Abnormal Psychology 1996;105:204–211. [PubMed: 8723001]

Cutshall, JL.; Yullie, JC. Field studies of eyewitness memory of actual crimes. Raskin, DC., editor. New York: Springer; 1989. p. 97-124.

Derogatis, LR. Symptom Checklist—90—Revised: Administration, scoring, and procedures manual II. 2nd ed. Baltimore: Clinical Psychometric Research; 1983.

Elliott DM. Traumatic events: Prevalence and delayed recall in the general population. Journal of Consulting and Clinical Psychology 1997;65:811–820. [PubMed: 9337500]

Elliott DM, Briere J. Posttraumatic stress associated with delayed recall of sexual abuse: A general population study. Journal of Traumatic Stress 1995;8:629–648. [PubMed: 8564276]

Epstein S. Integration of the cognitive and psychodynamic unconscious. American Psychologist 1994;49:709–724. [PubMed: 8092614]

Erdelyi, MH. Psychoanalysis: Freud's cognitive psychology. New York: Freeman; 1985.

Fanning, D. Frontline. Alexandria, VA: Public Broadcasting Service; 1995a Apr 4. (Executive Producer)

Fanning, D. Frontline. Alexandria, VA: Public Broadcasting Service; 1995b Apr 11. (Executive Producer)

Feldman-Summers S, Pope KS. The experience of "forgetting" childhood abuse: A national survey of psychologists. Journal of Consulting and Clinical Psychology 1994;62:636–639. [PubMed: 8063991]

Fisher RP, Geiselman RE, Amador M. Field test of the cognitive interview: Enhancing the recollection of actual victims and witnesses of crime. Journal of Applied Psychology 1989;74:722–727. [PubMed: 2793772]

Freyd, JJ. Betrayal trauma: The logic of forgetting childhood abuse. Cambridge, MA: Harvard University Press; 1996.

Griffin MG, Resick PA, Mechanic MB. Objective assessment of peritraumatic dissociation: Psychophysiological indicators. American Journal of Psychiatry 1997;154:1081–1088. [PubMed: 9247393]

30. Hembroke H, Ceci S. Traumatic memories: Do we need to invoke special mechanisms? Consciousness and Cognition 1995;4:75–82. [PubMed: 7497105]

Herman JL, Schatzow E. Recovery and verification of memories of childhood sexual trauma. Psychoanalytic Psychology 1987;4:1–14.

Heuer, F.; Reisberg, D. Emotion, arousal, and memory for detail. In: Christianson, SA., editor. Handbook of emotion and memory: Research and theory. Hillsdale, NJ: Erlbaum; 1992. p. 151-180.

Horowitz, M. Stress response syndromes. Northvale, NJ: Jason Aronson; 1986.

Janoff-Bulman R. Assumptive worlds and the stress of traumatic events: Application of the schema construct. Social Cognition 1989;7:113–136.

Kilpatrick, DG. Dictionary of behavioral assessment techniques. Oxford, England: Pergamon Press; 1988. Rape aftermath symptom test; p. 366-367.

Koss MP, Figueredo AJ, Bell I, Tharan M, Tromp S. Traumatic memory characteristics: A cross-validated mediational model of response to rape among employed women. Journal of Abnormal Psychology 1996;105:421–432. [PubMed: 8772012]

Koss MP, Tromp S, Tharan M. Traumatic memories: Empirical foundations, forensic and clinical implications. Clinical Psychology: Science and Practice 1995;2:111–132.

Loftus, EF. Eyewitness testimony. London: Harvard University Press; 1979.

39. Loftus EF. The reality of repressed memories. American Psychologist 1993;48:518–537. [PubMed: 8507050]

Loftus EF, Garry M, Feldman J. Forgetting sexual trauma: What does it mean when 38% forget? Journal of Consulting and Clinical Psychology 1994;62:1177–1181. [PubMed: 7860815]

Loftus, EF.; Ketcham, K. The myth of the repressed memory: False memories and allegations of sexual abuse. New York: St. Martins's Press; 1994.

