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Memories and Imaginings of
Traumatic and Nontraumatic Events by
Women Survivors of Childhood Sexual Abuse •

by

Anne M. DiMito, B.A.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of the
requirements for the degree of
Master of Arts

Department of Psychology

Carleton University
Ottawa, Ontario, CANADA

January, 1998

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Women Survivors of Childhood Sexual Abuse”**

submitted by

Anne M. DiMito

in Partial fulfillment of the requirements for
the degree of Master of Arts

Chair
Thesis Supervisor

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Abstract

Some researchers argue that, because people readily confuse their imaginings for real memories, recovered memories of child abuse are often no more than imaginings of abusive events formed in response to the suggestions of authoritative sources. By comparison, others argue that recovered memories are reasonably accurate accounts of past experience and that people are unlikely to mistake their imaginings for recovered memories of child abuse. As yet, there have been no studies comparing people's memories of real and imagined childhood traumatic events with those of nontraumatic events. Therefore, the present study examined the phenomenological characteristics (sensory, reliving, spatial and temporal information and clarity) of real and imagined traumatic and nontraumatic childhood events in 82 women with self-reported histories of childhood sexual abuse. The findings provided mixed evidence that the difference between the characteristics of these women's traumatic memories of child sexual abuse and their traumatic imaginings was greater than the difference between the characteristics of their nontraumatic memories and their nontraumatic imaginings. These data therefore suggest that people may be less likely to confuse their imaginings of trauma for real memories of trauma than they are to confuse their imaginings of nontraumatic events for real memories of nontraumatic events. More consistent evidence was found for the claims that traumatic memories convey more implicit sensory and reliving information than either nontraumatic memories or traumatic fantasies. The implications of these findings for our understanding of recovered memories and the recovered memory controversy are discussed.

**Memories and Imaginings of Traumatic and Nontraumatic
Events by Women Survivors of Childhood Sexual Abuse**

An ongoing debate rages about the validity of adults' recently recovered but previously forgotten memories of childhood abuse (for a review see Alpert, Brown, Ceci, Courtois, Loftus & Ornstein, 1996). Based on existing research findings, some claim that the majority of recovered memories are false (Lindsay & Read, 1994; Loftus, 1993; Loftus & Ketcham, 1994; Ofshe & Watters, 1994), while others argue that most recovered memories are reasonably accurate accounts of past experiences (Herman & Schatzow, 1984; Kristiansen, 1996; van der Kolk & Fisler, 1995). Research supporting both these positions will be reviewed.

Recovered Memories are False Memories of Imagined Events

Some researchers argue that recovered memories of child abuse are often no more than imaginings of abusive events formed in response to the suggestions of authoritative sources, such as therapists or self-help books (Ganaway, 1989; Lindsay & Read, 1994). Like recovered memory advocates, false memory proponents have good empirical evidence for their perspective. The majority of this empirical evidence can be grouped into four bodies of research: Children's suggestibility, adults' suggestibility, reality monitoring, and the phenomenological characteristics of memories for real versus imagined events.

A study by Ceci, Loftus, Leichtman and Bruck (1994) demonstrates children's suggestibility to false memory creation. In this study, the parents of 40 preschool children provided information about four types of events: a positive event (e.g., a surprise birthday party), a negative event (e.g., death of a family pet), a neutral event (e.g., child wore a blue sweater to school), and a neutral nonparticipant event (e.g., saw brother wearing blue sweater to school). Ceci et al. also had the children's parents verify that four fictitious events never occurred in their child's life: a positive event (riding in a hot air balloon with classmates), a negative event (falling off a tricycle and

getting stitches), a neutral event (waiting for a bus), and a neutral nonparticipant event (observing another child waiting for a bus). The children were then presented with the true and fictitious events over 12 weekly sessions, during which they were instructed to actively picture the event in their head and to think about it before trying to remember if the event ever happened.

For the analyses, the researchers divided the children into two age groups, namely younger (3 to 4 year olds) and older preschoolers (5 to 6 year olds). For the true events, the children in both age groups recalled the events with 91% to 100% accuracy. As shown in Table 1, the highest rates of endorsement were for the neutral nonparticipant fictitious event, where 44% of the youngest children said the event happened at the first interview and 67% by the last interview. Among the older children, 40% said the event happened at the first interview, and 56% by the last interview. However, the negative event yielded substantially fewer false assents in both age groups. Among the youngest children, 17% said the negative event occurred at the first interview, and 28% by the last interview, and among the older children, 10% said the negative event occurred at the first interview, and 23% by the last interview.

Table 1

Percentage of False Assents as a Function of Age, Event and Session
(from Ceci et al., 1994)

Event	<u>First interview</u>		<u>Last interview</u>	
	Younger	Older	Younger	Older
Neutral nonparticipant	44	40	67	56
Negative	17	10	28	23
Positive	35	22	54	43
Neutral participant	40	28	32	37

Although these findings suggest that children will often come to believe events that were merely suggested to them, Ceci et al. recognized that it was not possible to discern if the high false assents were due to "(a) the imagery induction, b) the children being told that their mother verified the event, or c) some other factor" (p. 311). Schacter, Kagan and Leichtman (1995, p. 13) also speculated that "children [may] provide such reports when the demand characteristics of the situation have been constructed to elicit them, and are most likely to be observed after repeated, heavy-handed exposure to misleading questions, elaborated stereotypes or expectations, or visualizations of false events." Further, Schacter et al.'s review of neuropsychological research suggests that children's inability to differentiate between real and imagined events may be associated with their less developed frontal lobes. As Schacter et al. (1995; p. 17) stated, "various indices of anatomical developmental support the claim that the frontal lobes mature more slowly than do many other brain regions, and by some measures do not attain adult levels until adolescent years or beyond." Thus, it may be unreasonable to make inferences about adults' propensity to develop false memories of child abuse based on studies of children's suggestibility.

Studies with adult samples do, however, indicate that many adults fall prey to suggestions, and perhaps the best known of these studies is Loftus and Pickrell's (1995) "lost-in-the-mall" study. In this study, the family members of twenty-four adults cooperated by providing brief descriptions of three real events that involved a family member and the participant as a child. They also created a story of a false event about the participant once having been lost in a shopping mall. The research participants were then presented with the three true events and the false event of being lost, and were asked to write about them in detail. They then discussed all four events in two weekly interviews. After the discussions, a full 75% of Loftus and Pickrell's participants

did not manufacture a false memory, and of the 25% who did, 10% came up with an elaborated memory of being lost while the other 15% said they felt a vague sense of the event.

Using a similar paradigm, Hyman and Pentland (1996) presented 65 university students with at least two true events, as previously described by their parents, and one false event where the participant allegedly spilled a punchbowl at a wedding when he or she was five years old. In their study, Hyman and Pentland also manipulated students' use of mental imagery. Thirty-two of the participants were instructed to use guided imagery if they failed to recall aspects of the suggested event, while the participants in the control group were not given any instructions. The students were then interviewed about these events over three weekly sessions. Analyses of these data indicated that over 75% of the true events were recalled in the first interview regardless of imagery condition. Interestingly, in the imagery condition 65.2% of the initially unrecalled true events were recovered by the third interview whereas in the control condition only 29.2% of the initially unrecalled true events were eventually recovered. For the false event, 37.5% of the participants in the imagery condition adopted a clear or partial false memory, while only 12.1% of the control participants did so. Given these findings, Hyman and Pentland concluded that recovered memories "can be viewed as truly remembered in response to additional thought and effort ... or as creations in response to the interview demands" (p. 107).

Other studies using similar paradigms have found that approximately 15 to 25% of adults are likely to adopt false memories for suggested events, events ranging from the recognition of traffic signs, remembering the details of a robbery scene, to recalling an overnight visit to the hospital (Hyman & Pentland, 1996).¹ To account for such findings, false memory advocates (Belli & Loftus, 1994; Garry & Loftus, 1994; Hyman & Pentland, 1996; Johnson, Foley, Suengas & Raye, 1988;

Lindsay & Read, 1994; Schooler, Gerhard & Loftus, 1986) suggest that people often misattribute the source of their internal imaginings to real memories of external events because of failures in a phenomenon known as "reality monitoring." Reality monitoring refers to the processes involved in discriminating between memories for real and imagined events (Johnson, 1988; Johnson & Raye, 1981); that is, the ability to discriminate between memories for what one actually did as opposed to what one only imagined doing (e.g., discriminating words one actually said from words one merely imagined saying). According to Belli and Loftus (1994, p.421), "...the source of one's memories is...inferred from various aspects of the content contained in the memories." People attribute their memories to experienced external events or to internal imaginings; errors in this attribution process are called "source monitoring errors" and result in the acceptance of false suggestions. The likelihood of source monitoring errors depends on the characteristics of the memory. While information "from an external source is likely to be encoded with rich perceptual information (e.g., visual and acoustic detail)...information that originates internally, such as through fantasy, is likely to be heavily encoded with information resulting from cognitive, thinking, and reflective processes...Source misattributions often occur when the characteristics of the remembered information are not reliable indicants of source" (Belli & Loftus, 1994, p. 422).

Thus, a memory of a real event that has little perceptual or sensory detail may be mistaken for an internally-generated imagining. Similarly, a fantasy accompanied by extensive imagery or visualization may be later mistaken for a memory of a real event (Belli & Loftus, 1994). Based on experimental research (i.e., Johnson, Foley, Suengas & Johnson, 1988), Belli and Loftus further suggest that failures in source or reality monitoring are more likely for childhood events than for recent events. People's childhood memories for real and imagined events

are qualitatively more similar than their recent memories because real childhood memories contain less perceptual and contextual information. On this basis, then, Belli and Loftus (1994, p. 421) argue that "the extent to which subjects will misattribute suggested or imagined events as real in the laboratory, raises questions about the veridicality of some reports of repressed sexual abuse memories *recovered* through the assistance of a therapist or self-help guide."

In experimental studies of reality monitoring, researchers compare people's ratings of the phenomenological characteristics (e.g., vividness, clarity, emotionality) of their memories for real and imagined events. In one such study, Johnson et al. (1988) asked 72 undergraduate students to recall one true event (a social occasion, a trip to the library, or a visit to the dentist) and one event they had merely imagined (a dream, a fantasy, or an unfulfilled intention). The participants were given a few minutes to think of the target memories and then rated the qualities of their memories using the Memory Characteristics Questionnaire (MCQ), a 39-item questionnaire where participants used 7-point bipolar scales to describe their memories and imaginings (e.g., the amount of visual, emotional, spatial, and temporal information in the memory). Johnson et al. found that people's memories of real events were given higher ratings than their memories for imagined events on phenomenological characteristics such as visual detail, sound, smell, taste, realism, location, setting, spatial arrangements of objects and people, and temporal questions (e.g., time, year, day, season, hour). Relative to remote childhood events and imaginings, more recent events and imaginings produced higher ratings on phenomenological characteristics such as visual detail, vividness, order of events, spatial questions, temporal questions, tone, overall memory, and supporting memories. In view of these findings, Johnson et al. (p. 375) concluded that "These are the sorts of characteristics of memories people mention in justifying the origin of a memory... Overall, these

findings regarding salience in autobiographical memories of perceptual, contextual, and supporting information fit the general assumptions of the Johnson-Raye (1981) reality monitoring framework and provide evidence that findings from more controlled experiments on complex memories ... apply to natural contexts as well."

In another reality monitoring study, Suengas and Johnson (1988) conducted a series of three experiments in which students actually engaged in and imagined various actions (e.g., wrap a parcel, drink a cup of coffee and eat some cookies). Participants then used the MCQ to rate their memories for three real events that they had actually engaged in and their imaginings for three actions that they had only imagined. A principal components analysis revealed that five factors underlie the MCQ: (1) a Clarity factor (e.g., vividness, visual detail, event detail), (2) a Sensory factor (e.g., sound, smell, taste), (3) a Contextual factor (e.g., memory for location, spatial arrangement of objects and people), (4) a Thoughts and Feelings factor (e.g., memory for thoughts and feelings), and (5) an Intensity of Feelings factor (e.g., intensity of feelings at the time of the event and while remembering the event).

Suengas and Johnson's analyses revealed that, overall, the memories for real events were given higher ratings on all five factors than the memories of the imagined events. Suengas and Johnson (1988, p. 381) therefore concluded that "differences in clarity, sensory, and contextual characteristics provide reliable bases for reality monitoring." However, it must be noted that while the differences between real and imagined events were statistically significant, they were also quite small in absolute terms. Specifically, across three experiments on a 7-point scale, the means for real and imagined memories were 3.5 and 3.4, respectively, for intensity, 5.8 and 4.6, respectively, for context, and 2.7 and 2.4, respectively, for sensory items. This similarity may be viewed as supporting the likelihood of

false memories in that it suggests that it would be relatively easy for someone to confuse an imagined event for a real memory.

Research generally confirms the hypothesized role of reality monitoring in the generation of false memories. As discussed earlier, Hyman and Pentland (1996) examined the effects of mental imagery on students' recall of at least two true events and one false event. These investigators also examined students' ratings of the phenomenological characteristics of their memories along various dimensions, including the emotionality of their memory, the positivity of these emotions, the clarity of their mental image, and their confidence in their memories. Students in the imagery and control conditions did not differ in their ratings of (a) the emotionality of their memories, (b) the positivity of their memories, or (c) their confidence in their memories.

There were no differences in clarity ratings in the imagery compared to the no-imagery conditions for the true events. There was, however, a nonsignificant tendency for participants in the imagery condition to rate their false memories as clearer than did the participants in the no-imagery control condition. Nevertheless, participants in the imagery condition were also less confident in the validity of their false memories than were participants in the control condition. Finally, participants who endorsed the false memory as a real childhood memory rated their memory as being more negative, clearer, and held with more confidence than did participants who did not endorse the false memory.

Hyman and Pentland's results, then, suggest that people who are more prone to false memories are also more likely to view that memory as clearer and more negative, and are more confident in the validity of their memory. Hyman and Pentland's results, then, appear to support false memory advocates' argument that encouraging non-abused clients to visualize having been abused increases the likelihood that false memories of childhood sexual abuse will be created. As Hyman and

Pentland (p. 114) explained, "memory creation in therapy is likely if the therapy context involves demands to remember, encouragement of memory construction, and discouragement of reality monitoring strategies."

In summary, studies of reality monitoring have generally shown that higher phenomenological ratings of visual detail, sound, smell, taste, realism, location, setting, spatial arrangements of objects and people, and temporal information (e.g., time, year, day, season, hour) are given to real rather than imagined events. Further, for both real and imagined events, these effects appear to be greater for remote childhood events than for recent events. According to reality monitoring theory, then, memories for real events contain more sensory (sound, smell, taste) and contextual information and are clearer than memories for imagined events. Memories for imagined events, on the other hand, are thought to contain more information about the cognitive processes (i.e., reasoning and judgment about source of information) involved in generating those images than memories for real events (Belli & Loftus, 1994; Markham & Hynes, 1993).

In view of these findings, false memory advocates suggest that the more similar true memories and imaginings are on these dimensions, the more confused individuals are likely to be concerning the reality or truth of their memories. Because judgments concerning the source of memories are often based on perceptual information and because perceptual qualities fade over time (Johnson et al., 1988), Belli and Loftus (1994) also suggest that confusions in memories are more likely for childhood events than for more recent events. Thus, according to false memory advocates, false memories of childhood sexual abuse may well arise from the suggestions of authoritative sources, including therapists. For example, some therapists may encourage nonabused clients to visualize being sexually abused as a child, and may ask leading questions, such as "You sound like you've been sexually abused

as a child. What can you tell me about that?" (Belli & Loftus, 1994; Lindsay & Read, 1994; Poole, Lindsay, Memon & Bull, 1995).²

Recovered Memories are Memories of Real Events

Researchers who believe that it is possible to forget and subsequently recover memories of childhood abuse also base their position on a sizable empirical literature. Schefflin and Brown's (1996) review of 25 studies, for example, found that each study observed amnesia among adult survivors of childhood sexual abuse, with the incidence of full or partial amnesia for abuse ranging from 31 to 77% across studies. Indeed, even false memory advocate Elizabeth Loftus reported that 31% of the women in her sample of survivors experienced at least some amnesia for their abuse (Loftus, Polonsky & Fullilove, 1994). Given estimates that as many as one in three women are sexually abused during childhood (e.g., Ogata, Silk, Goodrich, Lohr, Westen & Hill, 1990; Russell, 1984), the incidence of amnesia reported to date suggests that recovered memories of child abuse are far from rare.

As well as being commonly reported, several lines of evidence suggest that recovered memories are accurate. Many women, for example, report having external corroboration for their recovered memories. As many as 65% of the women in Cameron's (1996) study, 75% in van der Kolk & Fisler's (1995) study, and 74% in Herman and Schatzow's (1987) study claimed that they were able to obtain some external corroboration for their recovered memories. Moreover, in Williams' (1994a) prospective study of 129 women with histories of childhood sexual abuse that were documented almost 20 years earlier, 12% of the women were amnesic for the abuse and 16.7% had at one time been amnesic and since recovered their memories for the documented abuse. Furthermore, Williams (1994b) found that, compared to medical records, the accounts of the women who recovered their memories were as accurate as those of the women who had always remembered their abuse. In what is probably the most convincing evidence to date for the accuracy of recovered memories of abuse,

Dalenberg (1996) reported that a panel of independent judges found the evidence for 17 female therapy clients' recovered memories to be as convincing as the evidence for their continuous memories. Furthermore, 41% of these women's formerly-abusing fathers confirmed their daughters' recovered memories.

Empirical studies of war veterans also suggest that traumatic memories can be accurate, albeit fragmented, representations of past experiences. For example, when Harvard undergraduates were re-interviewed 45 years after their WW II combat, the veterans without posttraumatic stress disorder (PTSD) showed substantial changes in their accounts over time; in particular they minimized the horrific aspects of their experience. Veterans with PTSD, on the other hand, did not modify their accounts (Lee, Vaillant, Torrey & Elder, 1995, as described in van der Kolk & McFarlane, 1996, pp. 8-9).

