Amnesia for Traumatic Events Among Recent Survivors: A Pilot Study

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FOCUS POINTS
- Brief amnestic episodes appear to be common following severe psychiatric trauma.
- In subjects without posttraumatic stress disorder (PTSD), the brief amnestic episodes are stable over time.
- In subjects with PTSD, longer, progressive, and potentially reversible amnestic episodes occur.

ABSTRACT

Objective: *Traumatic amnesia has been amply documented in the psychoanalytic literature but inconsistently in the research literature.*

Method: *Six trauma were followed prospectively. Survivors were interviewed 7, 30, and 120 days following the traumatic event. Each interview documented in detail their recollections of the day of their trauma.*

Results: *In four subjects who did not develop posttraumatic stress disorder (PTSD), we found brief, stable, and persistent memory gaps, which coincided with the moment of greatest emotional intensity. In two subjects who developed PTSD, we found, in addition to the previous form of amnesia, longer, progressive, and unstable memory gaps.*

Discussion: *Neurobiological research offers two explanatory mechanisms for the observations: A failure of acquisition of episodic memories may account for the stable deficits seen in all subjects. This could coincide with stress-induced malfunction of the hippocampal declarative memory system. A failure of spontaneous recall may account for the more extended traumatic amnesia that was observed in PTSD patients. This resembles the psychoanalytic description of repression.*

Conclusion: *These preliminary findings suggest that brief, irreversible memory gaps are common in trauma survivors, whereas longer, progressive, and potentially reversible amnesia occurs among survivors who develop PTSD.*

CNS Spectr 2003;8(9):676-680,683-685

INTRODUCTION

This article consists of a case series of recent trauma survivors whose recollections of the traumatic event have been carefully recorded at several time intervals from the date of their respective incidents. It prospectively investigates the occurrence of posttraumatic amnesia and its links with posttraumatic stress disorder (PTSD).

Ever since Breuer and Freud[1] asserted that "hysterics suffer mainly from reminiscences," the study of psychological trauma and its consequences has been intimately linked to that of memory. PTSD may be viewed as the quintessential memory disorder. More than in any other Axis I disorder, the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*),[2] definition of PTSD contains numerous references to dysfunctional memory processes. The latter encompass both explicit memory (eg, enhanced recall of a traumatic episode) and implicit memory (eg, heightened response to cues [Table 1]).

Memory phenomena in PTSD may be grouped into two opposing categories: increased/intrusive memories and decreased/absent memories. Both may be found in the same subject. The category of increased/intrusive memories includes *DSM-IV* criterion B symptoms (reexperiencing), and criteria D4 (hypervigilance) and D5 (exaggerated startle response). The category of decreased/absent memories includes criterion C3 (inability to recall an important aspect of the trauma). It is noteworthy that *DSM-IV* criterion C3, which defines traumatic amnesia, is listed under the "avoidance/numbing" cluster of symptoms. This grouping is not self-evident: Absent memories may indeed be the result of an inability to access stored memory traces, but they may also result from a failure of encoding or consolidation during, or shortly after, the traumatic event. In such cases, the memory would truly be missing and not just inaccessible or avoided.

A common psychoanalytic conceptualization of traumatic amnesia relates to it as "repression"—an inability to recall a memory that nevertheless exists in the mind.[3] According to psychoanalytic theory, such amnesia is not random but rather driven by an unconscious need to avoid the painful emotional consequences of remembering. In a letter written to his friend Wilhelm Fliess, Freud illustrated this idea with an evocative metaphor[4]:

> To put it crudely, the current memory stinks just as an actual object stinks; and just as we turn away our sense organ in disgust, so do our preconsciousness and our conscious sense turn away from the memory. This is repression.

Thus, when the *DSM-IV* listed traumatic amnesia in the avoidance/numbing cluster it implicitly accepted the Freudian view.

