

Fright (Effroi) and Other Peritraumatic Responses After a Serious Motor Vehicle Accident: Prospective Influence on Acute PTSD Development

Guillaume Vaiva, MD PhD¹, Alain Brunet, PhD², François Lebigot, MD³, Virginie Boss, MD⁴, François Ducrocq, MD⁵, Patrick Devos, PhD⁶, Philippe Laffargue, MD, PhD⁷, Michel Goudemand, MD⁸

Objective: We prospectively examined the relation between various peritraumatic responses (that is, fear, helplessness, horror, amnesia, and fright) and the development of posttraumatic stress disorder (PTSD) 2 months after a trauma.

Method: Participants included 123 motor vehicle accident (MVA) victims consecutively hospitalized in a traumatology department for over 72 hours during a 16-month period. Between day 2 and day 5 of their hospitalization, a psychiatrist assessed the patients' peritraumatic responses and acute stress disorder (ASD). Two months after the accident, an experienced psychiatrist contacted the patients by telephone, and the PTSD symptoms and the diagnosis were assessed with a modified version of the Clinician-Administered PTSD Scale (CAPS).

Results: Of the participants, 48 reported an immediate fright reaction when faced with the prospect of their own death. Participants who reported a fright experience had a 17 times greater risk of subsequently meeting the diagnostic criteria for PTSD (odds ratio 16.75). A fright reaction predicted PTSD development with a specificity of 0.93 and a sensitivity of 0.60.

Conclusion: The immediate reactions described in criterion A2 of the DSM-IV (that is, fear, helplessness, and horror) did not seem to be equally relevant. An initial feeling of fright seems to be an essential qualitative factor in the clinical description of psychological trauma.

(Can J Psychiatry 2003;48:395–401)

Clinical Implications

- Fright indexes the experience of a psychological trauma.
- Fright is a robust prognostic factor of posttraumatic stress disorder (PTSD).
- Peritraumatic emotional responses are important factors to assess.

Limitations

- Fright was assessed from a purely clinical point of view.
- The follow-up interview was conducted over the telephone.
- The sample included only severe accidents.

Key Words: motor vehicle accident, posttraumatic stress disorder, acute stress disorder, fright, peritraumatic responses

Defining trauma exposure can be a difficult task. In addition to considering the seriousness of the event, the clinician must also carefully consider the individual's immediate and postimmediate reactions to the event. The DSM-IV specifies that, to be traumatic, an event must elicit fear, helplessness, or horror (1). Among the investigators who have examined the predictive value of these and other peritraumatic responses (2–10), the reactions that relate to posttraumatic stress disorder (PTSD) and that have received the most empirical support include a feeling of helplessness, a perceived lack of control, panic, a threat to one's or someone else's life, and some forms of dissociative responses, all of which are related to the concept of fright (11). Interestingly, most of these reported studies typically exclude individuals with amnesia for the event, which may also be considered a form of peritraumatic response.

There are several ways to define the concept of peritraumatic responses. Peritraumatic responses may be assessed qualitatively using criteria A1 and A2 from DSM-IV, or they may be assessed with structured questionnaires, such as the Peritraumatic Dissociative Experiences Questionnaire (12) or the Peritraumatic Distress Inventory (9).

In this paper, we would like to introduce the concept of fright (*effroi* in French, *schreck* in German), which the French psychiatrists consider as the unequivocal sign of a traumatic psychological "breakdown" during an event (13–16). Fright typically involves 1) being suddenly confronted with the reality of death, traditionally considered to be unrepresented in the unconscious mind (that is, having "seen" oneself as dead or having seen the presence of death in someone else next to them) and 2) experiencing a transitory feeling of complete absence of affect (in particular, neither fear nor anxiety), accompanied by a lack of thought, true loss of words, and faced with a reality that seems unbelievable. This notion is illustrated in the following vignette. It is telling in that it shows a very ordinary series of clinical manifestations at the time of a serious accident, ending in PTSD: fright, an acute stress reaction with a traumatic reexperiencing syndrome, a latency period, and finally, at 3 months, PTSD development, which became increasingly handicapping.