Although several mechanisms have been hypothesized to account for traumatic amnesia (e.g., normal forgetting, infantile amnesia, repression, see Freyd, 1996, for a review), many researchers propose that trauma survivors' amnesia occurs because traumatic memories are stored and encoded differently than memories for ordinary, nontraumatic events (e.g., Kristiansen, 1996; Putnam, 1997; van der Kolk, 1996; van der Kolk & Fisler, 1995). Memory for ordinary events is thought to be encoded explicitly, resulting in memory that contains facts in a narrative form that is consciously accessible. By comparison, traumatic events are thought to be encoded implicitly, producing memory that contains sensory and emotional information that is not necessarily consciously accessible. As the American Psychiatric Association (1993, p. 262) wrote in their review of the recovered memory controversy,

Implicit and explicit memory are two different forms of memory that have been identified. Explicit memory (also termed declarative memory) refers to the ability to consciously recall facts or events. Implicit memory (also termed procedural memory)

refers to behavioral knowledge of an experience without conscious recall. A child who demonstrates knowledge of a skill (e.g., bicycle riding) without recalling how he/she learned it, or an adult who has an affective reaction to an event without understanding the basis for that reaction (e.g., a combat veteran who panics when he hears the sound of a helicopter, but cannot remember that he was in a helicopter crash which killed his best friend), are demonstrating implicit memories in the absence of explicit recall. This distinction between explicit and implicit memory is fundamental because they have been shown to be supported by different brain systems, and because their differentiation and identification may have important clinical implications.

Kristiansen (1996) noted that at least four bodies of research support the suggestion that nontraumatic events are encoded explicitly, while traumatic memories are processed implicitly. One such body of research indicates that survivors' amnesia is a result of the trauma associated with the abuse rather than childhood sexual abuse per se. Briere and Conte (1993), for example, found that age of onset of abuse, abuse frequency and duration, number of perpetrators, occurrence of penetration, and use of physical force discriminated participants who reported recovered memories of abuse from participants who had always remembered their abuse.

Another body of research has demonstrated that both war veterans with PTSD and girls known to have been sexually abused have what appears to be chronically elevated levels of stress hormones (e.g., norepinephrine) and lower levels of antistress hormones (e.g., cortisol, serotonin). Interestingly, neuroscientific research with chronically stressed animals and people indicates that these neurochemical changes interfere with the functioning of the brain structures underlying explicit information processing, such as the hippocampus (for reviews see Bremner, Krystal, Southwick & Charney, 1995; Hovdestad &

Kristiansen, 1996; van der Kolk, 1996). Further, using magnetic resonance imaging, several independent laboratories have reported that war veterans with PTSD and sexual abuse survivors have a smaller hippocampus than nontraumatized people (Bremner et al., 1995; Gurvitz, Shenton & Pitman, 1995; van der Kolk, 1996). Thus, because trauma impedes the explicit memory system, during trauma only disjointed implicit information (i.e., sensory and emotional) is encoded into memory.

Given that trauma affects the encoding of traumatic material, it is not surprising that it also affects the way traumatic memories return. Using positron emission tomography (PET) scans of brain activity, a recent study (Rauch et al., 1996) of people with PTSD found that, relative to the retrieval of nontraumatic memory, the induced retrieval of traumatic memory was associated with reduced activity in Broca's area of the left hemisphere, a part of the brain central to language and speech. The return of traumatic memory was also associated with increased activity in the areas of the right hemisphere, thought to process visual images, as well as in the amygdala, which processes intense emotions. Rauch et al.'s study, then, provides direct evidence for the nonverbal, sensory and emotional nature of traumatic memories.

Several studies examining the phenomenological characteristics of people's traumatic memories also speak to the sensory and emotional nature of traumatic memories. Van der Kolk and Fisler (1995), for example, examined the memory processes of 46 men and women who experienced various types of trauma (e.g., war veterans, political prisoners, child abuse survivors) at three points in time: Initially (when the memory was first recalled), peak (when the memory was most bothersome to the respondent), and currently (at the time of testing). None of these participants said their memories returned as complete verbal narratives. To the contrary, they all initially recalled their trauma as intense, involuntary relivings of their visual, tactile,

olfactory, auditory, and emotional experiences. Eventually, over time, these sensory experiences were constructed into a narrative account of the trauma. They further said that none of these qualities applied to their memories for nontraumatic but personally salient events, such as a wedding or graduation.

Another study that speaks to the importance of sensory information in traumatic memory is Cameron's (1996) nine-year longitudinal study of 34 women who reported childhood sexual abuse. She found that women who were amnesic for their sexual abuse were twice as likely to report sensory memories of smell and touch than women with continuous memories of abuse. Relative to women with continuous memories, amnesics were also more likely to report memories returning as fragments, gradually making sense over time, rather than as complete narratives.

Kristiansen, Felton and Hovdestad (1997) report similar results in the Ottawa Survivors' Study where women's recovered memories of childhood sexual abuse were often experienced implicitly as body memories, flashbacks, and sudden intense emotions. These women also said their memories returned in fragments, gradually over time, rather than as complete narratives.

Similarly, Elliott and Briere (1995) examined the recovered memories of a stratified random sample of 505 participants in the general population. Twenty-three percent of the total sample reported a history of childhood sexual abuse, of whom 42% had at one time forgotten some aspects of their abuse. Elliott and Briere also observed that more recently recovered memories were associated with more intrusive symptomatology (e.g., flashbacks, nightmares, and intrusive thoughts), leading them to suggest that the intrusive symptoms are the memories themselves rather than the consequences of recovering the memories of abuse.

Finally, Roe and Schwartz (1996) conducted a study with 52 women in an inpatient program for sexual trauma. A full 76.9% of these women

indicated a period of time when they were amnesic for their sexual abuse. Sixty percent of the women with recovered memories described their first memories of abuse as flashbacks. These women also indicated that their first memories were vivid and clear and the majority (63%) claimed that their memories became more vivid over time. Roe and Schwartz concluded that the results from their study were consistent with the formulation that memory for trauma is manifested in an implicit behavioral memory system (e.g., as flashbacks) rather than an explicit narrative memory system, and that narrative memory for trauma often develops progressively over time.

In summary, consistent with the explicit-implicit distinction, traumatic memories are often experienced implicitly as intense sensory, emotional, and behavioural relivings of the trauma. Moreover, integrating these findings documenting the nature of traumatic memory with those derived from studies of reality monitoring suggests that traumatic memories are much more intense and more strongly characterized by decontextualized sensory and emotional relivings, whereas real memories and imaginings of nontraumatic events are relatively rich in contextual information and have more moderate amounts of sensory and emotional information (e.g., Suengas & Johnson, 1988).

In Figure 1, taken from Kristiansen (1996), the findings regarding the characteristics of traumatic memories are superimposed on those reported by Suengas and Johnson (1988). This figure illustrates how both real and imagined nontraumatic memories appear to be substantially different from traumatic memories, and how the experiential differences between people's traumatic memories and their memories for real or imagined nontraumatic events are totally in keeping with the suggestion that the dissociation of explicit from implicit memory processes underlies traumatic amnesia. More importantly, and

Figure 1

Subjective Qualities of Nontraumatic and Traumatic Memories

contrary to the claims of false memory advocates (e.g., Ceci et al., 1994; Lindsay & Read, 1994; Loftus, 1993), these findings suggest that people would be unlikely to mistake their explicit imaginings for implicit recovered memories of trauma. Indeed, drawing on their clinical practice and a review of the trauma literature, Person and Klar (1994) propose that real trauma can be differentiated from fantasized trauma based on how the memories are manifested. Specifically, Person and Klar suggest that trauma is more likely to be expressed implicitly, whereas fantasy is primarily encoded explicitly and expressed verbally.

Imagined versus Recovered Memories

Based on this brief review, it appears that both recovered memory and false memory proponents have a firm empirical basis for their stance in the recovered memory debate. Further, each side has reasonable grounds for challenging the validity of the opposing side's findings. False memory advocates, for example, appropriately question the internal validity of clinical and nonexperimental research (Belli & Loftus, 1994; Ganaway, 1989, 1995; Lindsay & Read, 1994), as well as the validity of people's self-reports. Ethical concerns, however, preclude experimental efforts to examine the longitudinal, causal effects of child abuse on memory. On the other hand, a frequent challenge to research claiming that false memories can easily be implanted concerns its external validity, that is, whether people would be as likely to adopt false memories of traumatic events as they are to adopt false memories of nontraumatic events (Berliner & Williams, 1994; Kristiansen, 1996; Pezdek, 1994; Pope & Brown, 1996). Once again, however, ethical concerns prevent a direct test of this hypothesis.

While ethical constraints prohibit any direct tests of false and recovered memory claims, comparing the experiential characteristics of people's memories for real as opposed to imagined trauma and nontrauma may indicate how likely people are to confuse their traumatic imaginings for memories of real traumatic events. If the experiential difference

between people's traumatic memories and their traumatic imaginings is no bigger than the difference between people's nontraumatic memories and their nontraumatic imaginings, the data would support false memory advocates who claim that fantasies of abuse can be readily mistaken for reality. If, on the other hand, the difference between people's traumatic memories and their traumatic imaginings is greater than the difference between people's nontraumatic memories and their nontraumatic imaginings, the data would support recovered memories advocates who claim that people are less likely to confuse their imaginings of trauma for memories of real trauma than they are to confuse their imaginings of nontraumatic events for real memories of nontraumatic events. Given that no one has yet compared the phenomenological characteristics of people's traumatic and nontraumatic memories with traumatic and nontraumatic imaginings, the present research was designed to do so.

Individual Differences

A number of researchers suggest that various personality attributes may affect people's experiences of their memories and imaginings and thereby contribute to the creation of false memories. These attributes include individual differences in dissociation, fantasy-proneness and hypnotizability, characteristics that are often highly inter-correlated (Ganaway, 1989, 1995; Rauschenberger & Lynn, 1995).

In a replication of Hyman and Pentland's (1996) "spilled punchbowl" study, for example, Hyman and Billings (in press) found that 27% of 66 university students accepted a false event as a real childhood memory, after it was repeatedly suggested. Forty-eight of these students completed measures of their hypnotizability and the vividness of their mental imagery using Wilson and Barber's (1978) Creative Imagination Scale (CIS). Students' tendency to have dissociative experiences, or the "lack of the normal integration of thoughts, feelings, and experiences into the stream of consciousness and memory"

(Bernstein & Putnam, 1986, p. 727) was also measured, using Bernstein and Putnam's (1986) Dissociative Experiences Scale (DES). Finally, the tendency to become intensely involved in a thought, experience, or object was measured using Tellegen and Atkinson's (1974) Absorption Scale (TAS), and the tendency to respond in a socially desirable way was assessed using Crowne and Marlowe's (1960, 1964) Social Desirability Scale (SDS).

Hyman and Billings found both the DES ($r = .42$) and CIS ($r = .36$), but neither the TAS ($r = .23$) nor the SDS ($r = -.14$), to be significantly and positively related to the creation of false memories. That is, people with high scores on the DES and the CIS were more likely to develop false memories. Hyman and Billings also observed that participants who discussed relevant self-knowledge during the first interview were more likely to create a false memory by the second interview. Hyman and Billings (in press, p. 19) therefore concluded that "The DES association to memory creation suggests that people with dissociative tendencies may be more accustomed to integrating external information to their self-concept and may use less stringent standards of reality monitoring."

Importantly, Hyman and Billings (in press, p. 19) also noted that, "This association is troubling given that high scores on the DES are indicative of Dissociative Identity Disorder...If people with dissociative tendencies are more suggestible, then deciding if their recovered memories and discovered personalities are real or creations becomes increasingly important." Coons (1994), for example, examined the reports of ritual abuse by 29 patients in a Dissociative Disorders Clinic. Despite his attempts, Coons was unable to obtain a single instance of verification for the allegations of ritual abuse. Coons concluded that there was still no convincing evidence that reports of ritual abuse are valid, and further suggested that such memories could easily be "accounted for by a variety of phenomenon, including

suggestion, social contagion, hypnosis, misdiagnosis, and the misapplication of hypnosis, dreamwork, or regressive therapies" (p. 1377).

On the other hand, research also suggests that both dissociation (Chu & Dill, 1990; Herman, 1992a; Putnam, 1985, 1997) and fantasy-proneness (Bryant, 1995) are more common among people who have experienced trauma during childhood. Thus, it is possible that Coons' clients had been abused, but that their claims of ritual abuse were exaggerated. This conclusion receives some support from Koppenhaver, Kumar and Pekala (1996) who measured dissociation in a group of 200 university students. The participants were given a reality monitoring task using eighteen slides of common objects (e.g., car, keys, fruit). Relative to low and medium dissociators, high dissociators were no more likely to make errors in estimating the presentation frequencies of the objects. Koppenhaver et al. therefore concluded that high dissociators may not be as prone to making reality monitoring errors as other research suggests.

In summary, research indicates that some people, such as those with dissociative and fantasy-prone tendencies, are more likely to be susceptible to suggestion and confabulation. Dissociation was chosen for consideration in the present study because previous research has found dissociation in populations of childhood sexual abuse survivors (e.g., Chu & Dill, 1990; Putnam, 1985, 1997). Because individuals who score highly on measures of dissociation may be more likely to create false memories, it is hypothesized that, relative to less dissociative people, more dissociative people will experience their real memories and their imaginings as phenomenologically more similar.

Summary

In conclusion, research suggests that traumatic memories may be qualitatively different from nontraumatic memories. As yet, there have been no studies comparing the nature of people's real memories with

their imaginings of traumatic and nontraumatic events. Therefore, the present study was designed to examine the phenomenological characteristics of real and imagined traumatic and nontraumatic childhood events in a group of women with self-reported histories of childhood sexual abuse. The moderating effects of individual differences in dissociation on the phenomenological characteristics of people's memories and imaginings was also examined.

Method

Participants

Eighty-four adult women with self-reported histories of childhood sexual abuse participated in this study. The participants were recruited using university and community notices, networking among therapists and the women's community, and media appeals for women who experienced childhood sexual abuse to participate in a "Survivors' Study." The notices read: "We are looking for female survivors of child sexual abuse to participate in a 2-3 hour questionnaire survey of your abuse and other life experiences, your coping processes, and your perceptions of yourself, other people, and life events. Confidentiality assured."

At first contact, the women were told that their participation would involve completing a questionnaire concerning the nature of their memories for their abuse and other childhood events. They were also explicitly told that some of the questions ask about traumatic childhood experiences and that the study might be upsetting for some women. Potential respondents who continued to express interest were then asked whether they were currently engaging in any self-harmful actions or feeling suicidal. The sole woman who responded affirmatively was asked to wait until she was more grounded before participating in this or another study. Women who were currently engaged in therapy were encouraged to speak with their therapist prior to deciding to participate. For women who agreed to participate and satisfied the

eligibility requirements, arrangements were made to meet with a trained researcher.

The researchers took part in two training sessions prior to administering any questionnaires. In the first training session, researchers were taught their role as researchers (e.g., informed consent, questionnaire administration, and debriefing procedures). An open discussion also allowed the researchers to ask questions and plan responses to potential problems. The second training session was conducted by a clinician experienced with sexual abuse issues who taught the researchers how to provide a safe and supportive setting for the participants and grounding techniques to help any women who became distressed or dissociated.

Procedure

The trained researchers began by reiterating the nature of the study and receiving participants' informed consent. Informed consent forms, shown in Appendix A, reminded participants of the potential of the study to upset some women, that they were free to withdraw from the study at any time, and that all information would remain confidential. The women then completed a booklet containing the materials for the present study, as well as questionnaires for two other studies. The presentation order for these materials was randomized, and the package required approximately two to three hours of the participants' time. Rest periods were provided on an as needed basis.

Questionnaire booklet. After completing measures of their demographic characteristics (e.g., age, education, income), participants completed a slightly modified version of Demare's (1995) Childhood Maltreatment Questionnaire (CMQ; see Appendix B). In the CMQ, the women used scales ranging from Never (1) to Very Often (5) to rate how often they experienced each of the 50 types of psychological abuse (e.g., controlling, degrading, witnessing violence), 15 types of physical abuse (moderate and severe) and 20 types of sexual abuse (sexual harassment,

noncontact and contact) by a parental figure or caretaker. Respondents also rated the frequency of their exposure to 20 types of sexual abuse by a nonparental figure. Demare (1995) reported these measures to be internally consistent with alpha coefficients ranging from .72 to .96 across the various subscales. Demare also reported that the CMQ correlated with university students' scores on Briere's (1995) Trauma Symptom Inventory. In the present study, and in the interest of brevity, the CMQ was modified by deleting 22 relatively redundant items from the psychological maltreatment subscale (PMQ), one item from the physical abuse subscale (PAQ), and two items from both the parental and nonparental versions of the sexual abuse subscales (SAQ). Participants were also asked about the nature of their abuse (e.g., whether it involved penetration), the frequency of their abuse, the number of perpetrators, and their age at the onset and offset of their abuse.

The continuity of participants' memories of their childhood sexual abuse was assessed by having the women indicate which of the following five descriptions best characterized their memories: "I have always remembered all or virtually all of my experiences of childhood sexual abuse" (continuous memory only); "There was a time when I was totally unaware of my experiences of childhood sexual abuse, to the point that even if I had been directly asked about it, I would have not remembered. Since then, however, I have recovered some memories of my experiences of childhood sexual abuse" (recovered memories only); and "I have always remembered parts or some aspects of my experiences of childhood sexual abuse but I have also a number of memories that I previously was unaware of" (continuous and recovered memories). The two additional response options read: "I have no real memories of being sexually abused as a child, but I have evidence that it occurred"; and "I have no real memories of being sexually abused as a child, but I have good reason to suspect that it occurred." The data of the two women who responded

affirmatively to one of the latter two items were eliminated, limiting the analyses to the data to 82 women.