Contrasting with the apparent acceptance of this view, the empirical research on traumatic amnesia is both limited and inconsistent. Some researchers[5-7] seriously doubt the existence of repression. Others,[8,9] have shown evidence for a dual-memory system in which recollections might be encoded in a subsystem of emotional recall without the related episodic memory. Experiments in split-brain patients[10,11] and in patients with right-sided parietal lesions[12,13] revealed a capacity for apparent selective suppression of episodic memories, which was sometimes reversible. In addition, recent studies in rats demonstrated that conditioned fear memory could be inhibited by blocking protein synthesis during recall.[14]

Traumatic amnesia could not be generated in the laboratory or under experimental conditions. Salient life experiences, such as President Kennedy's assassination or the Space Shuttle Challenger explosion, have not been found to generate traumatic amnesia.[15,16] Traumatic amnesia was the least frequently reported PTSD symptom (5% of the sample) following the destruction of the World Trade Center on September 11, 2001.[17] Historical surveys of survivors found traumatic amnesia in a significant minority of the subjects.[18,19] However, all the above studies were retrospective and relied on survivors' subjective reports. The numerous case reports of traumatic amnesia in the psychotherapy literature are also retrospective. A prospective evaluation of Gulf War veterans described a progressive distortion of recollections, but paradoxically in the form of reporting additional stressful experiences among survivors with PTSD.[20]

Recent advances in the neuroscience of memory have generated several physiologic and anatomic models that may account for traumatic amnesia. First, traumatic amnesia may be the result of poor or patchy initial acquisition[21]; next, amnesia may reflect a progressive decay of memories or their active extinction[22]; and, finally, traumatic amnesia could be due to a failure in reconsolidation[14] or due to deactivation of neuronal pathways that mediate recall of episodic memories.[23] In the latter case, the deficit would be in retrieval rather than acquisition or storage. The relevance of these models to PTSD may be assessed by the following questions: Is traumatic amnesia regularly found among recent survivors? Is it stable over time? Does it exclusively occur in conjunction with PTSD? What else can putative memory gaps teach us about the mechanisms of traumatic recall?

Cognitive neuroscience has benefited from hypotheses-generating studies that involved single cases or a small-case series. It has even been argued that studies of aggregates might hide significant individual variations in cognitive processes. Ellis and Young[24] have posited that a cognitive neuropsychological approach "is best served by intensive single-case studies of patients with deficits in different areas of cognitive processing." They also recognized that[24]:

> This stands in contrast to traditional neuropsychology where the dominant approach has often been one in which the performance on one or more tasks of a group of patients of a given type is contrasted either with the performance of another group of patients of a different type or with a group of normal 'control' subjects.

They have agreed with Shallice[25] that averaging across groups may result in the loss of "much potentially valuable information…notably, information about individual differences between patients assigned to the same groups."

In line with this view, we report on the following study, a systematic observation of six recent trauma survivors, whose exposure to traumatic events had been accurately ascertained and whose memories of the trauma were carefully and repeatedly recorded during the months that followed the traumatic event.

METHOD

Subjects

Subjects were recruited in the emergency department (ED) of a large public hospital in Jerusalem from among the participants of an ongoing prospective study of PTSD in recent survivors.[26] Subjects described in this study were admitted to the ED following an acute event that met *DSM-IV* PTSD criterion A and were randomly chosen from the larger study population. The subject group consisted of the first six consecutive cases, starting from an arbitrarily chosen time point who met inclusion criteria. Subjects with physical injury necessitating surgery and subjects with head injury, loss of consciousness, or alcohol/drug intoxication were not included. An experienced clinical psychologist assessed each subject in the ED and ascertained the occurrence of a traumatic event. After receiving a full explanation of the procedure and after giving informed consent for participation in the study, subjects were asked to return to our research clinic for three follow-up interviews: 1 week after the event, 1 month after the event, and 4 months posttrauma. Subjects were paid the equivalent of $40 for time allocation and travel to each follow-up interview. Five of the study's participants were male (Table 2). Their ages ranged from 19–26 years. All were single. All were high school graduates and four had some undergraduate education. No subject had received psychotropic medications prior to their traumatic event. None had a psychiatric diagnosis at the time of the event. Two met criteria for a past episode of adjustment disorder and one had a past episode of major depression.

Instruments

Concurrent and lifetime Axis I disorders were assessed by the structured clinical interview for *DSM-IV* (SCID).[27] Current PTSD was assessed by the Clinician-Administered PTSD Scale (CAPS).[28] Both instruments had been validated in Hebrew and used in previous studies of PTSD and other mental disorders. In addition to diagnosis of PTSD, the CAPS also yields a continuous measure of PTSD symptom severity.