Case Report: The "Glass Woman"

This 54-year-old woman is married with 2 children and suffers from extremely advanced osteoporosis. She is followed up every week by a professor from the Faculty of Medicine, who calls her "the glass woman." As part of her rheumatological treatment, she has to do a minimum amount of daily exercise. Thus, for a few years, she has walked an itinerary in town, which she religiously follows every day. One morning, while crossing a familiar pedestrian crosswalk, she was knocked over by a large car travelling at high speed. This

car had overtaken a queue of stopped cars and was about to go through the red light. The shock was terrible, and the woman was thrown onto the pavement 5 or 6 metres away. She suffered multiple fractures, but there were no lesions of the internal organs.

She remembers the accident very well, although her memories seem unreal to her. She states,

I suddenly saw an enormous black car with tinted windows, with a radiator shaped like a shark's mouth. . . . I didn't see any humans inside. . . . I was crushed by an iron monster. . . . I saw myself dead, squashed, obliterated. . . . I didn't have time to be frightened; it was like a vacuum . . .

She stated that her experience of fright was very brief; she described it as ending when she hit the ground and the pain started. In the postimmediate period after the accident, she presented with an acute stress reaction with few symptoms, which included a traumatic reexperiencing syndrome, especially at night, with very few dissociative symptoms. This traumatic reexperiencing syndrome continued for 3 weeks and then reappeared at the start of the third month, when she was discharged from hospital. One year later, she still had an extremely handicapped, full PTSD.

In the Peritraumatic Dissociative Experiences Questionnaire (12), the word "fright" is well described in the first item: "I had moments of losing track of what was going on. I 'blanked out' or 'spaced out' or in some way felt that I was not part of what was going on." Generally, a fright reaction lasts a few seconds or fractions of a second, but the feeling may be prolonged over minutes, hours, or days as the individual watches in fascination the traumatic scene unfold internally. Because fright may be prolonged and overlaps partly with some dissociative experiences, it can be viewed as a reaction that shares some features with peritraumatic dissociation and with acute stress disorder (ASD), which loads heavily on dissociative symptoms. The uniqueness of fright, however, contrary to the notion of peritraumatic distress, is that it involves a momentary lack of emotional response.

This study's objective was to prospectively examine the relation among various peritraumatic responses—specifically, criterion A2, amnesia, fright, and ASD—and the development of PTSD 2 months after trauma exposure.

Method

Participants

We studied a group of men and women aged 18 years or over who were victims of a road traffic accident and who required admission for over 72 hours to the Traumatology Department, at the University Hospital Centre of Lille. The accident involved at least 1 motor vehicle, and all victims were included in the study (that is, drivers, passengers, and

pedestrians). Patients who had been in coma or who had suffered head injury with loss of consciousness after the accident were excluded, as well as those with organic brain disease or dementia. The study received the approval of the hospital's ethical committee, and the patients who were included gave their written informed consent for the study.

A total of 248 motor vehicle accident (MVA) victims were consecutively hospitalized in the Traumatology Department at the University Hospital Center of Lille over a period of 16 months. Of these, 72 were hospitalized for under 72 hours; 28 were in a coma or had suffered a head injury with initial loss of consciousness or had an organic brain disease, dementia, a history of alcohol abuse, or an addiction; 13 were under age 18 years; and 5 refused to take part in the study, yielding a sample of 130. At 2 months, we had interviewed 123 of the 130 individuals who were assessed for ASD (95% of the initial sample), and 112 of 130 assessed for PTSD (86%).

Material

The Trauma Score. Emergency physicians use this instrument to evaluate the severity of injuries (17). It comprises 5 levels: 1) cutaneous lesions or muscular tenderness, 2) limb fracture, 3) multiple limb fracture, 4) multiple limb fracture and internal organ lesion, and 5) damage to multiple vital organs.

ASD. ASD was diagnosed by an experienced psychiatrist using a DSM-IV symptom checklist.