Participants were also asked if they had ever had any form of therapy and, if so, for how long. Because women's current stage of recovery from the aftereffects of abuse may influence their experiences of their memories and imaginings, one section of the questionnaire measured participants' recovery level. Recovery has been conceptualized as a process in which a trauma survivor cycles and spirals through three stages, with gradual progress over time (Herman, 1992b). Although recovery from the trauma of child abuse is not a simple linear progression, "it should be possible to recognize a gradual shift from unpredictable danger to reliable safety, from dissociated trauma to acknowledged memory, and from stigmatized isolation to restored social connection" (Herman, 1992b, p. 155). Thus, according to Herman (1992b), the first stage of recovery involves the establishment of safety and trust, the second concerns remembering and mourning the trauma, and the third stage concerns re-establishing social connections. These three stages of trauma were operationalized by four 7-point questions where participants' rated the extent to which they had acquired safety and trust, recalled and mourned their losses, and reconnected with life (see Appendix B).

Finally, the women completed the Dissociative Experiences Scale II (DES; Bernstein & Putnam, 1986; Carlson & Putnam, 1993; Putnam, 1997), a self-report instrument designed to assess normal dissociative experiences and possible dissociative pathology. Using the DES, participants indicated the percentage of time that they had each of 28 dissociative experiences (e.g., staring off into space, talking to yourself, forgetting things you've done; see Appendix B). Bernstein and Putnam (1986) report good test-retest stability over a four to eight-week interval ($r = .84$) and that the DES was internally consistent for a variety of clinical and nonclinical groups (median Spearman rank item-

total $r = .64$). The DES also demonstrates good to excellent criterion-related validity in that the DES is not only able to distinguish individuals with dissociative disorders from all other individuals it can also differentiate between disorders with more (e.g., multiple personality disorder) and less (e.g., PTSD) dissociative content. Carlson and Putnam (1992) also report that the DES correlates well with other measures of dissociation. Two studies, for example, report the Pearson correlation between the DES and the Perceptual Alteration Scale (a not-yet validated dissociation scale) was .52 and .82, demonstrating good convergent validity (as reported in Carlson & Putnam, 1993).

Memory and imaginings tasks. In the memory and imaginings section of the study, participants were asked to describe the characteristics of their memories and imaginings of four events: a real and an imagined nontraumatic childhood event, and a real and an imagined traumatic childhood event. The real traumatic event involved a self-selected instance of the respondents' own sexual abuse, while the imagined traumatic event depicted a sniper entering the participants' kindergarten class. Participants' self-generated the real nontraumatic childhood event, while the imagined nontraumatic event involved spilling a punch bowl at a wedding reception. These events were selected on the basis of a pilot study which showed that a sample of female university students regarded the sniper scenario and a scenario depicting childhood sexual abuse as both equally traumatic and more traumatic than the punch bowl scenario (see Appendix D).

Prior to presenting the target scenarios, participants completed two practice trials in which they described the characteristics of their imaginings for a nontraumatic and a traumatic childhood event, as determined by the pilot study. These practice tasks, which were presented in random order, were designed to ensure that participants understood the nature of the tasks and, importantly, to familiarize them with the scale metric so as to avoid ceiling or floor effects. For the

practice imagined nontraumatic scenario, participants were asked to imagine themselves as a five year old child losing their favourite magazine: "If possible, try to imagine yourself in the following situation. When you were five years old, you had a magazine that you really wanted to bring to show-and-tell at school. Your mother told you not to take magazines out of the house because you always lost them, but you decided to take the magazine anyway. As you were about to enter the school, you realized that you had lost the magazine, so you started to retrace your steps to try to find it. You then heard the school bell ring and ran home crying because you were late for school."

For the **practice imagined traumatic scenario**, the women were asked to imagine themselves being kidnapped: "When you were five years old, you were riding a school bus with your classmates. The bus slowed down as it approached a broken-down van. A masked gunman jumped onto the bus and ordered the driver to drive down an isolated country road. When the bus stopped the man ordered all of you off the bus and then he locked everyone in an underground dirt cellar. You were all there for hours, cold, tired and hungry. Many of the children were crying" (Adapted from Terr, 1990).

After completing the practice trials and ensuring that the women understood the task, the women were presented with the target tasks, in randomized orders. For the **real nontraumatic** childhood memory, participants were asked to recall a salient event that was negative or upsetting but not overwhelming or traumatic. Specifically, they were asked "If possible, try to remember an upsetting event that you experienced as a child. By upsetting, we mean an experience that was negative or disturbing but NOT traumatic or totally overwhelming. Try to remember this event with as much detail as you can and try to remember what it was like to be in that particular situation." To avoid imposing a nonsalient event, the women were asked to self-select the real nontraumatic event.

In the **imagined nontraumatic** scenario, participants were asked to imagine themselves spilling a punch bowl at a wedding reception. Specifically, they were asked "If possible, try to imagine yourself in the following situation. *When you were 5 years old, you were at a wedding reception of some friends of the family. You were running around with some other kids when you bumped into the table holding the punch bowl and spilled the punch bowl on the parents of the bride. Try to picture this event with as much detail as you can. Try to imagine what it would be like to be in this particular situation.*" The description in italics was taken verbatim from Hyman and Pentland's (1996, p. 105) study in order to replicate their procedure.

In the **imagined traumatic** scenario, participants were asked to imagine that "One day when you were at kindergarten, the classroom door banged open and a man holding a gun started shooting. The kids screamed and some of them hid under their desks. At the sight of your friend's blood, you hid under your desk until the shooting was over. Try to picture this event with as much detail as you can. Try to imagine what it would be like to be in this particular situation."

Finally, to assess the qualitative characteristics of women's memories for a **real traumatic** event, respondents were asked to describe the nature of their memories of the sexual abuse they experienced as children. Participants with exclusively continuous or exclusively recovered memories completed this task once. Participants with both continuous and recovered memories completed this task twice, once for an incident associated with each type of memory. Specifically, women with recovered memories were asked "If possible, try to think about one particular time you were sexually abused as a child, an experience that at one time you forgot but then later remembered. That is, one of your recovered memories of childhood sexual abuse. Try to remember what the recovery of this particular memory was like. That is, do not describe your memory of this event NOW, but rather what it was like when it FIRST

returned to you." Respondents with continuous memories were asked "If possible, try to think about one particular time you were sexually abused as a child, an experience that you never forgot. Try to remember this instance of abuse with as much detail as you can and try to remember what it was like to be in that particular situation."

After each memory or imagining task, the women completed the 21 item Memories and Imaginings Questionnaire (MIQ) shown in Appendix C, to rate the phenomenological characteristics of their memories and imaginings. The majority of these questions came from Johnson et al.'s (1988) Memory Characteristics Questionnaire and other items were derived from the qualities of memories examined by van der Kolk and Fisler (1995). An additional three items were embedded in the MIQ as a check for the effectiveness of the manipulation of the nontraumatic and traumatic content of women's memories and imaginings. These items, which were derived from the Diagnostical and Statistical Manual of Mental Disorders' (DSM-IV; American Psychiatric Association, 1994, p. 424) description of the traumatic antecedents of Posttraumatic Stress Disorder, required participants' to rate the extent to which their memories or imaginings contained intense fear, intense helplessness, and intense horror.

After completing the MIQ, respondents also provided written descriptions of the events involved in their real nontraumatic and traumatic memories. Women who said they had experienced something similar to the imagined events (punch bowl and sniper) also provided brief written accounts of these events.

Finally, to assess whether there were any demand characteristics that might provide alternative explanations for any findings, the respondents were asked to explain their ideas about the purpose of the study and what the researchers expected to find.

Participants were then debriefed (see Appendix A), provided with a list of community resources, and told that they were welcome to contact

the researchers to obtain counselling if their participation caused them any distress. A qualified clinician had been contracted to offer such counselling services. At the time of writing, 2.5 months after the study, no participants requested such counselling.

Results

Preliminary Analyses

The initial analyses examined the sample's demographic characteristics, the internal consistency of the scales in the study, and the descriptive statistics for participants' scores on the conceptual variables of the study.

Sample characteristics. The 82 women were between the ages of 20 and 68 years ($M = 38.8$, $SD = 9.8$ years). Only ten participants belonged to visible minority groups; seven of the women were Native, two Middle Eastern, one was Asian, and the remaining women were Caucasian. Although some participants (12.2%) had not completed secondary education, the sample was generally well educated. The majority of the women (71.9%) completed post-secondary education, and the remaining women (15.9%) completed secondary education. With respect to employment, most women (70.7%) were employed either full- or part-time, and about one-quarter (25.7%) were either full- or part-time students. Approximately one-quarter (26.8%) identified themselves as homemakers, while others described themselves as on disability (18.3%), on social assistance (8.5%), unemployed (4.9%), or retired (3.7%). The mean annual family income reported by participants was between \$35,000 and \$44,999, but the modal income was under \$15,000. Reported family incomes ranged from under \$15,000 per year (21.0%) to \$75,000 or more (8.6%).

More than half (61.0%) of the women were mothers, and the average number of children per mother was 2.2. Almost half of the women (46.3%) reported that they were either married or living with a partner, while

just over a third (35.8%) reported that they were single. The remainder of the women were divorced (11.0%), separated (4.9%), or widowed (1.2%).

Overall, then, the sample was largely composed of white Caucasian women with at least some post-secondary education who were currently engaged in a variety of occupations at a variety of income levels.

Nature of abuse. On average, these 82 women reported being sexually abused for 8.3 years ($SD = 4.4$; range = before age 1 to 17 years), beginning at the age of 5.5 years ($SD = 3.1$, range = 1 to 15 years) and ending by the age of 13.9 ($SD = 3.2$, range = 4.5 to 18 years). Their sexual abuse typically occurred "many to countless times" ($M = 2.44$, $SD = 0.70$ along a 0-3 scale) and was committed by an average of 4.6 perpetrators per woman ($SD = 4.7$, range = 1 to 30). As shown in Table 1 in Appendix E, which presents the frequencies for participants' relationships to their perpetrators, the vast majority of abusers were male (92.5%).

Item analyses, shown in Table 2, revealed that all of the subscales of Demare's (1995) Childhood Maltreatment Questionnaire (CMQ) were internally consistent (α s = .77 to .97). Given this, participants' CMQ subscale scores were based on the mean of their responses across items, resulting in higher scores indicating more of the abuse in question. The descriptive statistics for the CMQ subscales, displayed in Table 2, revealed that these women sometimes experienced psychological abuse ($M = 3.0$, $SD = 0.9$), rarely experienced physical abuse ($M = 1.9$, $SD = 1.0$), rarely experienced sexual abuse by a parental figure ($M = 2.2$, $SD = 1.2$) and sometimes experienced sexual abuse by nonparental figures ($M = 2.8$, $SD = 0.91$).

Therapy, recovery, and memory. In total, 91.5% ($n = 75$) of the women had attended some form of therapy, on average for 5.6 years ($SD = 5.3$, range = 0.04 to 25 years). These women were also preoccupied with reconnecting with life ($M = 5.1$, $SD = 1.7$) and rarely experienced safety issues ($M = 1.9$, $SD = 1.6$). Consistent with the spiralling nature of

recovery (Herman, 1992b), they nevertheless continued to report moderate difficulties with trust ($M = 3.5$, $SD = 1.8$), and remembering and mourning childhood losses ($M = 3.2$, $SD = 1.7$).

In response to the questions assessing the continuity of women's memories of their childhood sexual abuse experiences, 43.9% ($n = 36$) reported exclusively continuous memories, 23.2% ($n = 19$) reported exclusively recovered memories, and the remaining 32.9% ($n = 27$) reported a mixture of both types of memories. Among the 56.1% ($n = 46$) of the women who reported having recovered memories, only 8.7% ($n = 4$) said they first recovered their memory in a therapy session, 19.6% ($n = 9$) said they recovered their first memory while they were in therapy but not during a session, and 71.7% ($n = 33$) said they recovered their memories independent of any therapy. On average, these women were 25.4 years old when they recovered their memories ($SD = 12.5$, range = 6 to 60 years).

Main Analyses

The main analyses examined the structure of respondents' memories and imaginings, compared participants' phenomenological experiences of their memories and imaginings of the nontraumatic and traumatic scenarios, assessed the role of demand characteristics, and examined the relations between women's experiences of their memories and imaginings and their abuse history, their dissociative tendencies and their recovery. Before conducting these analyses, however, participants' responses to the items designed to assess the manipulation of the traumatic nature of women's memories and imaginings, the content of their self-generated real events, and their experiences with events similar to their imaginings were examined.

Manipulation check. Item analyses indicated that the three MIQ items assessing the extent to which women's memories and imaginings evoked intense fear, helplessness, and horror were internally consistent (α s = .78 to .95; see Table 3). The mean of women's responses to

these items was therefore calculated as an index of the traumatic impact of women's memories and imaginings.

To assess the effectiveness of the manipulation of the nontraumatic and traumatic content of women's memories and imaginings, a three-way task (real vs. imagined) by event (nontraumatic vs. traumatic) by memory (recovered vs. continuous) analysis of variance (ANOVA) was conducted on women's traumatic impact scores. The first two variables in this analysis, task and event, were within-subjects factors, while the last, memory status, was a between-subjects factor. In this analysis, then, the traumatic impact scores for 36 women with continuous memories were compared with those of the 19 women with recovered memories. Note that, because the homogeneity of variance assumption was satisfied, this analysis should not be distorted by the disparate sample sizes. As shown in Table 4, this analysis revealed significant effects due to task, event, task by event, and task by memory. The main effect of task indicated that, consistent with Suengas and Johnson's (1988) findings, participants experienced their real memories ($M = 4.4$, $SD = 1.5$) as more traumatic than their imaginings ($M = 3.9$, $SD = 1.9$). Importantly, the main effect of event stemmed from the fact that, as intended, respondents' experienced their memories and imaginings of the traumatic events ($M = 4.7$, $SD = 1.6$) as more traumatic than their nontraumatic memories and imaginings ($M = 3.6$, $SD = 1.6$).

Both of the main effects were qualified by the significant task by event interaction. To understand the basis of this interaction, simple effects analyses were conducted to examine the effect of task within each level of event. The simple effect of task within traumatic memories revealed that participants' real traumatic memories ($M = 5.2$, $SD = 2.0$) were significantly more traumatic than their traumatic imaginings ($M = 4.2$, $SD = 2.3$), $F(1,50) = 11.70$, $p < .01$. By comparison, the simple effect of task within nontraumatic memories revealed that women's real nontraumatic memories ($M = 3.6$, $SD = 1.7$)

were as nontraumatic as their nontraumatic imaginings ($M = 3.6$, $SD = 2.1$), $F(1,50) = 0.05$, *ns*. These results, then, suggest that these women may have had difficulty imagining an event as traumatizing as their traumatic experiences of child abuse.

To parcel out the effects underlying the task by memory interaction, the simple effects of task were examined within each level of memory. Among the women with continuous memories, the simple effect of task was nonsignificant, $F(1,50) = 0.31$, *ns*. Thus, respondents with continuous memories for their abuse experienced their memories ($M = 4.2$, $SD = 1.5$) and imaginings ($M = 4.2$, $SD = 1.7$) as equally traumatic. Participants with recovered memories, on the other hand, described their real memories ($M = 4.7$, $SD = 1.4$) as significantly more traumatic than their imaginings ($M = 3.2$, $SD = 2.2$), $F(1,50) = 12.78$, $p < .01$. Thus it appears that it was the women with recovered memories who had the most difficulty imagining traumatization.

The traumatic impact of the scenarios was next assessed as a within- rather than between-subjects variable for the 27 women who reported having both continuous and recovered memories of their abuse. A one-way within-subjects ANOVA revealed significant differences in these women's ratings of the traumatic impact for the five scenarios, *Pillai's Trace* = .378, $F(4,23) = 3.49$, $p < .05$. Four planned comparisons were conducted to identify the source of these effects, using a Bonferroni corrected alpha of .0378 to control the Type I error rate. The first planned comparison indicated that women's real nontraumatic memories had as much traumatic impact ($M = 4.0$, $SD = 2.0$) as their nontraumatic imaginings ($M = 3.2$, $SD = 1.9$), $F(1,26) = 2.68$, *ns*. Surprisingly, however, the second planned comparison indicated that these women experienced their recovered memories of abuse ($M = 5.0$, $SD = 1.9$) as no more traumatic than their memories of their real nontraumatic experiences, $F(1,26) = 3.41$, *ns*.

Finally, the third and fourth planned comparisons showed that these women experienced their recovered memories of child abuse ($M = 5.0$, $SD = 1.9$) as more traumatic than their nontraumatic punch bowl imaginings ($M = 3.2$, $SD = 1.9$), $F(1,26) = 14.21$, $p < .001$, but not their traumatic sniper imaginings ($M = 3.8$, $SD = 2.3$), $F(1,26) = 3.76$, ns .

Overall, these results indicated that the manipulation of the traumatic and nontraumatic content of women's memories and imaginings was effective. In addition, the results of these two independent ANOVAs suggest that, contrary to the assumptions underlying the research of some false memory advocates (i.e., Loftus & Pickrell, 1995; Hyman & Billings, in press), participants' imaginings of spilling a punch bowl were experienced as significantly less traumatic than their real memories of child abuse. Further, rather than being predisposed to imaginative processes, it was the women with recovered memories who had the most difficulty imagining the feelings of fear, helplessness and horror associated with the imagined traumatic event.

Content of women's memories and imaginings. A content analysis of respondents' descriptions of the real nontraumatic, but upsetting, events they recalled failed to identify any particular themes. Rather, these events were diverse and included being teased, forms of child mischief, reactions to moving, seeing a friend hit by a car, and being frightened while away from home. On average, the women were 8.3 years old ($SD = 2.9$, range = 2 to 17 years) at the time of their real nontraumatic experiences.

In regard to participants' real traumatic experiences, the women with recovered memories were, on average, 7.0 years old ($SD = 3.9$, range = 1 to 16 years) and the women with continuous memories were, on average, 9.5 years old ($SD = 3.5$, range = 4 to 17) when the instance of sexual abuse that they recalled occurred, $t(1,24) = -2.12$, $p < .05$.