Interviews

The six participants of this study were interviewed three times by one of the study authors (Y.Y.): Subjects B, C, D and F were interviewed 7, 30, and 120 days following the traumatic event. Subjects A and E were interviewed on days 30 and 120. Each subject was independently and blindly

assessed by an experienced research psychologist, who administered the SCID and the CAPS.

In order to maximize recall, the memory interview had an open-ended phase and a structured probing phase. The open-ended phase requested the details of what happened to each subject during the day of the event, starting from the moment they woke up in the morning and ending in their discharge from the ED. The interview followed the course of events chronologically, and lasted 60–90 minutes. The interview began by eliciting the subjects' spontaneous narrative. After this, the interviewer attempted to elicit all available details and fill in all the gaps in the narrative using open-ended questions without hints or suggestions. At this point in the interview, the subject was asked how sure he or she was regarding each event or detail that had been communicated.

In the probing phase of the interview, the interviewer used knowledge gained from ED records, ED psychological reports, and the subject's previous interviews, to address salient gaps in the narrative and probe for additional recollections. This was done in order to evaluate cued recall. Recall for events was assessed in chronologic order, that is, from the beginning of the day to the end of ED treatment that followed the trauma. For each time period, recollections were assessed as either present or missing. Subjects' certainty about the accuracy of their recollection was also assessed chronologically.

Data Management

Data on four of our six subjects is reported as narrative. A qualitative graphic representation of their episodic memories of the event was constructed by the interviewer and by an independent reviewer who read undated transcripts of the interviews and was blind to subjects' diagnoses and to the time of each interview (ie, 1 or 4 months). There was 90% initial agreement between the two assessments, and differences were resolved by reaching a consensus. The resulting graphs represent all remembered details of the events from

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TABLE 1. MEMORY PHENOMENA IN THE *DSM-IV* DEFINITION OF PTSD

Criterion	Description	Type of Memory	Direction of Change in Memory
B1	Recurrent and distressing recollections of the event, including images, thoughts, or perceptions	Declarative, episodic	Increased
B2	Recurrent distressing dreams of the event	Declarative, episodic	Increased
B3	Acting or feeling as if the traumatic event were recurring	Declarative, episodic and Nondeclarative, learned motor behaviors	Increased
B4	Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event	Nondeclarative, emotional (fear conditioning)	Increased
B5	Physiologic reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event	Nondeclarative, emotional (fear conditioning)	Increased
C3	Inability to recall an important aspect of the trauma	Declarative, episodic	Decreased
D4	Hypervigilance	Nondeclarative, nonassociative (sensitization)	Increased
D5	Exaggerated startle response	Nondeclarative, nonassociative (sensitization)	Increased

DSM-IV=Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; PTSD=posttraumatic stress disorder.

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TABLE 2. SUBJECT DEMOGRAPHICS AND TEST RESULTS

Subject	Age (Years)	Gender	Education	Past Psychiatric History	Intrusion Symptoms Frequency	Intrusion Symptoms Intensity	Avoidance Symptoms Frequency
A	23	Male	High school	Adjustment disorder	7	10	13
B	22	Female	High school	Adjustment disorder	0	0	0
C	26	Male	Some college	None	0	0	3
D	24	Male	Some college	Major depression	1	2	2
E	24	Male	Some college	None	0	0	2
F	19	Male	Some college	None	8	8	12

Only Subjects A and F met the CAPS threshold criteria for the diagnosis of PTSD. These two subjects were the only ones who demonstrated longer and expanding memory gaps in their successive narratives. All subjects had brief, fixed memory gaps that did not fill up on cued recall and remained stable throughout the study period.

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the time the subject got up in the morning to the time he or she was discharged from the ED (Figures 1 and 2). The instance of the traumatic event (eg, the moment the bomb exploded) was arbitrarily designated as time zero. The completeness and intensity of the memories was graphed with time on the ordinate and percentage of details remembered on the abscissa. Time was represented on a logarithmic scale to reflect the fact that the number of details remembered increased dramatically around the time of the actual trauma, as predicted by the phenomenon of flashbulb memories.[29,30] The percentage of details the subject remembered at each time interval was estimated by comparing the number of details actually remembered with the number of details considered by each of the two reviewers to constitute a reasonably complete account of what had occurred, on the basis of all available sources of information (ambulance records, ED charts, and eyewitness accounts). A 6-point gray scale illustrates the degree of certainty in which each subject remembered the details provided for each time point.