Clinician-Administered PTSD Scale (CAPS) for DSM-IV. The CAPS, a 30-item scale for assessing frequency and intensity of DSM-IV symptoms of PTSD, has additional items to assess social and occupational functioning, global PTSD symptom severity, and response validity (18). Interrater reliability for the 3 primary subscales exceeds 0.92. Internal consistency for the 3 primary subscales, assessed with Cronbach's Alpha, is 0.87. There is high convergent validity with other PTSD measures. All CAPS interviews were conducted at 2 months after trauma exposure by the same psychiatrist.

Trauma Exposure, Amnesia, and Fright Reactions. We assessed the presence or absence of fright by the following components: 1) being suddenly confronted with the reality of one's own death or with the presence of someone else's death; and 2) having, at least momentarily, a complete absence of affect, or lack of thought, or loss of words, or being spaced out, or all these symptoms. With respect to the fright experience, the victims either spontaneously described this experience, or they were asked in a nondirective way. For example, they reported that they saw themselves as dead or about to die, that they had been confronted with the death of someone else in the vehicle in which they were trapped, that their thoughts stopped and they had a strong feeling of emptiness, or that they experienced total psychological inhibition. Some of

Table 1 Sample description

	<i>n</i>	%	Mean (SD)
Age			31.30 (13.00)
Sex			
Men	84	68	
Women	39	32	
Marital status			
Married	47	38	
Number of children			0.80 (1.00)
Employment status			
Full-time	78	63	
Unemployed or part-time	23	19	
Student	19	16	
Undisclosed	3	2	
Number of injured patients			1.60 (1.00)
Number of deaths and accidents			0.10 (0.50)
Number of prior accidents			0.90 (1.00)
Injury severity score			2.75 (0.80)
Met Criterion A2 (DSM-IV)	70	57	
Fright reaction	48	39	
ASD	44	36	
PTSD at 2 months	57	46	
ASD = acute stress disorder			
PTSD = posttraumatic stress disorder			

those who did not experience fright spontaneously reported that they did not need to fear for their lives.

Study Protocol

The patients were interviewed between day 2 and day 5 of their hospitalization. This assessment lasted 30 to 60 minutes, after which the patients were asked whether they would agree to be contacted later for follow-up. The initial interview consisted of collecting sociodemographic and accident-related information. It was noted whether the patients met the DSM-IV criteria for an ASD (1) and, in particular, whether they met the DSM-IV trauma exposure criteria (A1 and A2) for PTSD, as well as a fright reaction. Signs of amnesia were also noted. We distinguished between minor (for example, a detail or the order of the events) and major signs of amnesia (for example, large memory gaps or total memory loss for the accident). Two months after the accident, the patients were

Table 2 Relation between the immediate circumstances of the event and ASD and PTSD development

	ASD			PTSD			
	No (n = 77)	Yes (n = 44)	Test	None (n = 40)	Full (n = 57)	Partial (n = 15)	Test
Age							
Mean (SD)	31.90 (14.00)	30.20 (11.00)	$t_{119} = 0.70, ns$	30.80 (16.00)	30.60 (12.00)	34.50 (13.00)	$F_{2,109} = 0.53, ns$
Sex							
Men	56.00	26.00	$\chi^2 = 2.38, ns$ df 121,1	29.00	35.00	11.00	$\chi^2 = 1.63, ns$ df 112,2
Women	21.00	18.00	$\chi^2 = 2.38, ns$ df 121,1	11.00	22.00	4.00	—
Number of injured							
Mean (SD)	1.50 (0.80)	1.70 (1.30)	$t_{119} = 1.11, ns$	1.50 (1.00)	1.70 (1.10)	1.20 (0.60)	$F_{2,109} = 1.50, ns$
Number of deaths							
Mean (SD)	0.20 (0.10)	0.70 (0.10)	$t_{119} = 3.08^b$	0.10 (0.60)	0.20 (0.50)	0	$F_{2,109} = 0.64, ns$
Trauma score							
Mean (SD)	2.18 (0.80)	2.39 (0.80)	$t_{119} = 1.30, ns$	1.95 (0.70)	2.40 (0.80)	2.30 (0.60)	$F_{2,109} = 4.10^a$
Amnesia	32.00	22.00	$\chi^2 = 1.58, ns$ df 121,1	13.00	34.00	7.00	$\chi^2 = 10.30^a$ df 112,2
Criterion A2	30.00	37.00	$\chi^2 = 22.50^c$ df 121,1	11.00	47.00	6.00	$\chi^2 = 31.10^c$ df 112,2
Fright reaction	19.00	29.00	$\chi^2 = 13.00^c$ df 121,1	1.00	42.00	5.00	$\chi^2 = 145.00^c$ df 112,2
ASD	—	—	—	5.00	30.00	4.00	$\chi^2 = 17.30^c$ df 112,2