When asked if they had ever experienced something similar to the event depicted in the nontraumatic punch bowl scenario, 41.5% ($n = 34$)

of the women responded affirmatively. However, when two independent raters examined these women's written descriptions of these events, only 2.4% ($n = 2$) of the women appear to have actually experienced something similar to the depicted event.³ One event that was judged dissimilar was described as follows: "I was babysitting my sisters (4). My mom and Edward came home; they brought company along (my mom's sister and husband); the dishes were not done; but we were in the middle of doing them. My mom expected them to be done and the house clean and my sisters neat. Well they weren't so she beat me in front of everyone then made me finish the dishes. I made coffee and tea for them." An example of an event that was deemed similar to spilling a punch bowl read: "I was at my aunt's wedding with my family. My brothers and sisters and I were running around even though mother told us not to. I tripped over a grownup's foot and knocked his beer onto another one of my aunts who was wearing a pretty sea green dress. The man I tripped over yelled at me and my aunt yelled at me and my mom yelled at me. I had to sit down next to my mom the rest of the afternoon. I cried because everyone had yelled at me and I wasn't allowed any of the candy or pop that anyone else got to eat. I remember too that I was mad at my brothers and sisters because nothing happened to them and they had been running around just the same as me." On average, the women who recalled the two events deemed similar were 6.5 years old ($SD = 0.7$) at the time.

One-fifth (22%, $n = 18$) of the women said they had experienced something subjectively similar to the sniper attack. However, only 7.3% ($n = 6$) of these events were deemed similar by two independent raters. One dissimilar event, for example, read: "I was a majorette and we were practising in the driveway and the song was 76 Trombones and as we did our turn, the little girl ran across the street and was run over by the car and flew out the back of the car and her father was lying in the street smashing his fists in the pavement and her blood was running all the way down the street into the sewer." An example of an event that

was accepted as similar to the sniper scenario read: "Step-father's brother tried to shoot him. As a result he shot up our house from all sides. My mother crammed as many kids as she could into the bathtub then the rest of us lie on the floor next to the bathtub. The shooting went on for about 1 hour." On average, these six women were 17.0 years old ($SD = 8.3$, range = 9 to 28) when the events judged similar to the sniper attack occurred.

In sum, consistent with other research (e.g., Briere & Conte, 1993), these women were younger at the time of the instance of sexual abuse for which they had recovered, rather than continuous, memories. While participants' real nontraumatic memories and their experiences of events similar to the nontraumatic punch bowl imagining both occurred at about the same age as their sexual abuse, respondents who had experienced an event comparable to the classroom sniper were considerably older at the time. Given Johnson et al.'s (1988) findings that failures in reality monitoring are more likely for remote childhood events than for recent events, one might expect the relative recency of these women's similar traumatic experiences to result in more vivid and clearer imaginings. If so, this would make it more difficult to find evidence for the hypothesized task by event interaction, where larger differences are expected to be found between the characteristics of participants' traumatic memories and imaginings than their nontraumatic memories and imaginings.

Finally, the finding that more women claimed to have experienced an event comparable to that depicted in the punch bowl scenario than in the sniper scenario suggests that more people can relate to nontraumatic events like spilling a punch bowl than to traumatic events such as a sniper attack. This finding is consistent with the results of the pilot study that indicated that such nontraumatic events are both more common and easier to imagine than either childhood sexual abuse or a sniper attack. Once again, then, these results question the wisdom of studying

people's nontraumatic imaginings if the intent is to understand their imaginings of trauma.

Structure of memories and imaginings. Principal components analyses were conducted on the 19 MIQ items, separately for each of the five scenarios, for the purposes of both data reduction and to examine the nature of women's experiences of their memories and imaginings. As shown in Table 5, the number of factors with eigenvalues greater than 1.00 varied from four to six across the five events. Further, both varimax and oblique rotations revealed that as many as 10 of the 19 items were complex in that they loaded more than .40 on more than one factor.

Given this difficulty in achieving a simple factor solution, factors were determined on the basis of empirical and theoretical grounds. Following Suengas and Johnson's (1988) empirical procedure, factors were based on those items that loaded most consistently across the factor analyses of all five events, as shown in Table 6. The retention of these items was then determined on theoretical grounds, Suengas and Johnson (1988) findings and their discussion of memories and imaginings, and the findings and interpretations concerning the nature of traumatic and nontraumatic memory (e.g., Kristiansen, 1996, van der Kolk & Fisler, 1995). These procedures suggested that five comparable factors underlay participants' memories and imaginings, namely, (1) a Clarity factor (clarity, vividness, visual detail, and event detail), (2) a Sensory factor (smell and taste), (3) a Spatial factor (spatial arrangement of people and objects, and location), (4) a Temporal factor (awareness of events that took place before and after the event, and when the event took place), and (5) a Reliving factor (feeling emotions, body feelings, like reliving the event). Item analyses, shown in Table 7, revealed that scales based on these factors were generally internally consistent, as indicated by their mean inter-item correlations and alpha

coefficients. Given this, factor scores were derived from the mean of women's responses across the relevant items.

Finally, as displayed in Table 8, women's MIQ scale scores were at least moderately intercorrelated. This appeared to be particularly true of women's imaginings of the punch bowl and sniper scenarios (M intercorrelations = .491 and .485, respectively) relative to women's continuous and recovered memories of childhood sexual abuse (M intercorrelations = .315 and .326, respectively). However, it is conceivable that these differences are simply a statistical artifact of the fact that the magnitude of these intercorrelations varied systematically with the sample sizes (see Table 8). Thus, these findings provide at best suggestive evidence for the claim that traumatic memories are less well integrated than nontraumatic memories and nontraumatic and traumatic imaginings (Kristiansen, 1996; Person & Klar, 1994; van der Kolk & Fisler, 1995).

Phenomenology of memories and imaginings. A three-way task (real vs. imagined) by event (nontraumatic vs. traumatic) by memory status (exclusively continuous vs. exclusively recovered memories of child abuse) MANOVA was performed on women's phenomenological factor scores. To aid in interpretation, the descriptive statistics for these participants' MIQ scale scores for each scenario are presented in Table 9. As shown in Table 10, and after ensuring that the homogeneity of variance assumption was met, this MANOVA revealed significant effects on MIQ scores due to task, event, task by event, and task by memory by event. Table 11 displays the descriptive statistics and univariate tests as a function of task. Consistent with Suengas and Johnson's (1988) findings, real events were given higher ratings than imagined events on all five MIQ scales. Table 12 also presents the descriptive statistics and univariate tests of the effects of event on MIQ scores, which showed that traumatic memories and imaginings had significantly more sensory information, while nontraumatic memories and imaginings

contained more temporal information. Finally, because the main effect of memory was nonsignificant, there were no differences in the way the women with continuous and recovered memories of abuse experienced their memories and imaginings.

Table 13 presents the results of the univariate tests of the two-way task by event interaction that revealed significant effects on participants' ratings of both sensory and reliving information. Table 14 presents the results of the simple effects analyses that examined the effects of task within each level of event. Although the simple multivariate effect of task (real vs. imagined) was significant and substantial within both levels of event (nontraumatic and traumatic), as predicted by trauma researchers the difference between the characteristics of participants' memories and imaginings was somewhat greater for traumatic ($Pillai's = .610$) than nontraumatic ($Pillai's = .472$) events. Further, simple univariate tests of task within nontraumatic events revealed that women's self-generated real nontraumatic memories were clearer and contained more spatial and temporal information ($M_s = 5.63, 5.99, \text{ and } 4.24$; $SD_s = 1.30, 1.42, 1.49$, respectively), but less reliving information, ($M = 5.21, SD = 1.55$), than their imaginings of the nontraumatic punch bowl scenario ($M_s = 5.21, 4.87, 4.24 \text{ and } 4.89$; $SD_s = 1.55, 1.88, 1.61, \text{ and } 1.50$, respectively). By comparison, the simple univariate tests of task within the traumatic events indicated that women's traumatic memories of sexual abuse contained more sensory, spatial, temporal, and reliving information ($M_s = 3.19, 5.97, 4.38, \text{ and } 5.35$; $SD_s = 2.29, 1.66, 1.91, \text{ and } 1.49$, respectively) than their traumatic imaginings of a sniper attack ($M_s = 1.94, 5.10, 3.05, \text{ and } 3.98$; $SD_s = 1.43, 1.65, 1.32, \text{ and } 1.83$, respectively). These findings suggest that, although they may be equally clear, traumatic memories have both more implicit (sensory, reliving) and more explicit (spatial, temporal) information than traumatic fantasies. They also generally support Person and Klar's

(1993) observation that traumatic memories have more implicit information than traumatic fantasies.

In order to compare the characteristics of women's nontraumatic and traumatic memories and the explicit-implicit distinction, the simple effects of event were also examined within each level of task. The simple multivariate effect of event was significant within each level of task (see Table 14). The simple effect of event within real memories revealed that, consistent with the claims of recovered memory advocates (e.g., Kristiansen, 1996, van der Kolk & Fisler, 1995), women's real traumatic memories of abuse contained more sensory ($M = 3.19$, $SD = 2.29$) and reliving information ($M = 5.35$; $SD = 1.49$), but less temporal information ($M = 4.38$, $SD = 1.91$), than their real nontraumatic memories (M s = 2.10, 4.89 and 4.70; SD s = 1.39, 1.50 and 1.49, respectively). In contrast, the simple effect of event within imaginings yielded only one effect: women's imaginings of the nontraumatic punch bowl scenario contained more temporal information ($M = 4.24$, $SD = 1.61$) than their traumatic imaginings of the sniper scenario ($M = 3.05$, $SD = 1.32$).

Table 15 presents the univariate tests associated with the last, albeit marginally significant ($p < .06$), multivariate effect, namely the three-way task by event by memory interaction. According to Tabachnick and Fidell (1989, p. 399),

In addition to potentially conflicting significance tests for multivariate F is the irritation of a nonsignificant multivariate F but a significant univariate F for one of the DVs. If the researcher measures only one DV--the right one--the effect is significant, but because more DVs are measured, it is not. Why doesn't MANOVA combine DVs with a weight of 1 for the significant DV and a weight of zero for the rest? In fact, MANOVA comes close to doing just that, but multivariate F is often not as powerful as univariate or stepdown F , and significance can be lost. If this happens, about the best one can do is report the nonsignificant

multivariate F and offer the univariate and/or stepdown result as a guide to future research, with only tentative interpretation. Here, significant univariate three-way interaction effects were found for spatial and temporal information (see Table 15). Simple interaction effects analyses, shown in Table 16, suggest that these significant interactions resulted from the fact that the task by event interaction had a significant effect on the temporal but not the spatial ratings of women with continuous memories and the spatial but not the temporal ratings of women with recovered memories. Simple simple effects analyses were therefore performed to shed light on these complex interactions.

The simple simple univariate tests of task within nontraumatic events revealed that women with continuous memories had equal amounts of temporal information in their nontraumatic memories ($M = 4.8$, $SD = 1.4$) and nontraumatic imaginings ($M = 4.4$, $SD = 1.5$), $F(1,50) = 1.40$, ns . However, women with continuous memories had significantly more temporal information in their traumatic memories of sexual abuse ($M = 5.1$, $SD = 1.6$) than in their traumatic imaginings of the sniper attack ($M = 3.1$, $SD = 1.3$), $F(1,50) = 7.16$, $p < .05$.

Women with recovered memories, on the other hand, had significantly more spatial information in their nontraumatic memories ($M = 5.8$, $SD = 1.8$) relative to their nontraumatic imaginings of spilling a punch bowl ($M = 4.6$, $SD = 2.0$), $F(1,50) = 9.75$, $p < .01$, whereas they had equal amounts of spatial information in their traumatic memories of childhood sexual abuse ($M = 5.0$, $SD = 2.3$) and their traumatic imaginings ($M = 5.1$, $SD = 2.1$), $F(1,50) = 0.01$, ns .

Overall, these between-subjects analyses revealed that higher phenomenological ratings were given to real memories relative to imagined events. Also, consistent with the explicit-implicit memory distinction, women's nontraumatic memories conveyed more explicit information while their traumatic memories of childhood sexual abuse

contained more implicit information. Most importantly, the findings indicated that the difference between the characteristics of women's real traumatic memories and their traumatic imaginings was greater than the difference between their real nontraumatic memories and their nontraumatic imaginings. This finding supports the notion that women are less likely to develop false memories of traumatic relative to nontraumatic events. Further, although participants' continuous versus recovered memory status qualified some of these effects, it did not do so in a comprehensive or consistent way. Finally, the findings also support Person and Klar's (1993) observation that traumatic memories have more implicit information than traumatic fantasies.

The effects of memory status were next examined as a within- rather than between-participants variable for the 27 women who reported having both continuous and recovered memories of their abuse. Table 17 presents the descriptive statistics for these women's MIQ scores. A one-way within-subjects MANOVA on these data revealed significant differences in these women's ratings for the five scenarios, *Pillai's Trace* = .746, $F(20,412) = 4.72$, $p < .001$, differences which accounted for 59.2% of the variance in MIQ scores. As shown in Table 18, univariate tests revealed that these differences were significant for all five individual MIQ scores.

Four planned comparisons were then conducted to identify the source of these effects, using a Bonferroni corrected alpha of .0375. As shown in Table 19, the first planned comparison, which consisted of a one-way MANOVA comparing the characteristics of participants' recovered memories of childhood sexual abuse with their nontraumatic memories, was significant. The univariate tests, also shown in Table 19, revealed that participants' traumatic recovered memories of child abuse had more sensory and less temporal information than did their nontraumatic memories (see Table 17 for descriptive statistics). Again, these results are consistent with the explicit-implicit distinction made by

trauma researchers (e.g., Kristiansen, 1996; Putnam, 1997; van der Kolk, 1996; van der Kolk & Fisler, 1995).

The next planned comparison, which compared women's MIQ scores for their self-generated real nontraumatic memories with those of their nontraumatic imaginings of the punch bowl scenario, was also significant. The univariate tests, shown in Table 19, revealed that respondents' real nontraumatic memories were clearer and conveyed more spatial, temporal, and reliving information than their nontraumatic imaginings of spilling the punch bowl. Again, these results are consistent with Suengas and Johnson's (1988) findings that real memories contained more information of all types than imagined memories.

The third planned comparison compared respondents' recovered memories of trauma with their nontraumatic imaginings of spilling the punch bowl. Contrary to the assumption of some false memory advocates (e.g., Hyman & Pentland, 1996; Loftus & Pickrell, 1995), this comparison revealed a significant multivariate effect and the univariate tests indicated that women's recovered memories contained significantly more reliving information relative to their nontraumatic imaginings of spilling the punch bowl. Similarly, the fourth and final multivariate comparison, which compared the nature of respondent's recovered memories of childhood sexual abuse with their traumatic imaginings of the classroom sniper scenario, was also significant. In this case, the univariate comparisons indicated that women's recovered memories contained significantly more sensory and reliving information than their traumatic imaginings of a sniper attack. Finally, the means in Table 17 revealed that, of the five scenarios, these women experienced the least sensory and reliving information in their traumatic imaginings of the sniper attack. This suggests that these women may not have been able to even begin to imagine such horrific traumatization.

On the whole, the results of these within-participants analyses provided an independent replication of a number of the findings of the

between-participants analyses. In particular, real nontraumatic memories had higher phenomenological ratings than imagined nontraumatic memories, as previous research has found (i.e., Suengas & Johnson, 1988; Johnson et al., 1988). The within-participants analyses also provided clear support for Person and Klar's (1993) proposal that real traumatic memories are expressed implicitly whereas traumatic fantasies are conveyed explicitly. Finally, while the phenomenology of women's traumatic memories differed from that of their nontraumatic and traumatic imaginings in ways predicted by trauma theory, the difference between women's traumatic memories and imaginings was of the same magnitude as the difference between their nontraumatic memories and imaginings ($Pillai's = .664$ and $.683$, respectively). This finding, then, failed to replicate that observed in the comparable between-participants analyses. However, it is conceivable that this failure to replicate occurred because, as indicated by the analyses of the manipulation check, while the women in the between-participants analyses experienced their recovered memories of child abuse as more traumatic than their memories of their nontraumatic life experiences, the women in the within-participants analyses experienced these memories as equally traumatic.

Demand characteristics. Participants' responses to the questions assessing demand characteristics were content analyzed to assess the degree of their awareness of the hypotheses associated with the main effects of task, event, and memory, the two-way task by event interaction, and the three-way task by event by memory interaction. The extent to which these women's written responses conveyed an awareness of each of these effects was coded as "completely" (1) if they indicated both the effect and the hypothesized direction, "some" (2) if they simply identified the effect; and "not at all" (3) if they did neither. As shown in Table 20, a number of women indicated some awareness of the fact that the study was designed to examine the effects of task and

event. However, only 2.5% of the women stated the direction of the task effect and none of them described the nature of the effects due to event. Most importantly, only 7.6% of the participants expressed some knowledge of the task by event interaction effect and none of them seemed completely aware of the hypothesized interaction effect. Because very few respondents were aware of the hypotheses of the study, demand characteristics seem unlikely to account for the effects reported above.

Effects of dissociation and recovery. Because the 28 DES items were internally consistent ($\alpha = .94$, $M_r = .37$), the mean of respondents' scores was calculated as an index of their dissociative tendencies⁴. Descriptive analyses indicated that, on average ($M = 16.27$, $Mode = 3.5$, $SD = 13.11$), the women in this study were not highly dissociative. Similarly, only 12.2% of the women scored over 30, the criterion for identifying individuals who might have a dissociative disorder or a disorder with a dissociative component (e.g., PTSD; Carlson & Putnam, 1993). Given this, the sample was divided at the median (12.241) in order to examine the extent to which individual differences in dissociation moderated the effects observed in the between- and within-participants analyses of respondents' experiential ratings. In the first analysis, a four-way mixed factor MANOVA examined the effects of dissociation (between subjects; high vs. low using a median split), task (within subjects; real vs. imagined), event (within subjects; nontraumatic vs. traumatic) and memory (between subjects; continuous vs. recovered memories) on women's MIQ scale scores. This analysis indicated that dissociation had little impact on women's experiences of their memories and imaginings. Not only was the main effect of dissociation nonsignificant ($Pillai's Trace = .102$, $F(5,44) = 1.00$, ns), but dissociation did not qualify any of the effects examined earlier. Similarly, when dissociation was added as a between-participants factor to the within-participants MANOVA examining the effects of scenario, dissociation had no effect either on its own,

Pillai's Trace = .220, $F(5,21) = 1.8$, *ns*, or in interaction with the scenarios, *Pillai's Trace* = .126, $F(20, 396) = 0.64$, *ns*.