RESULTS

As will be shown in the following reporting of the cases, a salient observation of this study is the existence of brief memory gaps surrounding the instance of the traumatic event in all subjects. These gaps lasted from a few seconds to a few minutes and were present regardless of a diagnosis of PTSD (Table 2). Additionally, these memory gaps persisted in the cued-recall phase of the interview, in which neither hints nor forced-choice questions could elicit further details. Finally, these brief instances of amnesia contrasted with heightened memory to the events that immediately preceded or followed them.

Case Reports

Subject B, who worked on a farm, was injured when a rope tied to a horse she was leading suddenly tightened around her hand and tore the flesh off the distal phalanges of her index and middle fingers. While she remembered the accident in detail, the absence of pain, and how she walked calmly to the village clinic, her memory failed her at the moment she comprehended the seriousness of her injury:

> I entered the clinic and saw a mother with her daughter talking to the nurse. I hid my hand behind my back so that I don't scare the girl and asked to speak to the nurse. When she saw my hand she asked 'did you bring the fingers with you?' I suddenly realized that I really lost part of my fingers and I became frightened and then there's a part I don't remember. The next thing I remember is that my hand was already bandaged and the nurse was placing an ice pack over it. Then I called my boyfriend on the cell phone and asked him to come to the clinic.

This narrative is from day 7. Subject B's narrative did not change significantly in the following interviews (Figure 1). Subject B did not develop PTSD.

Subject E, a student, was stabbed in the chest by his father during a family argument. Although he remembered the details of the argument that preceded the stabbing and his leaving the house on his own to go to the hospital following the incident, he had no recollection of actually being stabbed:

> I told myself that I will never let him hit me again. He swung at me and then I punched him hard in the face. He fell back, and I was shocked by what I did, I mean, hitting my own father, even though he attacked me first. We were still in the living room then. He got back up and yelled at my mother that if I don't leave the house immediately, he will destroy me. I wanted to avoid any further violence so I told him I was leaving. I went to my room to get my bag and he followed me, screaming. I don't remember how I got from the living room to my room. But when I got there I turned around and saw that he was holding a knife. He looked stunned. I raised my hands to protect myself and it was then that I felt a stream of blood coming from under my armpit. He must have stabbed me when I was on my way from the living room to my room, but I can't remember it happening. When he saw the blood he dropped the knife and started to cry. I took off my shirt and tried to stop the bleeding but it didn't stop. After a minute or two I felt sharp pains in my side and I became a little short of breath.

This narrative is from day 30. Subject E's narrative did not change significantly at day 120 (Figure 1). Subject E did not develop PTSD. Subjects C and D, who also did not develop PTSD, survived motor vehicle accidents. Both of them reported brief gaps in their memory at the moment of collision . For example, one reported "I saw our car sliding toward the

CAPS Scores 4 Months Posttrauma				
Avoidance Symptoms Intensity	Arousal Symptoms Frequency	Arousal Symptoms Intensity	Total CAPS Score	Memory Gap
11	3	6	50	Progressive, prolonged, and fixed; brief
0	0	0	0	Fixed, brief
4	6	3	16	Fixed, brief
4	0	0	9	Fixed, brief
2	0	0	4	Fixed, brief
10	10	10	58	Progressive, prolonged, and fixed; brief

CAPS=Clinician-Administered Posttraumatic Stress Disorder Scale; PTSD=posttraumatic stress disorder.

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truck. Everyone was yelling and the next thing I recall is myself leaning forward with my hands over my head. This was after the accident, but I can't remember the crash." As in the previous cases, the memory gaps remained stable in subsequent interviews, and no further details could be elicited under priming conditions.

Different amnestic phenomena were seen in two subjects (A and F) who developed PTSD (Figure 2). While they also had short and focused memory gaps in the first interview, these gaps increased in span and depth over subsequent interviews. Importantly, details about the missing moments could sometimes be elicited by hints and forced-choice questions.