^a $P < 0.05$, ^b $P < 0.01$, ^c $P < 0.001$
ASD = acute stress disorder
PTSD = posttraumatic stress disorder

reinterviewed by telephone. If they had any psychopathological difficulties, we asked that they set up an appointment for a psychological trauma consultation.

Statistical Analyses

Analyses were conducted with the SAS program (19) and SIPINA software (20). Univariate analyses of the data were performed using means and standard deviations for interval or ratio data and frequencies and CIs for categorical data. Comparisons between group means were performed using *t*-tests or analyses of variance (ANOVAs). The chi-square test was used to compare frequencies. Logistic regression was used to compute adjusted odds ratios. The alpha level was set at 5% (2-sided test).

Results

Table 1 provides the characteristics of the sample.

Initial Interview

Criteria A1 and A2. Table 1 shows that 57% of the sample met criteria A1 (that is, threat to one’s life or seeing someone’s life being threatened) and A2 (that is, experiencing peritraumatic fear, helplessness, or horror). We found that 70 individuals (57%) experienced intense fear at the time of the accident, 40 felt helplessness, and 15 experienced a feeling of horror.

Peritraumatic Amnesia. A total of 56 patients presented with signs of amnesia for the accident. Of these, 31 experienced amnesia for a very small, single detail, and 25 had amnesia about several aspects of the accident or had total amnesia. We performed a series of analyses by grouping patients based on their amnesia status (partial or full vs no amnesia). Participants with and without amnesia did not differ in terms of sex or age. Compared with those who had no amnesia, individuals with amnesia had a higher trauma score ($t[121] = 3.8, P = 0.026$) and reported a fright reaction more frequently ($n = 123$) ($\chi^2 = 9.05, df 1, P = 0.01$); a greater proportion met the diagnostic criteria for PTSD ($n = 112$) ($\chi^2 = 9.05, df 1, P = 0.01$). No relation was found, however, between amnesia and the presence of ASD (Table 2).

ASD. At the time of the initial interview, 36% of the victims ($n = 44$) presented with ASD. Table 2 illustrates that we did not note any between-group differences with respect to sex, age, and socioeconomic status of the participants. Individuals from the ASD group, however, witnessed more death than those in the non-ASD group ($t[121] = 3.1, P = 0.003$).

Follow-up Interview

Two months after the accident, 51% ($n = 57$) of the patients met the DSM-IV diagnostic criteria for full PTSD, and 12%

($n = 15$) of the victims presented with a partial form, defined as meeting DSM-IV PTSD criteria A (exposure), B (intrusion), and either C (avoidance or numbing) or D (hyperarousal). We conducted a series of statistical analyses on the basis of PTSD status (that is, full, partial, and no PTSD). Table 2 illustrates the significant differences that were found in frequency of ASD in relation to subsequent PTSD status.

Fright Reaction, ASD, and Acute PTSD. Among the 48 victims who reported having experienced a fright reaction (Table 2), only 1 did not meet the criteria for partial or full PTSD. In addition, a fright reaction occurred more frequently in women than in men ($n = 123$); ($\chi^2 = 7.4$, $df 1$, $P = 0.007$), among those who were injured in the accident ($t[121] = 4.70$, $P = 0.032$) and among those who were in accidents that involved deaths ($t[121] = 4.80$, $P = 0.03$). A fright reaction was unrelated to trauma score (that is, severity of physical injuries).