In sum, individual differences in dissociation did not affect women's experiences of their memories and imaginings. Nor did they qualify any of the effects reported earlier. This finding suggests that, contrary to some findings (i.e., Hyman & Billings, in press) but consistent with others (i.e., Koppenhaver et al., 1996), people with dissociative tendencies do not use less stringent standards of reality monitoring.

Finally, the relations between the four items assessing women's current stage of recovery and their MIQ phenomenology scores were examined. Only one of the 100 correlations was significant, suggesting that women's current stage of recovery did not influence their memories and imaginings.

Correlates of memory status and dissociation. Based on both empirical research (e.g., Chu & Dill, 1990; van der Kolk & Fisler, 1995) and theory (e.g., Herman, 1992a; van der Kolk, 1996), as well as the fact that dissociation itself involves changes in consciousness and memory loss, women with higher dissociation scores were expected to report more amnesia. To the contrary, however, these women's memory status (continuous = 1, both = 2, recovered memories = 3) was independent of their dissociation scores, $F(2,79) = 0.73$, *ns*. In line with this, women's memory status and their DES scores were, as shown in Table 21, differentially correlated with indices of the severity of their abuse, their therapy history, and their stage of recovery. Consistent with other research (e.g., Briere & Conte, 1993; Herman & Schatzow, 1989; Kristiansen et al., 1997), women with more amnesia for their abuse were younger at the onset and offset of abuse and reported more contact sexual abuse by a parental figure. Also shown in Table 21, women's dissociation scores were correlated with only one indice of abuse severity: women with higher DES scores reported more contact

sexual abuse by a nonparental figure. Perhaps not surprisingly, women with higher DES scores also reported being less well along in their recovery.

Demographic confounds and alternative explanations. When the relations between participants' demographic characteristics and their scores on the predictor (memory, dissociation, nature of abuse, therapy, stage of recovery) and dependent variables (phenomenology ratings of the five scenarios) were examined, less than 5% were significant. Further, there were no consistent patterns of association, suggesting that participants' demographic characteristics did not account for any of the relations reported earlier.

Discussion

Most researchers agree that at least some recovered memories of childhood sexual abuse are probably false. What is in dispute is the prevalence of false memories. Using the data of false memory proponents, Kristiansen (1996), for example, estimates that not more than 4% of women in therapy might develop a false memory of childhood sexual abuse. Not only is this estimate in line with findings from studies that show that approximately 5% of children's abuse allegations are false (Everson & Boat, 1989; Jones & McGraw, 1987), it is also consistent with the percentage of false allegations documented for any criminal offense, be it robbery, assault, or rape (Torrey, 1991). Further, the Ottawa Survivors' Study found that only two of the 113 community-based survivors met the criteria for "False Memory Syndrome," a "syndrome" coined by people who claim they have been falsely accused of perpetrating sexual assault (Hovdestad & Kristiansen, 1996).

Other researchers (e.g., Lindsay & Read, 1994; Poole et al., 1995) suggest that as many as a million people have been falsely led to believe they were sexually abused. Along these lines, research comparing the phenomenological characteristics of people's real memories and their imaginings suggests that it would be relatively easy for

someone to confuse an imagined event for a real memory. The findings from Suengas and Johnson's (1988) study, for example, show that while the experiential differences between real and imagined events may be statistically reliable, they are quite small in absolute terms. Consistent with this, researchers (i.e., Hyman & Pentland, 1996; Loftus & Pickrell, 1995) report that as many as 25% of adults confuse their imaginings of events like spilling a punch bowl or being lost for memories of real childhood events. In view of these findings, it is perhaps not surprising that false memory advocates argue that recovered memories of childhood sexual abuse may well be no more than imaginings of abusive events formed in response to the suggestions of authoritative sources, such as therapists or self-help books (Belli & Loftus, 1988; Ganaway, 1989; Lindsay & Read, 1994).

The findings of the present study validate some, but certainly not all, of these claims. For one, these survivors' real memories had significantly more traumatic impact than their imaginings. Similarly, both the between- and within-participants analyses independently indicated that these women's real memories had significantly more phenomenological information of all types (clarity, sensory, spatial, temporal, and reliving) than their imaginings. Taken together, these findings clearly confirm that memories contain more phenomenological information relative to imaginings.

The results of other analyses, however, pose a serious challenge to false memory researchers (i.e., Hyman & Billings, in press; Loftus & Pickrell, 1995). The results of the between-subjects analyses, for example, suggested that the difference between the characteristics of participants' memories and imaginings was greater for traumatic than nontraumatic events, as revealed by the significant task (real vs. imagined) by event (nontraumatic vs. traumatic) interaction. Further, although the analyses of the data from the independent subsample of 27 women who had both continuous and recovered memories did not replicate

this effect-size finding, the underlying assumption of false memory research was also challenged by the findings that the difference between the traumatic impact of participants' real traumatic memories and imaginings was larger than the difference between the traumatic impact of their nontraumatic memories and imaginings. Also contrary to the claim that people can easily mistake traumatic imaginings for real memories, these women and especially those with recovered memories experienced the least sensory and reliving information in their imaginings of the traumatic sniper attack. This suggests that these women were unable to even begin to imagine traumatization, let alone come to believe in the reality of these imaginings. The results of the pilot study (see Appendix D) provide some support for this interpretation in that a sample of nonabused women rated the sniper attack and an instance of childhood sexual abuse as equally unimaginable and more unimaginable than either spilling a punch bowl or being lost in a mall. Taken together then, these findings support recovered memory advocates who suspect the external validity of the generalized claim that people are as likely to adopt false memories of traumatic events as they are to adopt false memories of nontraumatic events (Berliner & Williams, 1994; Kristiansen, 1996; Pezdek, 1994; Pope & Brown, 1996). As a result, the 25% false memory rate reported by false memory proponents (Hyman & Pentland, 1996) is likely an overestimate.

While there was little empirical basis to support the assumptions of false memory researchers, a good number of findings were consistent with the explicit-implicit memory distinction made by trauma researchers (e.g., American Psychiatric Association, 1993; Kristiansen, 1996; Putnam, 1997; van der Kolk & Fisler, 1995). For example, the results of the between-subjects analyses revealed that women's traumatic memories contained more implicit sensory information, while their nontraumatic memories had more explicit temporal information. The within-subjects analyses replicated these findings in that these women's real

nontraumatic memories conveyed more explicit temporal information relative to their recovered memories of abuse which initially contained more implicit sensory information than their traumatic imaginings. Additional evidence in favour of the explicit-implicit memory distinction comes from the analyses of the intercorrelations among the five scales derived from the Memory/Imaginings Questionnaire (MIQ). These analyses suggest that, as noted in other studies (e.g., Kristiansen et al., 1997; van der Kolk & Fisler, 1995), participants' phenomenological experiences of their memories of their childhood sexual abuse appeared to be more fragmented and disjointed than their imaginings, and to a lesser degree, their nontraumatic memories. However, as noted earlier, it is conceivable that these differences were simply a statistical artifact of the fact that the magnitude of the intercorrelations varied systematically with the sample sizes. Clearly, this is an area that merits further research.

Finally, other findings suggested that real traumatic memories differ from traumatic fantasies along the lines suggested by Person & Klar (1993). In both the between- and within-participants analyses survivors traumatic memories had more sensory and reliving information than their traumatic fantasies. Similarly although the within-participants analyses indicated that women experienced their recovered memories of childhood sexual abuse as being as traumatic as their traumatic imaginings of a sniper attack, the between-participants analyses indicated that these survivors more generally experienced their real traumatic memories as more traumatic than their traumatic imaginings. Therefore, compared to real traumatic memories traumatic fantasies do appear to involve less implicit information. Because these findings suggest that it may be possible to differentiate between true and false recovered memories on the basis of their phenomenology it would clearly be worthwhile to pursue these findings in subsequent research. These results are totally in keeping with research claiming

that traumatic memories are stored and encoded differently than memories for ordinary, nontraumatic events (e.g., Kristiansen, 1996; Putnam, 1997; van der Kolk & Fisler, 1995).

On the whole, the findings of this study were consistent with recovered memory researchers' accounts of traumatic memory. In particular, these women experienced their traumatic memories more implicitly than they experienced either their nontraumatic memories or their traumatic fantasies. In addition, there was some support for the notion that people are less likely to confuse their imaginings of traumatic events for real memories than they are to confuse their imaginings of nontraumatic events for real memories. Moreover, the fact that the findings of the between- and within-subjects analyses were not in any way affected by women's dissociation or recovery scores, together with participants' apparent unawareness of the intent of the study, suggests that these findings are robust.

A number of other findings are also relevant to the controversy surrounding the validity of adults' recovered memories of childhood sexual abuse. For one, therapy did not differentiate between women with and without recovered memories of their sexual abuse, perhaps because the vast majority of these women had received at least some therapy and because most women recovered their memories independent of therapy. These findings run contrary to the argument that recovered memories result from compliance with therapeutic demands (Ganaway, 1989; Lindsay & Read, 1994; Poole et al., 1995).

There was also no support for the suggestion that dissociation may affect people's experiences of their memories and imaginings and consequently contribute to the creation of false memories (Ganaway, 1989, 1995; Loftus & Ketcham, 1994). Hyman and Billings (in press), for example, found that higher dissociation scores were associated with more false memory creation. Van der Kolk & Fisler (1995) also reported that trauma survivors with higher dissociative scores reported more implicit

affective and kinaesthetic information in their traumatic memories. In the present study, however, dissociation was unrelated to the phenomenological characteristics of women's memories and imaginings. Nor did dissociation moderate or qualify any of the results reported earlier. Also contrary to allegations that women's recovered memories are often the result of fantasy rather than reality, women's memory status was independent of their dissociative capacity, and there were few differences in the phenomenological characteristics of memories and imaginings of women with exclusively continuous memories and those with exclusively recovered memories.

Given the positive skew of these women's DES scores, a finding noted previously (Carlson & Putnam, 1993), one might suspect that the restricted variance in women's DES scores was responsible for these nonsignificant findings. The fact that participants' DES scores were correlated with other measures (e.g., their recovery scores), however, detracts from the feasibility of this suggestion. Alternatively, there may have been insufficient power to detect any effects due to dissociation, especially the higher-order moderating effects of dissociation on women's experiences of their memories and imaginings. Hopefully additional research in this area will provide more insight into the role of dissociation in people's memories and imaginings. Nevertheless, what is important in the present context is that individual differences in women's dissociation scores did not provide an alternative account for the present findings.

Dissociation, however, did play a role in a number of other findings in this study. Greater dissociation was related to therapy of longer duration and experiencing difficulty recovering from the aftereffects of abuse. Overall, however, the women in this study reported that they were doing well in terms of their recovery and presented with relatively mild dissociative symptoms. One might

speculate that successful therapy is to some extent responsible for this.

Like all research, this research has both strengths and limitations. The strengths include the replication of some of the between-participants' findings in the independent within-participants' analyses. The pilot testing and the assessment of the effectiveness of the manipulation of the nontraumatic and traumatic content of women's imaginings also went some way to ensure that the differences in the traumatic impact of these memories and imaginings were responsible for any related outcomes. Finally, explicit efforts were made to examine whether demand characteristics may have influenced participants' ratings of the phenomenological characteristics of their memories and imaginings. The results of this analysis suggested that there were few demand characteristics and that demand characteristics were therefore unlikely to account for the present findings.

Among the limitations, however, are the nature of the sample, the nature of the stimuli, and the reliance on retrospective self-report data. Because this sample of women were doing fairly well in terms of their recovery, it remains to be determined whether studies of more traumatized survivors would yield similar results. Given the sensitivity of these tasks, however, one might question the ethics of conducting such research with survivors who are already distressed. However, because the present study examined the characteristics of the memories and imaginings of women with self-reported histories of child abuse rather than people from nonabused populations, and because we compared women's memories and imaginings of traumatic events rather than simply inferring their nature from studies of nontraumatic memories and imaginings, the present findings are likely to be more relevant to our understanding of the recovered memory debate than the findings of previous studies. It also remains to be determined whether these findings will hold for other nontraumatic and traumatic experiences

besides spilling a punch bowl, a sniper attack, and childhood sexual abuse. Because 15% to 25% of people confuse their imaginings for real memories of a variety of events ranging from being lost in a mall, remembering details of a robbery scene, to recalling an overnight visit to the hospital (Hyman & Pentland, 1996), it is conceivable that the present results may generalize to other nontraumatic and traumatic events. Further, the results of both the pilot study and the analyses of participants' traumatic impact scores indicated that childhood sexual abuse was regarded as being as traumatic as a sniper attack and that both of these events were experienced as more traumatic than participants' real nontraumatic memories and imaginings. The consistency of these findings suggests that it was indeed the degree of traumatization of these events that was responsible for the present findings. On this basis, as well, then, one would expect the findings to generalize to other traumatic and nontraumatic events.

The third limitation on the present findings concerns the validity of survivors' uncorroborated self-reports. Because we did not assess whether the participants in our study had any external corroboration for their abuse, one might argue that we have no evidence that these women were actually abused. The fact that both the incidence and predictors of amnesia were consistent with the findings of other studies, however, lends at least some credibility to these women's self-reports. Just over half (56.1%) of the women in this study had at one time experienced complete or partial amnesia for their abuse, a figure that is entirely consistent with Schefflin and Brown's (1996) review of 25 studies where the incidence of full or partial amnesia for abuse ranged from 31% to 77%. Moreover, as reported in other studies (Briere & Conte, 1993; Kristiansen et al., 1997), an earlier age at the onset of abuse and more contact sexual abuse by a parental figure discriminated participants who reported recovered memories from those who reported continuous memories of their sexual abuse. Nevertheless, independent corroboration of these

women's reports of child abuse would have been extremely valuable. For example, if replication of this study with a group of women with corroborated histories of abuse yields the same findings, it may indicate that we are coming closer to differentiating true from false memories of abuse.

In view of the above limitations future research might focus on three things. First, researchers might attempt to replicate this study with a larger and more diverse sample of survivors. Hopefully, a more diverse sample may yield more variability in participants' dissociation scores and thus shed more light on the role of dissociation in the nature of survivors' memories and imaginings. Second, as already discussed, research with external corroboration would further validate the findings of the present study. Third, the results of the factor analyses of participants' phenomenology scores are far from definitive especially because the factors were derived, in part, theoretically. These structural differences therefore merit replication before any definitive conclusions regarding the structure of memories and imaginings can be achieved. In addition, a comparison of the memories and imaginings of survivors and nonsurvivors may be informative. For example, compared to trauma survivors, do nonabused individuals have more or less difficulty conceptualizing traumatic events?

Clearly, more is unknown than known in this area. Indeed, this is the only study of this sort that has been done and the present findings suggest that memory researchers may be fundamentally incorrect when they assume that research findings concerning the creation of false memories from nontraumatic imaginings generalize to the creation of false memories of traumatic childhood sexual abuse.

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Footnotes

¹While such findings suggest that a good number of adults (15-25%) are susceptible to the creation of false memories, the generality of the findings of laboratory studies of the creation of false memories to the memory processes of adult survivors of child abuse is debatable. Pope and Brown (1996), for example, outlined several criticisms of this research paradigm including the fact that the false events (e.g., lost in mall; spilling a punchbowl) do not seem comparable to traumatic childhood sexual abuse, the presence of demand characteristics and the possibility of compliance with these demands, and the fact that the source of the misinformation was a trusted older family member who claimed to have witnessed the event. Further, while false memory advocates generalize the findings from such research to argue that therapists are able to implant false memories of abuse, Pope and Brown noted that these findings also support the notion that perpetrators and families are able to create false memories that a child had not been abused.

²The prevalence of these suggestive sorts of therapies is one of the most contentious issues in the recovered memory debate. Some researchers (e.g., Lindsay & Read, 1994; Poole et al., 1995) suggest that as many as a million people have been falsely led to believe they were sexually abused as children as a result of these suggestive therapeutic techniques. However, other researchers (e.g., Brown & Pope, 1996; Olio, 1996) argue that this prevalence rate is greatly exaggerated. For a review of the issues, implications, and methodological shortcomings of the research that suggests a high false memory prevalence rate, see Olio (1996).

³Two independent raters agreed on the classification of all but one of the 52 allegedly similar events, and a third rater settled the disagreement.

⁴Bernstein and Putnam (1986) report that the distribution of DES scores for nonclinical samples is positively skewed, as was the case in the present study. Consequently, participants' total dissociation scores were transformed using both a log and square root transformation. Subsequent analyses using the transformed DES scores did not alter the present findings.

Appendix A

Consent and Debriefing

CONSENT FORM: SURVIVORS OF CHILD SEXUAL ABUSE SURVEY

This survey is being conducted by Irina Goldenberg and Angela Brommit, B.A. students, Anne DiMito, Master's student, Wendy Hovdestad, a doctoral student, and Connie Kristiansen, Associate Professor of Psychology, in the Psychology Department of Carleton University.

In this study you will be given various questionnaires that ask you to describe your experience as a survivor of child sexual abuse. These questions will ask about things such as your abuse, its impact on you, how you coped, and your recovery process. Other questionnaires will ask you to describe yourself, your experiences, your impressions of people, and times when people have been nice or hurtful. Finally, you will be asked to remember and describe your memories of various childhood events, including the abuse you experienced as a child, and to describe your imaginings of events that have never happened to you. In all, the study will take about 2 to 3 hours and you are welcome to take a break at any time.