Subject A, a 23-year-old truck driver, was driving a small car when he was crashed into by another car which sped into the intersection instantly killing its passenger. Although the police cleared him of any responsibility for the accident, he blamed himself for the death that occurred. On both interviews, he remembered most details of the crash but his memory about what followed it

became more patchy and vague over time. On day 30, he remembered getting out of his overturned car and walking toward the intersection. But at the point where he must have seen the dead passenger in the other car, his memory failed him:

> I felt the impact of the crash and my car turned over, but I don't remember hearing the sound of the cars colliding. I only remember hearing the screeching noise as my car slid on its roof along the asphalt before coming to a halt. In the meantime the air bag inflated and wrapped around my head and I felt that I was suffocating. I panicked and tore it off my face. The door on my side wouldn't open so I tried the other door but it was stuck as well. I returned to my door, forced it open and got out. I felt no pain. I began stumbling toward the intersection and saw the other car standing there. People were gathering around it and they looked at me as I approached. I don't remember seeing anyone in the car but I screamed 'you idiot' and pointed to the other car as I got closer. The next thing I remember is the ambulance arriving and how they put me on a
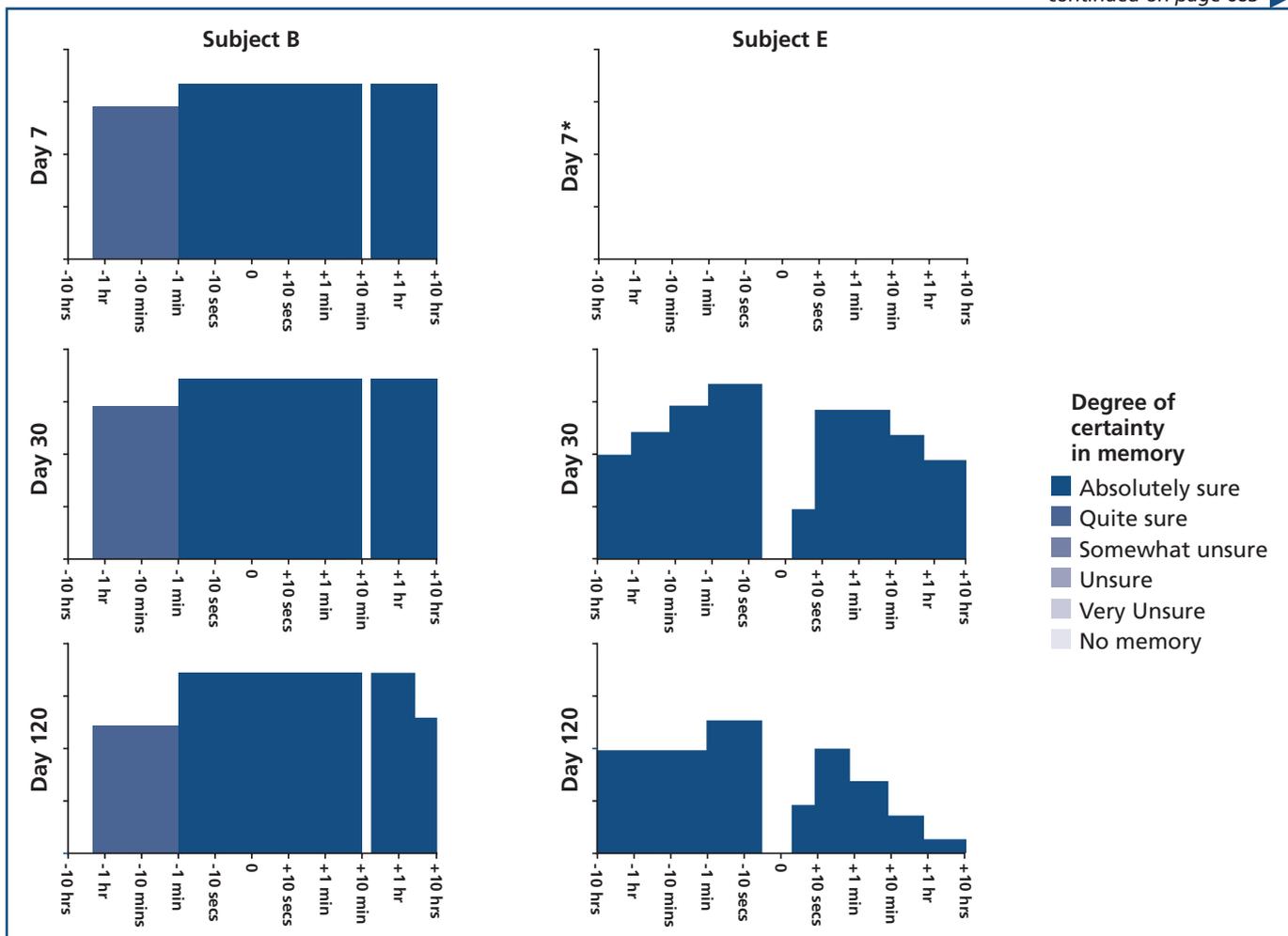
FIGURE 1. A Graphic Representation of the Recollections of Subjects B and E Who Did Not Develop PTSD

* No information available for Subject E.

hrs=hours; hr=hour; min=minute; mins=minutes; secs=seconds; PTSD=posttraumatic stress disorder.