Marmar CR, Weiss DS, Schlenger WE, Fairbank JA, Jordan KB, Kulka RA, Hough RL. Peritraumatic dissociation and posttraumatic stress disorder in male Vietnam theater veterans. American Journal of Psychiatry 1994;151:902–907. [PubMed: 8185001]

McCann, IL.; Pearlman, LA. Psychological trauma and the adult survivor: Theory, therapy and transformation. New York: Brunner/Mazel; 1990.

Mechanic, MB.; Resick, PA.; Griffin, MG. Post-rape reactions: Does knowing the rapist make a difference?; Paper presented at the 28th annual convention of the Association for the Advancement of Behavior Therapy; San Diego, CA. 1994 Nov.

Pope KS. Memory, abuse, and science: Questioning claims about the false memory epidemic. American Psychologist 1996;51:957–974. [PubMed: 8819364]

Resick, PA. Reactions of female and male victims of rape or robbery. Rockville, MD: National Institute of Mental Health; 1986. (Grant RO1-MH37296)

Resick, PA. History of Victimization Questionnaire. 1988. Unpublished instrument

Resick PA, Jordan CG, Girelli SA, Hutter CK, Marhoefer-Dvorak S. A comparative outcome study of group behavior therapy for sexual assault victims. Behavior Therapy 1988;19:385–401.

Resick, PA.; Mechanic, MB.; Griffin, MG. Marital violence in the wake of the great flood of 1993. Rockville, MD: National Institute of Mental Health; 1997. (Grant 1-R01-MH55542)

Resick PA, Mechanic MB, Griffin MG, Astin MC. Cognitive processes in PTSD. 1996 Unpublished raw data.

Resick PA, Schnicke MA. Cognitive processing therapy for sexual assault victims. Journal of Consulting and Clinical Psychology 1992;60:748–756. [PubMed: 1401390]

Resick, PA.; Schnicke, MK. Cognitive processing therapy for rape victims: A treatment manual. Newbury Park, CA: Sage; 1993.

Riccio DC, Rabinowitz VC, Axelrod S. Memory: When less is more. American Psychologist 1994;49:917–926. [PubMed: 7985885]

Rogers M. Factors influencing recall of childhood sexual abuse. Journal of Traumatic Stress 1995;8:691–716. [PubMed: 8564279]

Sandberg DA, Lynn SJ. Dissociative experiences, psychopathology and adjustment, and child and adolescent maltreatment in female college students. Journal of Abnormal Psychology 1992;101:717–723. [PubMed: 1430612]

Scheflin AW, Brown D. Repressed memory or dissociative amnesia: What the science says. Journal of Psychiatry & Law 1996;24:143–188.

Scrivner E, Safer MA. Eyewitnesses show hypermnesia for details about a violent event. Journal of Applied Psychology 1988;73:371–377. [PubMed: 3182548]

Siegel DJ. Memory, trauma, and psychotherapy: A cognitive science view. Journal of Psychotherapy Practice and Research 1995;4:93–122.

Southwick SM, Morgan CA, Nicolaou AL, Charney DS. Consistency of memory for combat-related traumatic events in veterans of Operation Desert Storm. American Journal of Psychiatry 1997;154:173–177. [PubMed: 9016264]

Tobin DL, Holroyd KA, Reynolds RV, Wigal JK. The hierarchical factor structure of the coping strategies inventory. Cognitive Therapy and Research 1989;13:343–361.

Tromp S, Koss MP, Figueredo AJ, Tharan M. Are rape memories different? A comparison of rape, other unpleasant, and pleasant memories among employed women. Journal of Traumatic Stress 1995;8:607–627. [PubMed: 8564275]

van der Kolk BA, Fisler A. Dissociation and the fragmentary nature of traumatic memories: Overview and exploratory study. Journal of Traumatic Stress 1995;8:505–526. [PubMed: 8564271]

Veronen LJ, Kilpatrick DG. Self-reported fears of rape victims: A preliminary analysis. Behavior Modification 1980;4:383–396.

Widom CS, Morris S. Accuracy of adult recollections of childhood victimization: Part 2 Childhood sexual abuse. Psychological Assessment 1997;9:34–46.