Of the 44 individuals who were suffering from ASD, 37 met criterion A2 of the DSM-IV, and 29 described a fright reaction. Of the victims, 47 who presented with complete or partial PTSD had experienced an initial fright reaction. Of the 25 cases of PTSD without an initial fright reaction, 18 sustained major amnesia for the circumstances of the accident, and 3 others had partial amnesia. Only 4 individuals developed PTSD (1 complete and 3 subclinical) without any initial fright reaction or amnesia. Thus, patients who had experienced a feeling of fright had a 17-times greater risk of developing PTSD (OR 16.75). A fright reaction predicted the PTSD development with a specificity of 0.93 and a sensitivity of 0.6.

Discussion

The 123 victims who were studied represent 95% of the individuals suitable for inclusion in the study, and the mean hospitalization duration of 21 days is comparable to the department's statistics for similar situations. The socio-demographic characteristics of our population are comparable with those cohorts reported in the literature. Motorcyclists were overrepresented among the victims of serious accidents, which is classically the case (21,22).

Memory Disorders

It is common for patients who have not suffered any head injury to report that their memory of the accident is "patchy." Nevertheless, in the absence of data collected from the scene of the accident, during transportation to the hospital, or at admission, it is difficult to distinguish between this type of memory loss and short loss of consciousness that has passed unnoticed. In our sample, one-half of the victims reported at least small gaps in their memory, with 20% having major amnesia. In this subgroup, one-half of the individuals developed PTSD.

Mayou and others reported similar data in a study of over 1000 MVA victims who were consecutively admitted to the accident and emergency department (23). These authors found that 55% of the individuals with amnesia or with an initial brief loss of consciousness had PTSD after 1 year. In this study, 1 year after the accident, no difference in the prevalence of PTSD was noted between the patients with amnesia and those without amnesia. In another study, Foa and Riggs found that individuals who described "affective anesthesia," or amnesia for the affect experienced at the time of the event, were more at risk for later PTSD development (24). This aspect correlated with the dimensions of intrusion and avoidance (24,25). The memory difficulties of our victims seem to reflect the severity of the accident and the shock. Thus, memory disorders should be identified in victims of serious accidents, because they correlate with PTSD development in the short term.

Criteria A1 and A2

Of the victims, 70 fulfilled criteria A1 and A2 of the DSM-IV for "type of immediate emotional reactions." DSM-IV criterion A2 (intense fear, helplessness, and horror) does not have a strong empirical basis, and other authors have already commented on this aspect. Roemer and others performed a retrospective study on criterion A2 (26). A study of 244 young adults from the general population revealed that 85 individuals (35%) had been exposed to trauma according to criterion A2. Only helplessness correlated with the dimensions of intrusion, avoidance, and hyperarousal. No significant correlation was found with fear, and horror correlated only with intrusive phenomena. Although such results pertain to PTSD symptoms rather than to PTSD diagnosis, the authors concluded that the event's unpredictability and the lack of control over the chain of events were determining factors for the trauma. This fits with the notion of fright, which includes an element of surprise (27).

ASD

The diagnosis of an ASD, as described in the DSM-IV, raises questions about its legitimacy and, as a result, has often been criticized (28). In the DSM-IV, PTSD may be seen as a prolonged acute stress reaction that lasts beyond 4 weeks. Together with other authors, however, we have observed that ASD in a considerable number of individuals does not develop into PTSD, and conversely, 17 of our 57 patients who had not suffered from an acute stress reaction developed PTSD at 6 to 8 weeks.

Fright Reaction

Fear at the time of the accident does not appear to be a sufficient criterion in itself. By identifying individuals who experienced fear, there is a danger of confusing those who were able to cope. It remains to be seen whether the construct of fright

has the same predictive power with respect to other types of traumatic incidents, particularly potentially traumatic events that happen less quickly.

In the literature, we found 2 recent studies wherein the concept of “confrontation with the perspective of one’s own death” is described. Koren and others tried to specify the natural history of PTSD in terms of risk and health factors, focusing their attention on peritraumatic reactions (29). They found that the 4 factors most likely to lead to PTSD are pretraumatic, psychopathological vulnerability, the objective or subjective characteristics of the severity of the trauma, threat to one’s life, and initial stress reactions.