It is important that you understand that your participation in this study is completely voluntary. Some of the questions address sensitive issues, and you are free to refuse to answer any questions. Further, your answers will be totally anonymous and confidential. Finally, should you have any complaints or comments about ethical aspects of this study, you are welcome to contact Dr. Mary Gick, Chair of the Psychology Ethics Committee at 520-2600 ext. 2664, or Dr. Kim Matheson, Acting Chair of Psychology, at 520-2644.

We thank you in advance for your participation.

Irina Goldenberg

Angela Brommit

Anne DiMito, B.A.

Wendy Hovdestad, M.A.

Connie Kristiansen, Ph.D.

I acknowledge that I have read the above information and willingly consent to participate in this study, while recognizing that I can stop participating at any time, for any reason.

Participant signature: _____

Researcher signature: _____

Date: _____

DEBRIEFING: SURVIVORS OF CHILD SEXUAL ABUSE SURVEY

This study has 4 goals. One goal is to examine the characteristics of survivors' real memories for traumatic events (i.e., their child abuse), their imaginings of traumatic events that never happened (i.e., the "sniper in the classroom" scenario), their real memories of a nontraumatic event, and their imaginings of a nontraumatic event (i.e., "spilling the punch bowl" scenario). We expect the findings to show that the difference between the characteristics of survivors' memories of their child abuse and their imaginings of a traumatic event is bigger than the difference between the characteristics of their memories for a real nontraumatic event and their imaginings of a nontraumatic event. If so, they would support the claim that people are less likely to confuse their imaginings of past trauma for real memories of past trauma than they are to confuse their imaginings for real memories of nontraumatic events. These findings, in turn, would provide indirect support for the validity of adults' recovered memories of child abuse.

A second purpose of this study is to examine the relation between the nature of survivors' abuse and their memory for their abuse. One body of research suggests that traumatic or violent abuse results in the release of stress hormones that interfere with normal memory processes. If so, we should find that survivors report having recovered memories of traumatic abuse and continuous memories of nontraumatic abuse. Another theory suggests that survivors are more likely to repress and forget abuse associated with a sense of great betrayal. According to this theory, then, we should find that survivors have recovered memories of abuse that was perpetrated by a close caretaker on whom they were dependent, while survivors have continuous memories for abuse associated with less betrayal. Note that both theories may be true. If so, the findings would indicate that survivors can 'forget' for at least two reasons.

A third purpose of this study is to examine the relation between the nature of women's childhood abuse (i.e., the emotional vs. physical vs. sexual; violent vs. nonviolent; involving betrayal or not) and how they perceive themselves and others. Finally, the fourth goal of this study is to explore factors associated with women's resilience to the negative aftereffects of child abuse. That is, how women manage to cope with and overcome such profound childhood experiences.

Sometimes recalling and discussing unpleasant events in our lives can leave us feeling the need for support or consultation. If you are feeling the need for support or counselling, please contact any of the following services. For immediate crisis intervention, you can contact

the following 24-hour hot-lines: Rape Crisis Center: 729-8889, Sexual Assault Support Center: 234-2266; or the Distress Line: 238-3311. If you continue to feel the need for counseling and you do not already have a therapist, contact Connie Kristiansen, Ph.D., at 520-2600 ext. 2679, and arrangements will be made for you to meet with a counsellor experienced in sexual abuse issues who can then refer you to other resources if needed.

Should you wish to discuss this study you are welcome to contact Connie Kristiansen at 520-2600, ext. 2679. Should you have any complaints or comments about the way in which this study was conducted or how you were treated, please contact Dr. Mary Gick, Chair of the Psychology Ethics Committee, at 520-2600, ext. 2664, or Dr. Kim Matheson, Acting Chair, Department of Psychology at 520-2644.

Again, thank you for your participation. Your time and effort are greatly appreciated.

Appendix B

The Questionnaire Booklet

BACKGROUND INFORMATION

1. Age: _____
2. Marital Status:
☐ Single
☐ Married
☐ Divorced
☐ Living with a partner
3. Number of Children _____
4. Ethnic Background: _____
5. Highest Year of Education Completed: _____
6. Employment/Student Status (circle all that apply):
 - (a) Employed full-time (35 or more hours/week)
 - (b) Employed part-time
 - (c) Unemployed
 - (d) Disability
 - (e) Social Assistance
 - (f) Homemaker
 - (g) Student full-time
 - (h) Student part-time
7. Total Gross Family Income per year (check one):

☐ under \$15,000	☐ \$45,000-\$54,999
☐ \$15,000-\$24,999	☐ \$55,000-\$64,999
☐ \$25,000-\$34,999	☐ \$65,000-\$74,999
☐ \$35,000-\$44,999	☐ \$75,000 or more

CHILDHOOD EXPERIENCES QUESTIONNAIRE

Children and adolescents growing up can experience a wide range of behaviours on the part of their parents, or other people who serve as parental figures for them. Please think back to your childhood and adolescence and indicate how often you experienced each of these behaviours by *at least one* of your "parental figures" before you were 18 years old.

Note that parental figures can include parents, step-parents, foster-parents, or other adults who routinely were in charge of you as a child or adolescent. An older sibling or other older relative also may be considered a parental figure when this person routinely supervised or cared for you.

For each behaviour, please circle the appropriate number that corresponds to the following scale:

1	2	3	4	5
<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very Often</i>

How often before you were 18 did one or more of your parental figures:

1. Inappropriately try to control or run your life	1	2	3	4	5
2. Allow or encourage you to steal or take things that did not belong to you	1	2	3	4	5
3. Call you insulting names	1	2	3	4	5
4. Act emotionally "cold" toward you	1	2	3	4	5
5. Discourage you from seeing your friends or relatives	1	2	3	4	5
6. Fail to provide adequate food or clothing for you even though they had the means to do so.....	1	2	3	4	5
7. Touch or handle you in a rough way that frightened you	1	2	3	4	5
8. Become impatient, angry, or hostile whenever you expressed an opinion or questioned something they said	1	2	3	4	5
9. Permit or encourage you to lie, cheat, or to deceive people	1	2	3	4	5
10. Appear to be disinterested in you and your life	1	2	3	4	5
11. Make you cater to their desires or whims with little concern for your own comfort or welfare	1	2	3	4	5
12. Refuse to allow you to participate in activities organized by a school or community organization (e.g., field trips, athletic events, plays, clubs, fairs)	1	2	3	4	5
13. Throw some object at you that did not hit you but could have hurt you physically	1	2	3	4	5
14. Do or say something that gave you the impression you were unwanted	1	2	3	4	5
15. Have many unpredictable moods, or frequently changing moods, that affected their ability to provide reliable care for you	1	2	3	4	5

1	2	3	4	5
<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very Often</i>

How often before you were 18 did one or more of your parental figures:

16. Physically harm a member of your family (other than yourself) with a weapon or other dangerous object when you were present	1	2	3	4	5
17. Totally disregard your input into decisions that affected you	1	2	3	4	5
18. Criticize, belittle, or shame you in front of other people	1	2	3	4	5
19. Take advantage of you in some way (other than a sexual way).	1	2	3	4	5
20. Refuse to allow you to participate in social activities (e.g., dances, parties)	1	2	3	4	5
21. Leave you alone or unattended for periods of time when, looking back now, you believe it was unsafe or inappropriate for them to have done so	1	2	3	4	5
22. Act in a way that implied they did not like you or value you	1	2	3	4	5
23. Act in a way that led you to feel confused about what they expected from you or about how they wanted you to behave	1	2	3	4	5
24. Speak to you in a way that frightened you.....	1	2	3	4	5
25. Physically hurt or start a fight with someone who was not a member of your family (when you were present)	1	2	3	4	5
26. Lead you to feel that bad things would happen if you tried to make decisions on your own or act independently	1	2	3	4	5
27. Allow you to do, or seem unconcerned if you did, something that was illegal or morally wrong	1	2	3	4	5
28. Put you down or treat you in a degrading manner.....	1	2	3	4	5
29. Fail to praise you when you deserved it	1	2	3	4	5
30. Require you to act as a companion for them or other adults when you did not want to do so	1	2	3	4	5
31. Stop you from seeing your friends without good reason	1	2	3	4	5
32. Fail to care for your injuries when you were physically hurt	1	2	3	4	5
33. Do or say something that suggested you did not measure up to their expectations of you	1	2	3	4	5
34. Behave in ways that led you to feel that you could not rely on them	1	2	3	4	5
35. Threaten that something very bad would happen to you	1	2	3	4	5
36. Treat a pet or other animal cruelly when you were present (do not include wild animals killed in hunting)	1	2	3	4	5
37. Allow or encourage you to fight with, hurt, or bully other people.	1	2	3	4	5
38. Tell you that you would never amount to anything in life	1	2	3	4	5
39. Fail to listen to you or to comfort you when they knew you were sad or upset	1	2	3	4	5
40. Fail to take you to the doctor or give you medicine when you were ill and medical attention seemed to have been needed ...	1	2	3	4	5
41. Chase you with the intent of hurting you or seriously frightening you	1	2	3	4	5

1	2	3	4	5
<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very Often</i>

How often before you were 18 did one or more of your parental figures:

42. Tell you or imply to you that you were a burden to them .	1	2	3	4	5
43. Make promises to you that they did not keep	1	2	3	4	5
44. Swear at you or curse you	1	2	3	4	5
45. Hit, slap, kick, or punch a member of your family (other than yourself) when you were present	1	2	3	4	5
46. Try to make you feel that you could not make any decisions or do anything in your life without checking with them first	1	2	3	4	5
47. Seem to be emotionally detached or unexpressive with you	1	2	3	4	5
48. Get you to do something for them when they knew it caused you considerable inconvenience or discomfort	1	2	3	4	5
49. Deliberately tease you or scare you by doing something they knew was frightening to you	1	2	3	4	5
50. Threaten to harm you physically	1	2	3	4	5
51. Spank you hard enough to cause bruising, swelling, or bleeding	1	2	3	4	5
52. Twist, yank, or bend your leg, arm, or finger in a painful manner.	1	2	3	4	5
53. Push, throw, or knock you down, or into an object, such as a wall or a piece of furniture	1	2	3	4	5
54. Hit or punch you with a closed fist	1	2	3	4	5
55. Burn or scald you on purpose	1	2	3	4	5
56. Harm you physically with a weapon or other dangerous object..	1	2	3	4	5
57. Break your bone(s) or teeth when they were being rough or violent with you	1	2	3	4	5
58. Hit or slap you with an open hand (not including spanking)	1	2	3	4	5
59. Kick you with their foot, or strike you hard with a knee or elbow.	1	2	3	4	5
60. Throw some household object at you (e.g., vase, ashtray, lamp) that caused you to be hurt physically	1	2	3	4	5
61. Pull your hair or ear in a painful manner	1	2	3	4	5
62. Choke you	1	2	3	4	5
63. Hit you with an object such as a belt, cord, kitchen utensil, board, or stick	1	2	3	4	5
64. Torture you physically	1	2	3	4	5
65. Try to kill you	1	2	3	4	5
66. Look or stare at you or at a part of your body in a sexual way ..	1	2	3	4	5
67. Make sexually suggestive comments to you or about your body.	1	2	3	4	5
68. Make sexual comments about you to others	1	2	3	4	5
69. Talk to you in a sexual way	1	2	3	4	5
70. Suggest that you should do something sexual with them or or indicate that they wished to do something sexual with you ...	1	2	3	4	5
71. Show you a sexual part of their body (i.e., genitals, breasts, or buttocks) on purpose	1	2	3	4	5
72. Make you show them a sexual part of your body (i.e., genitals, breasts, or buttocks)	1	2	3	4	5

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

How often before you were 18 did one or more of your parental figures:

73. Perform sexual acts in front of you or make you watch them or other people performing sexual acts	1	2	3	4	5
74. Get you to touch a sexual part of your body (i.e., genitals, breasts, buttocks) while they were present	1	2	3	4	5
75. Take sexually explicit pictures, films, or videos of you	1	2	3	4	5
76. Rub, touch, or grab your breasts, buttocks, or genitals through your clothing or other covering	1	2	3	4	5
77. Kiss or hug you in sexual way	1	2	3	4	5
78. Get you to do something sexual with them	1	2	3	4	5
79. Rub or fondle a sexual part of your body (i.e., genitals, breasts, or buttocks)	1	2	3	4	5
80. Get you to touch them in a sexual way or fondle a sexual part of their body or another person's body (i.e., genitals, breasts, or buttocks)	1	2	3	4	5
81. Insert a finger or an object in your vagina or anus (without medical reason)	1	2	3	4	5
82. Touch your genitals, breasts, or anus with their mouth or tongue.	1	2	3	4	5
83. Get you to touch their genitals, breasts, or anus with your mouth or tongue	1	2	3	4	5
84. Attempt vaginal or anal intercourse with you, but not follow through with it	1	2	3	4	5
85. Engage in vaginal or anal intercourse with you	1	2	3	4	5
86. Other parental behaviour (describe briefly):	1	2	3	4	5
87. Other parental behaviour (describe briefly):	1	2	3	4	5
88. Other parental behaviour (describe briefly):	1	2	3	4	5

To what extent did your experiences of sexual abuse by a **parental figure** (as indicated in your answers to questions 66 to 88, above) involve the following?

89. Threats to harm you or others	1	2	3	4	5
90. Bribe you to get you to comply or withhold something if you didn't comply	1	2	3	4	5
91. Force (e.g., holding or tying you down)	1	2	3	4	5
92. Physical violence (e.g., hitting, kicking, etc.)	1	2	3	4	5

SEXUAL ABUSE BY NONPARENT

INSTRUCTIONS: Below is a list of behaviours you might have experienced by a person *other* than a parental figure during your childhood or adolescence. Please indicate how often *before you were 18 years of age* someone who was not one of your parental figures did the following things. In cases where you clearly did not want the behaviour to occur, answer for a person of any age who was not a parental figure. In cases where you might have wanted the behaviour to occur, answer for a person who was 5 or more years older than you, but who was not a parental figure.

Please circle the appropriate number using the following scale:

1	2	3	4	5
<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very Often</i>

How often before you were 18 did someone who was NOT one of your parental figures:

1. Look or stare at you or at a part of your body in a sexual way	1	2	3	4	5
2. Make sexually suggestive comments to you	1	2	3	4	5
3. Make sexual comments about you to others	1	2	3	4	5
4. Talk to you in a sexual way	1	2	3	4	5
5. Suggest that you should do something sexual with them or
or indicate that they wished to do something sexual with you ...	1	2	3	4	5
6. Show you a sexual part of their body (i.e., genitals, breasts, or
buttocks) on purpose	1	2	3	4	5
7. Make you show them or other people a sexual part of your body
(i.e., genitals, breasts, or buttocks)	1	2	3	4	5
8. Perform sexual acts in front of you or make you watch them or
other people performing sexual acts	1	2	3	4	5
9. Get you to touch a sexual part of your body (i.e., genitals, breasts,
buttocks) while they were present	1	2	3	4	5
10. Take sexually explicit pictures, films, or videos of you	1	2	3	4	5
11. Rub, touch, or grab your breasts, buttocks, or genitals through
your clothing or other covering	1	2	3	4	5
12. Kiss or hug you in sexual way	1	2	3	4	5
13. Get you to do something sexual with them	1	2	3	4	5
14. Rub or fondle a sexual part of your body (i.e., genitals, breasts,
or buttocks)	1	2	3	4	5
15. Get you to touch them in a sexual way or fondle a sexual part of
their body or another person's body (i.e., genitals, breasts, or
buttocks)	1	2	3	4	5

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

How often before you were 18 did someone who was NOT one of your parental figures:

16. Insert a finger or an object in your vagina or anus (without medical reason)	1	2	3	4	5
17. Touch your genitals, breasts, or anus with their mouth or tongue.	1	2	3	4	5
18. Get you to touch their genitals, breasts, or anus with your mouth or tongue	1	2	3	4	5
19. Attempt vaginal or anal intercourse with you, but not follow through with it	1	2	3	4	5
20. Engage in vaginal or anal intercourse with you	1	2	3	4	5
21. Other nonparental behaviour (describe briefly): _____	1	2	3	4	5
_____					
22. Other nonparental behaviour (describe briefly): _____	1	2	3	4	5
_____					
23. Other nonparental behaviour (describe briefly): _____	1	2	3	4	5
_____					

To what extent did your experiences of sexual abuse by someone who was **NOT** a **parental figure** (as indicated in your answers to questions 1 to 23, above) involve the following?

24. Threats to harm you or others	1	2	3	4	5
25. Bribe you to get you to comply or withhold something if you didn't comply	1	2	3	4	5
26. Force (e.g., holding or tying you down)	1	2	3	4	5
27. Physical violence (e.g., hitting, kicking, etc.)	1	2	3	4	5
-

SEXUAL ABUSE OVERVIEW

1. What was the relationship between you and the people who **sexually** abused you as a child . Please circle the letter(s) of any categories that describe your abuser(s). If you were abused by more than one person within a category, please write the number on the line provided. For example, if you were abused by two brothers/stepbrothers, write the number 2 on the line provided.

	<i>Number</i>
a) Father/Stepfather	_____
b) Mother/Stepmother	_____
c) Brother/Stepbrother	_____
d) Sister/Stepsister	_____
e) Other male relative (e.g., grandfather, uncle, cousin)	_____
f) Other female relative (e.g., grandmother, aunt, cousin)	_____
g) Male neighbour	_____
h) Female neighbour	_____
i) Male stranger	_____
j) Female stranger	_____
k) Male authority figure (e.g., teacher, coach, priest)	_____
l) Female authority figure (e.g., teacher, coach, nun)	_____
m) Other male (please specify): _____	_____
n) Other female (please specify): _____	_____

Total Number of Abusers (a to n) = _____

2. How many times were you sexually abused before age 18?

- 0 Once
- 1 A few times
- 2 Many times
- 3 Countless times

3. How old were you when you were **first** sexually abused as a child? _____

4. How old were you **the last time** you were sexually abused as a child? _____

MEMORIES OF ABUSE

1. Please read the statements below and circle the letter of the **ONE** statement that most accurately describes your memory process.
 - a) I have always remembered all or virtually all of my experiences of childhood sexual abuse.
 - b) I have always remembered parts or some aspects of my experiences of childhood sexual abuse but I also have a number of memories that I previously was unaware of.
 - c) There was a time when I was **totally unaware** of my experiences of childhood sexual abuse, to the point that even if I had been directly asked about it, I would have not remembered. Since then, however, I have recovered some memories of my experiences of childhood sexual abuse.
 - d) I have no real memories of being sexually abused as a child, but I have evidence that it occurred.
 - e) I have no real memories of being sexually abused as a child, but I have good reason to suspect that it occurred.