Widom CS, Shepard R. Accuracy of adult recollections of childhood victimization: Part 1. Childhood physical abuse. Psychological Assessment 1996;8:412–421.

Williams LM. Recall of childhood trauma: A prospective study of women's memories of child sexual abuse. Journal of Consulting and Clinical Psychology 1994a;62:1167–1176. [PubMed: 7860814]

Williams LM. What does it mean to forget child sexual abuse? A reply to Loftus, Garry, and Feldman (1994). Journal of Consulting and Clinical Psychology 1994b;62:1182–1186.

Williams LM. Recovered memories of abuse in women with documented child sexual victimization histories. Journal of Traumatic Stress 1995;8:649–673. [PubMed: 8564277]

Woodward KL. Misty, watercolored memories. Newsweek 1993 December 13;122(24):68–70.

Woodward KL. Was it real or memories? Newsweek 1994 March 14;123(11):68–70.

Yates JL, Nasby W. Dissociation, affect, and network models of memory: An integrative proposal. Journal of Traumatic Stress 1993;6:305–326.

Yullie JL, Cutshall JL. A case study of eyewitness memory for a crime. Journal of Applied Psychology 1986;71:291–301. [PubMed: 3722079]

Yullie, JL.; Tollestrup, PA. A model of the diverse effects of emotion on eyewitness memory. In: Christianson, SA., editor. Handbook of emotion and memory; Research and theory. Hillsdale, NJ: Erlbaum; 1992. p. 201-215.

Table 1

Frequency and Intensity of the Amnesia Item on the Clinician Administered PTSD scale

Score	Description	%
	2 week postrape (*N*=92) frequency	
0	None, clear memory of the event	59
1	Few aspects of event not remember (<10%)	20
2	Some aspects of event not remembered (20–30%)	12
3	Many ascepts of event not remembered (50–60%)	8
4	Most of event not remembered (>80%)	1
	Intensity	
0	No difficulty at recalling event	60
1	Mild, minimal difficulty recalling event	2
2	Moderate, some difficulty, could recall event with concentration	11
3	Severe, considerable difficulty recalling the event	10
4	Extreme, completely unable to recall the event	14
	3 month postrape (*N*=62) frequency	
0	None, clear memory of the event	82
1	Few aspects of event not remembered (<10%)	11
2	Some aspects of event not remembered (20–30%)	7
3	Many aspects of event not remembered (50–60%)	0
4	Most of event not remembered (>80%)	0
	Intensity	
0	No difficulty at recalling event	82
1	Mild minimal difficulty recalling event	2
2	Moderate, some difficulty, could recall event with concentration	8
3	Severe, considerable difficulty recalling the event	5
4	Extreme, completely unable to recall the event	3

Note. PTSD =posttraumatic stress disorder.

Table 2

Means and Standard Deviations of Continuous Measures

	Amnesic group (*n*=58)		Full recall groups (*n*=34)	
Measure	***M***	***SD***	***M***	***SD***
Beck Depression Inventory	19.5	11.0	18.9	9.4
CAPS Intrusion (*f*)	2.0	0.79	2.1	0.87
CAPS Intrusion (I)	1.8	0.86	1.8	0.99
CAPS Arousal (*f*)	2.4	0.84	2.3	0.93
CAPS Arousal (I)	2.0	0.76	2.0	0.94
PDEQ	8.3	3.7	10.3	3.9
CSI Problem Avoidance	23.3	7.0	26.3	13.8
CSI Wishful Thinking	34.2	7.5	34.2	11.6
CAPS Effortful Avoidance (*f*)	3.3	1.3	3.7	1.0
CAPS Effortful Avoidance (I)	2.3	0.96	2.7	0.95
Child physical abuse (mild)	8.0	3.6	8.5	3.9
Child physical abuse (moderate)	7.1	3.6	7.2	3.5
Child physical abuse (severe)	6.9	3.0	6.7	3.1

Note. CAPS = Clinician Administered PTSD (Posttraumatic Stress Disorder) Scale; *f* = frequency; I = intensity; PDEQ = Peritraumatic Dissociative Experiences Questionnaire; CSI = Coping Strategies Inventory.