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stretcher, and I remember the bumpy ride to the hospital.

On day 120, his memories until he got out of the car were still unchanged but he did not remember approaching the other car. He also had no recollection of the ambulance ride and his arrival at the ED. He stated that the first thing he remembered after the accident was his family standing around his bed in the ED. When his narrative from the previous interview, in which he described the ambulance ride and his admission to the hospital, was read to him in the cued-recall phase of the interview, he said that it sounded "vaguely familiar." He was able to answer some forced-choice questions about details not spontaneously reported correctly (Figure 2). Subject A suffered from severe PTSD that was accompanied by conversion disorder (pseudoseizures) and resulted in his complete inability to work and care for himself.

Subject F, a 19-year-old student, was lightly injured in a suicide bombing in Jerusalem on a Saturday night. When interviewed on day 7 he remembered the details of the evening with great clarity until 1 minute before the explosion:

> I was supposed to meet my friends at the café by 11:30. As I was walking there I called them on the cell phone to say that I'd be there in a minute and I remember seeing the time on the phone display, it was 11:34. Then there's one minute I don't remember that well, and that minute saved my life. I stopped to look at some store windows on my way, instead of walking straight to the café [where the bombing occurred]. The next thing I remember is approaching the café and all of a sudden this yellow and red flash and the sound, louder than anything I've ever heard before. For a second I thought, 'I'm going to die now'. The explosion threw me to the ground. There was a stench of explosives in the air. I felt no pain then. I was lying on my back and moved my head from side to side, just to see that I can do it. There was this eerie silence following the blast, everything was quiet for a second. And then people started screaming. It was terrible. Right next to me I saw this woman without legs, lying there motionless. Her hair
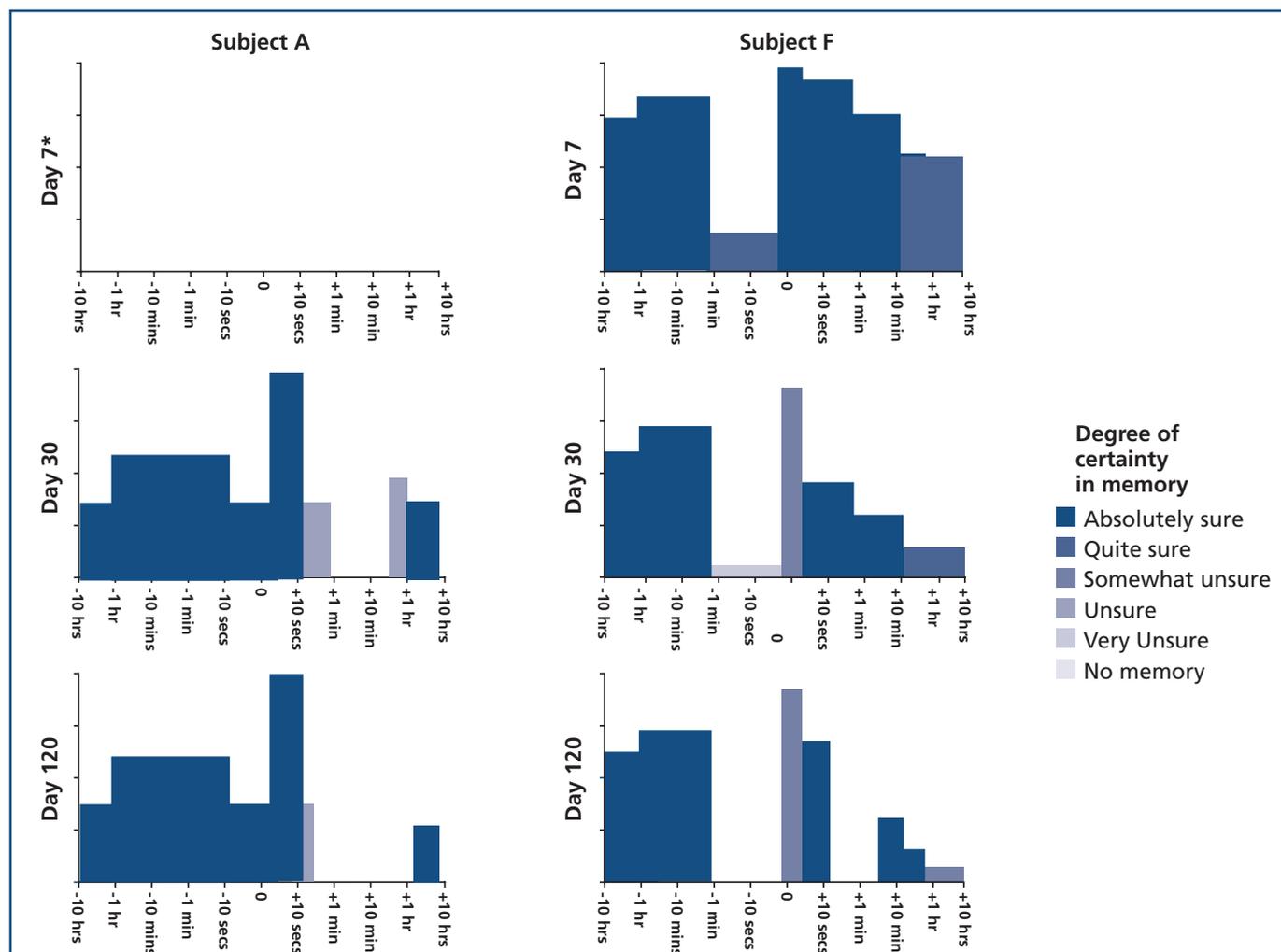