2. If you circled "b" or "c" above:
 - a) How old were you when your memories of your sexual abuse first began to surface? _____ years old.
 - b) Did your very first recovered memories of sexual abuse surface while you were actually in a therapy session? Yes/No
 - c) Did your very first recovered memories of sexual abuse surface while you were in therapy, but not during an actual therapy session? Yes/No

THERAPY BACKGROUND

1. Have you ever had any kind of psychotherapy?
 ___ YES ___ NO [If NO, skip to question 7]
2. How long were you in therapy? _____ years/months
3. We would like to know why you entered therapy. Please rate the degree to which the following issues prompted you to seek any of your therapies. Please use the following scale and write the number in the space to the left of each statement.
	1	2	3	4	5
	not at all		moderately		a great deal
- a) ___ alcohol/drug problems
- b) ___ anxiety
- c) ___ depression
- d) ___ eating problems
- e) ___ felt as if I was going crazy
- f) ___ relationship problems
- g) ___ self-abuse (e.g., cutting, burning)
- h) ___ sexual abuse issues
- i) ___ sexual problems
- j) ___ other(s) explain: _____
-
4. Did any of your therapists believe that treatment would not work unless traumatic memories were uncovered?
 ___ YES ___ NO
5. Are you currently in therapy? ___ YES ___ NO

6. Have you had any therapy involving the following: CIRCLE
- a) hypnosis YES/NO
 - b) visualization or imagery work YES/NO
 - c) body work (e.g., massage, bioenergetics) YES/NO
 - d) the therapist asking you if you were abused YES/NO
 - e) the therapist suggesting you were abused YES/NO
 - f) the therapist insisting that you were abused YES/NO
 - g) attending a survivors' group YES/NO

7. **STAGE OF RECOVERY**

The following questions ask about various aspects of people's recovery process. Regardless of whether you had any therapy, please indicate to what degree each of the paragraphs below describe you in your life right now. Please use the following scale to pick the number between 1 and 7 that best describes how much each paragraph applies to your current life.

1	2	3	4	5	6	7
not at all			moderately			very much

Answer

Paragraph

_____	I am currently experiencing safety and self-abuse issues, such as suicidal feelings, self-injury, or dangerous risk-taking behaviours?
_____	I currently have difficulty trusting myself and/or other people.
_____	I am currently remembering my childhood abuse and mourning my childhood losses.
_____	I am currently well on my way to recovery from childhood sexual abuse. I feel like I am really able to live my life, expanding my activities and social relationships.
_____	Other (describe): _____
	_____

DISSOCIATIVE EXPERIENCES SCALE

Bernstein and Putnam (1986)

Directions: This questionnaire consists of 28 questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine the degree the experience described in the question applies to you and circle the number to show what percentage of the time you have the experience.

Example:

0%	10	20	30	40	50	60	70	80	90	100%
(never)										(always)

1. Some people have the experience of driving a car and suddenly realizing that they don't remember what has happened during all or part of the trip. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------
2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was just said. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------
3. Some people have the experience of finding themselves in a place and having no idea how they got there. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------
4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------
5. Some people have the experience of finding new things among their belongings that they do not remember buying. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------
6. Some people sometimes find that they are approached by people that they do not know who call them by another name or insist that they have met them before. What percentage of the time does this happen to you?

0%	10	20	30	40	50	60	70	80	90	100%
----	----	----	----	----	----	----	----	----	----	------

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
8. Some people are told that they sometimes do not recognize friends or family members. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
10. Some people have the experience of being accused of lying when they do not think that they have lied. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
11. Some people have the experience of looking in a mirror and not recognizing themselves. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
12. Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
13. Some people sometimes have the experience of feeling that their body does not seem to belong to them. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving the event. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
18. Some people sometimes find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
19. Some people find that they sometimes are able to ignore pain. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
21. Some people sometimes find that when they are alone they talk out loud to themselves. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have just mailed a letter or have just thought about mailing it). What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
25. Some people find evidence that they have done things that they do not remember doing. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%
28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. What percentage of the time does this happen to you?
- 0% 10 20 30 40 50 60 70 80 90 100%

Appendix C

The Memory/Imaginings Questionnaire

Directions: The following questions ask you to describe your experience of the event you just considered. Please determine the degree to which each of the following characteristics applies to the event you just considered. Circle the number that most accurately describes your experience of the event.

1. This event was

1 2 3 4 5 6 7
 sketchy very detailed

2. This event was

1 2 3 4 5 6 7
 dim sharp/clear

3. Overall vividness for this event was

1 2 3 4 5 6 7
 vague very vivid

4. How much did your experience of this event involve **hearing any sounds**

1 2 3 4 5 6 7
 no sound a lot of sound

5. How much did your experience of this event involve **smelling any odours**

1 2 3 4 5 6 7
 no smell a lot of smell

6. How much did your experience of this event involve any **feelings in your body**

1 2 3 4 5 6 7
 no feelings a lot of feelings

7. How much did your experience of this event involve any **tastes**

1 2 3 4 5 6 7
 no taste a lot of taste

8. How much did your experience of this event involve **seeing visual images**

1 2 3 4 5 6 7
 no visual images a lot of visual images

9. How much did your experience of this event involve **feeling emotions**

1	2	3	4	5	6	7
no emotions						a lot of emotions

10. The overall **tone** of the event was

1	2	3	4	5	6	7
negative						positive

11. My emotions **during** the event was

1	2	3	4	5	6	7
negative						positive

12. The **order** of events was

1	2	3	4	5	6	7
confusing						understandable/ clear

13. The **location** where the event took place was

1	2	3	4	5	6	7
vague						clear/distinct

14. The location or spatial arrangement of the **objects and things** in the event was

1	2	3	4	5	6	7
vague						clear/distinct

15. The location or spatial arrangement of the **people** involved in the event was

1	2	3	4	5	6	7
vague						clear/distinct

16. **When** the event takes place (e.g., year, season, time of day) was

1	2	3	4	5	6	7
vague						clear/distinct

17. To what extent did you feel like you were really living or **re-living** the experience

1	2	3	4	5	6	7
not at all						extremely

18. I was aware of events that took place just **before** the event

1	2	3	4	5	6	7
not at all						yes, clearly

19. I was aware of events that took place just **after** the event

1	2	3	4	5	6	7
not at all						yes, clearly

20. To what extent did your experience of the event unfold like a meaningful story, with a beginning, middle and end

1	2	3	4	5	6	7
not at all						extremely

21. To what extent was your experience of the event disjointed and fragmented

1	2	3	4	5	6	7
not at all						extremely

22. To what extent did your experience of this event involve **intense fear**

1	2	3	4	5	6	7
not at all						extremely

23. To what extent did your experience of this event involve **intense helplessness**

1	2	3	4	5	6	7
not at all						extremely

24. To what extent did your experience of this event involve **intense horror**

1	2	3	4	5	6	7
not at all						extremely

FOR CHILDHOOD SEXUAL ABUSE EXPERIENCE(S)

How old were you when this experience of childhood sexual abuse occurred? _____ years old.

Please give a brief description of the real traumatic event that your just remembered:

FOR REAL NONTRAUMATIC EVENT EXPERIENCE

How old were you when you experienced the real nontraumatic event that you just remembered? _____ years old.

Please give a brief description of the real nontraumatic event that you just remembered:

FOR THE PUNCH BOWL SCENARIO:

Have you ever actually had an experience that was somehow similar to spilling the punch bowl scenario?

___ YES; ___ NO.

If YES, I was ___ years old when this event occurred.

Please give a brief description of the event:

FOR THE SNIPER SCENARIO:

Have you ever actually had an experience that was somehow similar to the sniper in the classroom scenario?

___ YES; ___ NO.

If YES, I was ___ years old when this event occurred.

Please give a brief description of the event:

PRACTICE QUESTIONS

Directions: The following practice questions ask you to describe your experience of the event you just considered. Please determine the degree to which each of the following characteristics applies to the event you just considered. Circle the number that most accurately describes your experience of the event.

1. Overall **vividness** for this event was

1	2	3	4	5	6	7
vague						very vivid

2. How much did your experience of this event involve **hearing any sounds**

1	2	3	4	5	6	7
no sound						a lot of sound

3. The **location** where the event took place was

1	2	3	4	5	6	7
vague						clear/distinct

4. To what extent did your experience of this event involve **intense fear**

1	2	3	4	5	6	7
not at all						extremely

IMPRESSIONS OF IMAGERY TASKS

Research participants often have ideas about the purpose of the study and what the researchers expect to find. We would like to know your ideas about the imagery tasks that you just completed. In the space below, please explain why you think we had you do these imagery tasks.

Appendix D

Pilot Study of Traumatic and Nontraumatic Events

Pilot Study of Traumatic and Nontraumatic Events

A pilot study was conducted to identify a traumatic event that people regarded as equally traumatic as childhood sexual abuse and a nontraumatic event that was regarded as less traumatic than childhood sexual abuse.

Method

Participants

Participants were 22 female university students (M age = 28.1, SD = 2.9 years). The participants were recruited by requesting for volunteers from various undergraduate psychology courses to participate in a "Pilot Study." No remuneration was received for participation.

Procedure

The principal researcher began by reiterating the nature of the study and receiving participants' informed consent. Informed consent forms reminded participants that the study could potentially upset some women, assured participants that they were free to withdraw from the study at any time, and assured them that all information would remain confidential.

In this within-subjects design, participants were asked to read about and then imagine eight childhood events. Four of these scenarios involved traumatic childhood events, namely a sniper in the classroom, witnessing violence, being kidnapped on a bus, and childhood sexual abuse. These scenarios read as follows: **Sniper**. "One day when a girl was at kindergarten, the classroom door banged open and a man holding a gun started shooting at her teacher and some of her classmates. The kids screamed and some of them hid under their desks. At the sight of her friend's blood, the girl hid under her desk until the shooting was over and the man left." **Witness violence**. "A 5 year old was sleeping over at her friend's house. During the night she heard loud noises that startled her and she got out of bed to see what was happening. She saw a strange man beating her friend's mother. She ran back into her room

and hid curled up in the closet. She could hear her friend and her friend's mother screaming. She then heard the front door slam shut and her friend crying out for help." **Kidnapping.** "A 5 year old was riding a school bus with her classmates. The bus slowed down as it approached a broken-down van. A masked gunman jumped onto the bus and ordered the driver to drive down an isolated country road. When the bus stopped the man ordered all the children off the bus and he locked them in an underground dirt cellar. They were there for hours, cold, tired and hungry. Many of the children were crying. After about 11 hours, two of the children found a way to crawl out." **Sexual abuse.** "A 5 year old was at home sleeping. She heard the door open slowly and pretended to be asleep. Her stepfather crawled into bed next to her. When she tried to get out of bed he grabbed her arm and threw her back down on the bed. As she started to scream he covered her mouth with his hand so that she could hardly breathe. He then sexually molested her as she lay there sobbing. When he was done he zipped up his pants and left the room."

Participants also read and then imagined four nontraumatic childhood events, namely losing a magazine, spilling a punch bowl, being lost in a mall, and being hit by a speeding car. These scenarios read: **Lost magazine.** "A 5 year old had a magazine that she really wanted to bring to show-and-tell at school. Her mother told her not to take magazines out of the house because she always lost them, but she decided to take the magazine anyway. As she was about to enter the school, she realized she had lost the magazine, so she started to retrace her steps to try to find it. She then heard the school bell ring and ran home crying because she was late for school." **Punch bowl.** "A 5 year old was at a wedding reception of some friends of the family. She was running around playing tag with some other kids and had been told twice by her parents to stop. Having won the game of tag, she jumped up excitedly and bumped into the table holding the punch bowl, spilling the punch all over the parents of the bride." **Mall.** "A little girl and her mom were

shopping at the local mall. Her mom gave her some money to get an ice cream cone, and she ran ahead to get into the line first. The little girl somehow lost her way in the mall and frantically ran from store to store trying to find her mom. After about 20 minutes her mom found her crying to an elderly woman." **Speeding car.** "A 5 year old was outside playing when her ball bounced onto the street. As she was running across the street to get the ball, a speeding car slammed on its breaks and swerved to avoid her. The car's fender caught the girl's clothes and she fell to the ground. Her mother ran across the street to see if she was hurt. The little girl showed her mom a big scrape along the side of one leg."

The eight scenarios were presented in randomized orders and, after considering each event for two minutes, the women used scales ranging from "not at all" (1) to "extremely" (9) to rate: "How traumatic would it be to experience this event?", "How likely do you think it is that this event could happen to someone?", "How easy or difficult would it be for you to imagine this event?", and "If you were the child in this scenario, how distressing would the event be?"

Upon completion, participants were debriefed and thanked for their participation.

Results

In order to identify a traumatic event that people regarded as equally traumatic to childhood sexual abuse, and to identify a nontraumatic event that was perceived as less traumatic than childhood sexual abuse, a series of paired t-tests tested the significance of the differences between participants' ratings of the childhood sexual abuse scenario and the remaining seven scenarios.

Table D1 presents the descriptive statistics for participants' ratings of how traumatic each scenario was. Results indicated that the punch bowl scenario was significantly less traumatic than the sexual abuse scenario. As well, the trauma ratings of both the sniper and the

kidnapping scenarios did not differ significantly from the childhood sexual abuse scenario.

Table D2 summarizes the results of the analyses of participants' ratings of the likelihood that each event could occur. These analyses indicated that three of the four nontraumatic events (punch bowl, speeding car, and lost magazine) were perceived as equally likely as sexual abuse. Being lost in the mall was rated as significantly more likely to happen than sexual abuse, and witnessing violence, a sniper attack and kidnapping were all regarded as significantly less likely.

Table D3 outlines the results of participants' ratings of how easy it was for them imagine themselves as the child in each scenario. This series of t-tests revealed that it was easier for the participants to imagine themselves in the nontraumatic scenarios relative to the traumatic scenarios.

Finally, Table D4 outlines the comparisons of participants' ratings of how distressing each event would be if they were the child. These analyses indicated that only the sniper scenario was regarded as being as distressing as sexual abuse.

Discussion

Because there were no significant differences in participants' ratings for three of four characteristics of the sniper scenario relative to the childhood sexual abuse scenario, and because there was the least variability in participants' ratings for the sniper scenario, the classroom sniper scenario was selected as the imaginary traumatic event for use in the primary study. The sniper in the classroom scenario was also deemed an appropriate traumatic event in view of Nader, Pynoos, Fairbanks, and Frederick's (1990) finding that elementary school children who were in closer proximity to an actual school yard sniper attack experienced a greater number of symptoms of PTSD relative to the other children at the school. The punch bowl scenario was selected as the imaginary nontraumatic scenario because participants'

rated this event as significantly less traumatic than the childhood sexual abuse scenario and because it allows for replication of Hyman and Pentland's (1996) results. Because the kidnapping and lost magazine scenarios were rated as more and less traumatic than sexual abuse, respectively, they were selected for the traumatic and nontraumatic practice trials.

Finally, it is interesting to note that both the shopping mall and punch bowl scenarios were perceived as significantly less traumatic, causing less personal distress, and more readily imagined than childhood sexual abuse. The lost in the mall scenario was also deemed significantly more probable than childhood sexual abuse. These findings in themselves lend some credence to the suggestion that people are less likely to misconstrue their imaginings of childhood sexual abuse for recovered memories than they are to misconstrue their nontraumatic imaginings for real trauma.

Table D1

Results of Paired t-tests Examining Participants' Trauma Ratings

Category	Scenario	<i>M</i>	<i>SD</i>	<i>t</i> (21) vs. child abuse
Trauma	Sexual abuse	8.77	0.61	-
	Witness violence	8.36	0.90	2.88**
	Sniper	8.86	0.35	-0.70
	Kidnapping	8.50	0.60	1.82
Nontrauma	Mall	6.95	1.65	-5.08***
	Punch bowl	5.95	1.53	-8.46***
	Speeding car	6.86	1.28	-6.67***
	Lost magazine	5.50	1.79	-8.87***

p* < .01. *p* < .001. Two tailed.

Table D2

Results of Paired t-tests Examining Participants' Likelihood Ratings

Category	Scenario	<i>M</i>	<i>SD</i>	<i>t</i> (21) vs. child abuse
Trauma	Sexual abuse	6.36	1.84	-
	Witness violence	5.54	1.89	2.21*
	Sniper	3.55	1.74	6.02***
	Kidnapping	3.00	1.41	6.99***
Nontrauma	Mall	8.14	0.77	4.84***
	Punch bowl	6.27	1.88	-0.18
	Speeding car	6.68	1.80	0.76
	Lost magazine	7.23	1.34	2.04

p* < .05. *p* < .01. ****p* < .001. Two tailed.

Table D3

Results of Paired t-tests Examining Participants' Ratings of Imaginability

Category	Scenario	<i>M</i>	<i>SD</i>	<i>t</i> (21) vs. child abuse
Trauma	Sexual abuse	4.77	2.58	-
	Witness violence	5.55	2.58	-1.58
	Sniper	4.73	2.73	0.11
	Kidnapping	4.32	2.23	0.8
Nontrauma	Mall	7.86	1.24	5.43***
	Punch bowl	6.55	2.22	3.48**
	Speeding car	6.59	1.89	3.49**
	Lost magazine	6.86	2.21	4.18***

p* < .01. *p* < .001. Two tailed.