Hickling and others found 4 independent predictive variables for PTSD development in a cohort of 158 adults who required intensive medical and surgical monitoring for 48 hours after a road accident (30). These predictive variables included a history of depression before the accident, the intensity of the physical lesions, a feeling of intense fear or fright linked to the perspective of their own death, and the prospect of litigation.

The concept of fright is most likely very close to the notions of “terror” and “panic” (10). Studying a sample of Manhattan citizens after the September 11 terrorist attack, Galea insists on these aspects of immediate emotional reactions as most predictive of later PTSD development.

In our study, the concept of fright strongly correlated with PTSD development. Fright was also apparently extremely specific: of 48 individuals, 47 had partial or full PTSD at 2 months. In addition, its apparent lack of sensitivity (0.60) was greatly improved by the fact that 22 of 25 victims who developed PTSD with an initial fright reaction had important memory disorders for the accident itself.

Clinical practice also suggests that, apart from any amnesic phenomena, this fright experience can be “forgotten.” It is only found again weeks, months, or even years later. This possible “forgetting” reaction does, however, reduce to some extent the predictive value of a fright reaction.

PTSD Development at 2 Months

In our patient sample, PTSD development related to several peritraumatic responses: DSM-IV criterion A2, the presence of memory disorders for the accident, and the presence of an initial ASD.

The literature suggests that the prevalence of PTSD during the months following an MVA is between 20% and 40% for drivers and passengers (22,31,32). This represents an important public health problem. MVAs are among the most common traumatic events that cause PTSD in industrialized countries. In our study, the rate of PTSD was even higher (up to 60% when both the full and partial forms of PTSD are considered). We propose 3 explanations for this high rate. We included

only the most severe accident victims (those who needed to stay at least 3 days in the Traumatology Department). We assessed PTSD at 2 months, whereas the figures from previous literature (21,31,32) originate from an assessment at 3 or 6 months. Thus, a difference of a few weeks can cause the figures to vary significantly.

Conclusion

This study’s objective was to prospectively examine the different approaches to the peritraumatic clinical phenomena by examining their power to predict partial and full PTSD. This study indicates that, in victims of serious accidents, it may be useful to recognize memory disorders, because they correlate with PTSD development in the short term. The 3 types of immediate reactions described in criterion A2 of DSM-IV were not shown to be of equal significance. Several authors actually describe very close notions in the literature: terror, panic, and fright reaction. These notions complement well the DSM-IV criterion A1 for PTSD: “the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.” Still, it appears that an initial feeling of fright is an essential qualitative factor in the clinical description of psychological trauma.

References

1. American Psychiatric Association. Diagnostic and statistic manual of mental disorders, 4th ed. Washington (DC): APA; 1994.
2. Green BL. Identifying survivors at risk: trauma and stressors across events. In: Wilson JP, Raphael B, editors. International handbook of traumatic stress syndromes. New York: Plenum Press; 1993. p 135–44.
3. Marmar CR, Weiss DS, Schlenger WE, Fairbank JA, Jordan BK, Kulka RA, and others. Peritraumatic dissociation and posttraumatic stress in male Vietnam theater veterans. *Am J Psychiatry* 1994;151:902–7.
4. Blanchard ED, Hickling EJ, Mitnick N, Taylor AE, Loos WR, Buckley TC. The impact of severity of physical injury and perception of life threat in the development of posttraumatic disorder in motor vehicle accident victims. *Behav Res Ther* 1995;33:529–34.
5. King DW, King LA, Gudanowski DM, Vreven DL. Alternative representations of war zone stressors: relationships to posttraumatic stress disorder in male and female Vietnam veterans. *J Abnorm Psychol* 1995;104:184–96.
6. Tichenor V, Marmar CR, Weiss DS, Metzler TJ, Ronfeldt HM. The relationship of peritraumatic dissociation and posttraumatic stress: findings in female Vietnam theater veterans. *J Consult Clin Psychol* 1996;64:1054–9.
7. Shalev AY, Peri T, Canetti L, Schreiber S. Predictors of PTSD in injured trauma survivors: a prospective study. *Am J Psychiatry* 1996;153:219–25.
8. Brewin CR, Andrews B, Rose S. Fear, helplessness, and horror in PTSD: investigating DSM-IV criterion A2 in victims of violent crime. *J Trauma Stress* 2000;13:499–509.
9. Brunet A, Weiss DS, Metzler TJ, Best SR, Neylan TC, Rogers C, and others. The Peritraumatic Distress Inventory: a proposed measure of PTSD criterion A2. *Am J Psychiatry* 2001;158:1480–5.
10. Galea S, Ahern J, Resnick H, Kilpatrick D, Bucuvalas M, Gold J, and others. Psychological sequelae of the September 11 terrorist attacks in New York city. *N Engl J Med* 2002;346:982–7.
11. Vaiva G, Ducrocq F, Cottencin O, Goudemand M, Thomas P. Immediate fright reaction: an essential criterion in the development of posttraumatic stress disorder. *Can J Psychiatry* 2000;45:939.
12. Marmar CR, Weiss DS, Metzler TJ. The Peritraumatic Dissociative Experiences Questionnaire. In: Wilson JP, Keane TM, editors. Assessing psychological trauma and PTSD: a handbook for practitioners. New York: Guilford Press; 1997.
13. Freud S. Thoughts for the time on war and death. On the history of the psychoanalytic movement. Papers on metapsychology and other works (1915). Standard