FIGURE 2. A Graphic Representation of the Recollections of Subjects A and F Who Developed PTSD

* No information available for Subject A.

hrs=hours; mins=minutes; secs=seconds; PTSD=posttraumatic stress disorder.

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was singed. I think she was dead. She must have been dead. All around me I saw body parts and blood, so much blood. There are things I don't remember from there, terrible things. People's lives were destroyed, they became invalids within seconds, like this woman I saw, I feel so sorry for her, how will she live without her legs? A boy was crying next to me, he wasn't hurt but he panicked, I got up and tried to comfort him but he just trembled and wouldn't look up. I went to a nearby kiosk and asked for a glass of water and brought it back to him and he drank it. All the people who were alive were screaming. By then the ambulances started arriving and I just walked into one, told the driver I was hurt and they brought me to the hospital. I only began to feel the pain after the ambulance was moving.

As Subject F recounted this story on day 7, he began to cry. On day 30, Subject F's narrative was delivered with detached, blunted affect. His memories of the hours before the bombing were only slightly less detailed. He was unable to recall any detail from the last minute before the explosion, except that he must have been walking toward the café. His memories from the first few minutes after the blast were also reduced and his narrative became patchy. He did not remember the dead woman he saw and did not recall having brought water to the boy he comforted after the explosion. He also did not recall seeing the body parts he mentioned on day 7. His memories from the hours after the bombing were also much reduced. When he was asked specifically about bringing the boy water and seeing the dead woman, he could not remember bringing the water to the boy, but recalled that he did see a dead woman. On day 120, Subject F's amnestic gaps grew further and deepened: he was unable to remember anything from the last minute before the blast, and he had no recollections from the time he saw the dead woman (whom he remembered spontaneously, unlike on day 30) until the time he was taken by ambulance to the hospital. When he was asked specifically about helping the boy and bringing him water, he recalled the incident.

DISCUSSION

The three main observations of this pilot study are (1) the presence of a short memory gap in all subjects, (2) the persistence of this gap over time, and (3) the additional and potentially reversible extension of memory gaps in subjects who developed PTSD. In the four subjects who did not develop PTSD, the amnestic gaps neither expanded nor were narrowed with the passage of time and three successive interviews did not elicit new information. Recollections that were not found during spontaneous recall were not retrieved during cued recall. This observation does not support the idea that there are repressed memory traces in these subjects. The findings of this study cannot completely eliminate the possibility that some or all of the subjects had intact memories shortly after the event, and forgot or 'repressed' them by the time of their day 7 or day 30 interviews. No support was found for such an occurrence.