Table D4

Results of Paired t-tests Examining Participants' Ratings of Personal Distress

Category	Scenario	<i>M</i>	<i>SD</i>	<i>t</i> (21) vs. child abuse
Trauma	Sexual abuse	8.91	0.29	-
	Witness violence	8.18	0.91	4.58***
	Sniper	8.86	0.35	1.00
	Kidnapping	8.41	0.59	3.92***
Nontrauma	Mall	7.23	1.34	-5.53***
	Punch bowl	6.32	1.67	-7.63***
	Speeding car	6.64	1.14	-9.51***
	Lost magazine	5.55	1.87	-8.57***

****p* < .001. Two-tailed.

Appendix E

Tables

Table 1

Frequencies of Participants' Relationships to their Sexual Abusers

Perpetrator identity	N	% of total
Father/stepfather	38	10.16
Brother/stepbrother	36	9.63
Other male relative	94	25.13
Male neighbour	72	19.25
Male stranger	32	8.56
Male authority figure	19	5.08
Other male	55	14.71
Total male perpetrators	346	92.51
Mother/stepmother	6	1.60
Sister/stepsister	6	1.60
Other female relative	7	1.87
Female neighbour	4	1.07
Female stranger	1	0.27
Female authority figure	2	0.53
Other female	2	0.53
Total female perpetrators	28	7.49

Table 2
*Results of Item Analyses and Descriptive Statistics for the
 Childhood Maltreatment Questionnaire (CMQ)*

CMQ subscale	N of items	M inter- item r	Alpha	M	SD
Psychological abuse	50	.41	.97	3.03	0.90
Physical abuse	15	.51	.94	1.93	1.02
Sexual parental	20	.61	.97	2.20	1.18
Sexual harassment	5	.72	.93	2.33	1.34
Noncontact CSA	5	.47	.84	2.03	1.09
Contact CSA	10	.73	.96	2.23	1.30
Sexual nonparental	20	.37	.92	2.82	0.91
Sexual harassment	5	.59	.88	3.20	1.04
Noncontact CSA	5	.39	.77	2.28	0.97
Contact CSA	10	.45	.89	2.91	1.03

Note. CMQ scores could range from 1 (never) to 5 (very often).

Table 3

Results of Item Analyses and Descriptive Statistics for Participants' Ratings of the Traumatic Impact of each Scenario

Scenario	<i>M</i>	<i>SD</i>	<i>M</i> inter-item <i>r</i>	Alpha
Imagined nontraumatic (Punch bowl)	3.44	2.05	.75	.90
Imagined traumatic (Sniper)	4.05	2.27	.86	.95
Real nontraumatic	3.70	1.80	.54	.78
Real traumatic (continuous)	4.74	2.02	.73	.89
Real traumatic (recovered)	5.34	1.85	.70	.87

Note. Scale scores could range from 1 (not at all) to 7 (extremely).

Table 4

Results of ANOVA Examining the Effects of Task, Event and Memory on Traumatic Impact Scores

Effect	$F(1,50)$	Eta^2
Task (real vs. imagined)	6.31*	.112
Event (nontraumatic vs. traumatic)	23.45***	.319
Memory (continuous vs. recovered)	0.32	.006
Task x Event	6.28*	.112
Task x Memory	10.14**	.169
Event x Memory	1.63	.032
Task x Event x Memory	1.47	.029

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5

Results of Principal Components Analyses of MIQ Items as a Function of Scenario

Scenario	Rotation	Number of factors	Number of complex items
Imagined nontraumatic (Punch bowl)	Varimax Oblimin	4 4	7 10
Imagined traumatic (Sniper)	Varimax ^a Oblimin	4	9
Real nontraumatic	Varimax ^a Oblimin	5	6
Real traumatic - continuous	Varimax ^a Oblimin	5	3
Real traumatic - recovered	Varimax Oblimin	6 6	2 7

^aFailed to converge in 25 iterations.

Table 6

MIQ Items Loading on Common Factors Across the Five Scenarios

Scenario	MIQ factor				
	Clarity	Sensory	Spatial	Temporal	Reliving
Imagined nontraumatic (punch bowl)	Clarity	Taste	Spatial-objects	Before	Body feelings
	Visual	Smell	Spatial-people	After	Reliving
			Location	When	
Imagined traumatic (sniper)	Clarity	Taste	Spatial-objects	Before	Body feelings
	Visual detail	Smell	Spatial-people	After	Emotions
	Vividness		Location	When	Reliving
	Event detail				
Real nontraumatic	Clarity	Taste	Spatial-objects	Before	Body feelings
	Vividness	Smell	Spatial-people	After	Emotions
	Order of events	Sound	Location		Reliving
Real traumatic (continuous)	Clarity	Taste	Spatial-objects	Before	Body feelings
	Visual detail	Smell	Location	After	Emotions
	Vividness				
	Event detail				
Real traumatic (recovered)	Clarity	Taste	Spatial-objects	Before	Body feelings
	Vividness	Smell	Spatial-people	After	Emotions
	Event detail		Location		
	Order				

Table 7

Results of Item Analyses of MIQ Scales as a Function of Scenario

Scenario	MIQ scale	<i>M</i> inter-item <i>r</i>	Alpha
Imagined nontraumatic (punch bowl)	Clarity	.78	.94
	Sensory	.61	.72
	Spatial	.72	.88
	Temporal	.39	.72
	Reliving	.66	.82
Imagined traumatic (sniper)	Clarity	.83	.95
	Sensory	.54	.59
	Spatial	.62	.83
	Temporal	.30	.62
	Reliving	.59	.81
Real nontraumatic	Clarity	.75	.92
	Sensory	.43	.57
	Spatial	.71	.86
	Temporal	.33	.67
	Reliving	.71	.71
Real traumatic (continuous)	Clarity	.60	.85
	Sensory	.67	.80
	Spatial	.74	.90
	Temporal	.24	.56
	Reliving	.17	.38
Real traumatic (recovered)	Clarity	.67	.87
	Sensory	.65	.79
	Spatial	.35	.59
	Temporal	.41	.73
	Reliving	.40	.67

Table 8

Correlations Among MIQ Scale Scores Separately by Scenario

Scenario/MIQ Scale	MIQ scale				Mr
	2	3	4	5	
Imagined nontraumatic (punch bowl; N = 82):					.491
1. Clarity	.38***	.67***	.57***	.72***	
2. Sensory	-	.32**	.27*	.43***	
3. Spatial	-	-	.57***	.44***	
4. Temporal	-	-	-	.54***	
5. Reliving	-	-	-	-	
Imagined traumatic (sniper; N = 82):					.485
1. Clarity	.31**	.77***	.61***	.67***	
2. Sensory	-	.27*	.28**	.29**	
3. Spatial	-	-	.60***	.42***	
4. Temporal	-	-	-	.57***	
5. Reliving	-	-	-	-	
Real nontraumatic (N = 82):					.430
1. Clarity	.35**	.68***	.63***	.55***	
2. Sensory	-	.20	.25*	.21	
3. Spatial	-	-	.65***	.43***	
4. Temporal	-	-	-	.35**	
5. Reliving	-	-	-	-	
Real traumatic (continuous; N = 63):					.315
1. Clarity	.14	.49***	.40**	.45***	
2. Sensory	-	.06	.25*	.27*	
3. Spatial	-	-	.45***	.35**	
4. Temporal	-	-	-	.29*	
5. Reliving	-	-	-	-	
Real traumatic (recovered; N = 46):					.326
1. Clarity	.28	.57***	.52***	.26	
2. Sensory	-	.30*	.22	.26	
3. Spatial	-	-	.63***	.15	
4. Temporal	-	-	-	.07	
5. Reliving	-	-	-	-	

*p < .05. **p < .01. ***p < .001. All tests two-tailed.

Table 9

Descriptive Statistics for Participants' MIQ Scale Scores by Scenario

Scenario	MIQ scale	<u>Continuous Memory (N=36)</u>		<u>Recovered Memory (N=19)</u>	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Imagined nontraumatic (punch bowl)	Clarity	5.42	1.40	4.82	1.78
	Sensory	2.21	1.57	1.45	0.81
	Spatial	5.04	1.84	4.56	1.96
	Temporal	4.39	1.51	3.96	1.77
	Reliving	4.45	1.81	3.46	1.54
Imagined traumatic (sniper)	Clarity	5.24	1.60	4.86	1.92
	Sensory	2.17	1.59	1.50	0.96
	Spatial	5.12	1.36	5.05	2.12
	Temporal	3.08	1.32	3.00	1.36
	Reliving	4.13	1.97	3.68	1.55
Real nontraumatic	Clarity	5.76	1.18	5.41	1.49
	Sensory	2.22	1.51	1.89	1.17
	Spatial	6.12	1.20	5.77	1.76
	Temporal	4.76	1.37	4.56	1.72
	Reliving	4.96	1.57	4.75	1.38
Real traumatic	Clarity	6.13	1.05	4.71	2.01
	Sensory	3.28	2.17	3.03	2.55
	Spatial	6.47	0.88	5.02	2.30
	Temporal	5.05	1.62	3.11	1.79
	Reliving	5.27	1.55	5.49	1.38

Note. Scale scores could range from 1 to 7.

Table 10

Results of MANOVA Examining the Effects of Task, Event and Memory on MIQ Scores

Effect	Pillai's	$F(5,46)$
Task (real vs. imagined)	.665	18.23***
Event (nontraumatic vs. traumatic)	.479	8.46***
Memory (continuous vs. recovered)	.108	1.12
Task x Event	.355	5.06**
Task x Memory	.176	1.96
Event x Memory	.195	2.23
Task x Event x Memory	.201	2.32*

* $p < .06$. ** $p < .01$. *** $p < .001$.

Table 11

Results of Univariate Tests of the Effects of Task on MIQ Scores

MIQ scale	<u>Real</u>		<u>Imagined</u>		Eta ²	F(5,46)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Clarity	5.6	1.3	5.2	1.4	.077	4.18*
Sensory	2.7	1.5	2.0	1.3	.242	15.93***
Spatial	6.0	1.3	5.0	1.6	.270	18.53***
Temporal	4.5	1.4	3.7	1.3	.276	19.95***
Reliving	5.1	1.2	4.1	1.6	.461	42.74***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 12

Results of Univariate Tests of the Effects of Event on MIQ Scores

MIQ scale	<u>Nontraumatic</u>		<u>Traumatic</u>		Eta ²	F(5,46)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Clarity	5.4	1.2	5.4	1.3	.009	0.46
Sensory	2.0	1.2	2.6	1.6	.164	9.83**
Spatial	5.4	1.4	5.5	1.3	.002	0.12
Temporal	4.5	1.3	3.7	1.3	.325	24.05***
Reliving	4.6	1.4	4.7	1.4	.034	1.75

** $p < .01$. *** $p < .001$.

Table 13

Results of Univariate Tests of the Effects of the Two-Way Task by Event Interaction on MIQ Scores

MIQ scale	Eta ²	F(5,46)
Clarity	.002	0.35
Sensory	.116	9.97**
Spatial	.046	2.39
Temporal	.049	2.59
Reliving	.076	4.14*

* $p < .05$. ** $p < .01$.

Table 14

Results of Simple Effects Analyses of the Task by Event Interaction

Effect	MIQ scale	Pillai's	Eta ²	F
Task within nontraumatic		.472	-	8.22***
Clarity	-	.094		5.16*
Sensory	-	.022		1.11
Spatial	-	.289		20.29***
Temporal	-	.074		3.98+
Reliving	-	.261		17.64***
Task within traumatic		.610	-	14.40***
Clarity	-	.027		1.38
Sensory	-	.264		17.93***
Spatial	-	.092		5.05*
Temporal	-	.260		17.60***
Reliving	-	.419		36.12***
Event within real		.360	-	5.17**
Clarity	-	.019		0.96
Sensory	-	.212		13.47**
Spatial	-	.016		0.80
Temporal	-	.089		4.87*
Reliving	-	.095		5.28*
Event within imagined		.424	-	6.77***
Clarity	-	.000		0.01
Sensory	-	.000		0.90
Spatial	-	.036		1.87
Temporal	-	.346		26.45***
Reliving	-	.002		0.08

+ $p < .06$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Note. The degrees of freedom were 5,46 for multivariate F -test and 1,50 for the univariate F -tests.

Table 15

Results of Univariate Tests of the Effects of the Three-Way Task by Event by Memory Interaction on MIQ Scores

MIQ scale	Eta^2	$F(5,46)$
Clarity	.064	3.42
Sensory	.001	0.58
Spatial	.079	4.30*
Temporal	.162	9.65**
Reliving	.001	0.59

* $p < .05$. ** $p < .01$.

Table 16

Results of Simple Multivariate and Univariate Tests of the Three-Way Task by Event by Memory Interaction

Effect	MIQ Scale	Pillai's	Eta ²	F
Task by Event within continuous		.369	-	5.38**
	Clarity	-	.021	1.08
	Sensory	-	.136	7.90**
	Spatial	-	.004	0.19
	Temporal	-	.233	15.22***
	Reliving	-	.067	3.55
Task by Event within recovered		.228	-	2.71*
	Clarity	-	.045	2.35
	Sensory	-	.063	3.35
	Spatial	-	.094	5.16*
	Temporal	-	.017	0.88
	Reliving	-	.025	1.26

* $p < .05$. ** $p < .01$. *** $p < .001$.

Note. The degrees of freedom were 5,46 for the multivariate F -test and 1,50 for the univariate F -tests.

Table 17

Descriptive Statistics for Within-Participants Analyses of MIQ Scores

Scenario	MIQ scale	<i>M</i>	<i>SD</i>
Imagined nontraumatic (punch bowl)	Clarity	4.67	2.03
	Sensory	1.93	1.49
	Spatial	4.41	2.10
	Temporal	3.57	1.71
	Reliving	3.89	1.82
Imagined traumatic (sniper)	Clarity	4.56	1.98
	Sensory	1.61	1.09
	Spatial	4.85	1.82
	Temporal	3.00	1.70
	Reliving	1.70	1.00
Real nontraumatic	Clarity	5.86	1.40
	Sensory	1.93	1.45
	Spatial	6.06	1.35
	Temporal	4.84	1.74
	Reliving	5.05	1.49
Real traumatic - continuous	Clarity	6.15	0.98
	Sensory	2.81	1.96
	Spatial	6.40	0.89
	Temporal	4.26	1.67
	Reliving	5.47	1.39
Real traumatic - recovered	Clarity	5.44	1.39
	Sensory	2.72	1.72
	Spatial	5.44	1.90
	Temporal	3.25	1.37
	Reliving	5.65	1.20

Note. Scale scores could range from 1 to 7.

Table 18

*Results of Within-Participants Univariate Tests of MIQ Scores
by Scenario*

MIQ scale	Eta ²	F(4,104)
Clarity	.204	6.66**
Sensory	.142	4.32*
Spatial	.236	8.01**
Temporal	.203	6.63**
Reliving	.353	14.16**

* $p < .01$. ** $p < .001$.

Table 19

Results of Within-Participants A Priori Comparisons and Univariate Tests on MIQ Scores

Comparison	MIQ scale	Pillai's	Eta ²	F
Real nontraumatic vs. recovered traumatic	Clarity	.498	-	4.37**
	Sensory	-	.070	1.95
	Spatial	-	.185	5.89*
	Temporal	-	.106	3.10
	Reliving	-	.375	15.60**
		-	.127	3.80
Real nontraumatic vs. imagined nontraumatic	Clarity	.683	-	9.47**
	Sensory	-	.228	7.68*
	Spatial	-	.000	0.00
	Temporal	-	.409	17.99***
	Reliving	-	.436	20.10***
		-	.275	9.86*
Recovered traumatic memory vs. nontraumatic imaginings (punch bowl)	Clarity	.547	-	5.32**
	Sensory	-	.108	3.15
	Spatial	-	.135	4.04
	Temporal	-	.112	3.28
	Reliving	-	.024	0.65
		-	.420	18.85***
Recovered traumatic memory vs. traumatic imaginings (sniper)	Clarity	.664	-	8.68***
	Sensory	-	.121	3.58
	Spatial	-	.269	9.56**
	Temporal	-	.054	1.49
	Reliving	-	.012	0.33
		-	.533	29.71***

* $p < .0375$. ** $p < .01$. *** $p < .001$.

Note. The degrees of freedom were 5,22 for the multivariate F -test and 1,26 for the univariate F -tests.

Table 20

Descriptive Statistics for Participants' Awareness of the Purposes of the Study

Effect	Awareness (%)			<i>M</i>	<i>SD</i>
	None	Some	Completely		
Task	77.2	20.3	2.5	2.7	0.5
Event	87.3	12.7	0.0	2.9	0.3
Memory	0.0	0.0	0.0	3.0	0.0
Task x Event	92.4	7.6	0.0	2.9	0.3
Task x Event x Memory	0.0	0.0	0.0	3.0	0.0

Note. Scores could range from 1 (none) to 3 (complete).

Table 21

Pearson Correlations of Women's Memory and DES Scores with the Nature of their Abuse, Therapy, and Stage of Recovery

Severity of Abuse	Memory	DES
Nature of Abuse:		
Number of perpetrators	-.01	.11
Frequency	-.06	.20
Age at onset	-.36**	-.03
Age at offset	-.24*	.11
Duration	.07	.11
CMQ:		
Psychological abuse	-.03	.22
Physical abuse	-.03	.10
Sexual parental	.24*	.03
-harassment	.20	.06
-noncontact	.20	.03
-contact	.25*	.02
Sexual nonparental	.03	.25*
-harassment	.02	.15
-noncontact	.17	.23
-contact	-.03	.25*
Therapy	-.14	-.08
Years in therapy	.13	.23
Recovery:		
Safety	-.13	.44***
Trust	-.19	.55***
Remembering and mourning	-.03	.24*
Reconnecting	.08	-.49***

* $p < .05$. ** $p < .01$. *** $p < .001$. Two-tailed.

Note: Memory was coded "1" for exclusively recovered memories, "2" for both continuous and recovered memories, and "3" for exclusively recovered memories. Having received therapy was coded as "1" for yes and "2" for no.

IMAGE EVALUATION TEST TARGET (QA-3)

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