The finding of gaps in episodic memory in all subjects was unexpected and intriguing. Several large studies[17-19,31] reported little traumatic amnesia among cohorts of survivors. A possible way to account for this discrepancy is the observation that most of the subjects in this study were unaware of their own memory gaps until their recollections were elicited in great detail in long and detailed interviews. When the same subjects were independently asked (as part of the CAPS interview) whether they experienced memory loss for a part of their trauma, most denied it. Another possibility is that brief amnestic gaps of the kind revealed in the nonPTSD subjects would not have been noted by studies that screened for longer and clinically meaningful amnesia. Since these interviews were conducted shortly after the incident, both interviewer and subject expected that all the important details of the event would be remembered and both could become acutely aware when there was a memory gap. This might not be the case with interviews conducted months or years following a traumatic incident. If replicated in a larger study, this finding suggests that brief amnesia might be very common following severe psychiatric trauma, and this type of amnesia is not linked to the occurrence of PTSD.

What neurobiological mechanisms might account for this type of memory gap? The brief amnesia described above was consistent, circumscribed, and stable. This raises the possibility of a failure of registration or initial encoding. Since this study focused on episodic memory, the observed "deficits" may reside in the hippocampal-prefrontal memory encoding system.[32] Three of the subjects underwent a deceleration-related event (motor vehicle accident). Such events, when severe, may cause a closed-head injury associated with an acute confusional state or loss of consciousness, as well as retrograde and anterograde amnesia.

Although the exclusion criteria screened out subjects with a history of head injury or loss of consciousness, the possibility that the amnestic episodes in three of our subjects were influenced by diffuse, transient, deceleration-related brain injury cannot be completely ruled out. Such a possibility, however, does not account for the amnesia seen in the other cases. A large body of experimental evidence[8,9,33-35] further suggests that the hippocampus and adjacent structures are sensitive to the effects of transient changes in cortisol, which might occur at times of intense fear and could interfere with the encoding of declarative memories. Consistent with Kandel's[36] hypothesis, the missing memories in the nonPTSD subjects may be truly missing: they appear to be absent rather than repressed.

A different course of amnesia was observed in Subject A and Subject F, who developed PTSD. These individuals had larger initial amnesia, and their memory gaps increased with time. Some of the "missing" details on days 30 and 120 could be recalled under priming conditions. Subject F had a memory that was present on day 7, absent on day 30, and present again on day 120, suggesting a potentially reversible amnesia. This form of amnesia, therefore, may represent difficulties in retrieval of information that was previously encoded and

stored. Such amnesia resembles repression, consistent with *DSM-IV* PTSD criterion C3. This memory problem also appears to be linked with avoidance: both subjects had considerable emotional difficulty talking about their trauma. Since each of our six subjects studied underwent a different experience, the possibility that the two subjects who developed PTSD were exposed to more extreme events cannot be ruled out. However, severity of the event often is not correlated to the likelihood of developing PTSD, and we have no information on its relationship with amnesia.

What neurobiological processes might account for this type of memory loss? A neurological model for sudden and reversible amnesia was proposed by Benson and Geschwind.[37] It was later discovered that right-sided inferolateral prefrontal and temporopolar lesions may disrupt the process of retrieval of existing episodic memories.[38-40] Markowitsch[23,41] pointed to the similarities between organic and psychogenic retrograde amnesias and suggested that similar mechanisms might be involved in both. It is thus tempting to speculate that an ongoing prefrontal/temporopolar functional impairment, which may be due to the psychological effects of the trauma in sensitive individuals, results in an inability to order and construct sensory impressions into a coherent, spontaneously available narrative. This inability may be expressed as a potentially reversible amnesia.

The possibility that some of the missing memories in trauma survivors are truly absent while others are repressed may be relevant to discussions about the role of reconstruction in the treatment of patients psychological trauma.

CONCLUSION

This pilot study revealed two patterns of amnesia following severe psychological trauma: a fixed, brief memory deficit that appeared to be very common and perhaps unrelated to posttraumatic psychopathology, and an expanding, potentially reversible amnesia that appeared to be related to avoidance and to PTSD. Known neurobiological mechanisms for amnesia may account for these clinical findings. Further research is required to replicate and validate them. `CNS`

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