- Edition, Volume XIV (1914–1916). London: The Hogarth Press and the Institute of Psychoanalysis; 1957. p 273–302.
14. Barrois C. Les névroses traumatiques. Paris : Editions Dunot; 1998.
 15. Lebigot F. La clinique de la névrose traumatique dans son rapport à l'évènement. *Revue francophone du stress et du trauma* 2000 ; 1 :21–25.
 16. Freud S, Breuer J. *Studies on hysteria (1895)*. Standard Edition, Volume II (1893–1895). London: The Hogarth Press and the Institute of Psychoanalysis; 1955.
 17. Smith T. Trauma index revisited: a better triage tool. *Crit Care Med* 1990;18:174–80.
 18. Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, and others. The development of a clinician-administered PTSD scale. *J Trauma Stress* 1995;8:75–90.
 19. SAS Institute Inc. SAS Version 8.0. Austin (TX): SAS Institute Inc; 2001.
 20. Zighed DA, Auray JP, Duru G. *SIPINA : Méthode et logiciel*. Paris : Lacassagne; 1992.
 21. Brom D, Kleber RJ, Hofman MC. Victims of traffic accidents: incidence and prevention of PTSD. *J Clin Psychol* 1993;49:131–40.
 22. Harvey AG, Bryant RA. Predictors of acute stress following motor vehicle accident. *J Trauma Stress* 1999;12:519–25.
 23. Mayou R, Black J, Bryant B. Unconsciousness, amnesia and psychiatric symptoms following road traffic accident injury. *Br J Psychiatry* 2000;177:540–5.
 24. Foa EB, Riggs DS. Posttraumatic stress disorder and rape. In: Oldman JM, Riba MB, Tasman A, editors. *American Psychiatric Press review of psychiatry*. Volume 12. Washington (DC): American Psychiatric Press; 1993. p 273–303.
 25. Foa EB, Steketee G, Olatsov-Rothbaum B. Behavioral/cognitive conceptualization of posttraumatic stress disorder. *Behav Ther* 1989;20:155–76.
 26. Roemer L, Orsillo SM, Borkovec TD, Litz BT. Emotional response at the time of a potentially traumatizing event and PTSD symptomatology: a preliminary retrospective analysis of the DSM-IV criterion A2. *J Behav Ther Exp Psychiatry* 1998;29:123–30.
 27. Freud S. *Beyond the pleasure principle (1920)*. *Beyond the pleasure principle, group psychology and other works*. Standard ed. Volume XVIII (1920–1922). London: The Hogarth Press and the Institute of Psychoanalysis; 1955. p 7–64.
 28. Marshall RD, Spitzer R, Liebowitz MR. Review and critique of the new DSM-IV diagnosis of acute stress disorder. *Am J Psychiatry* 1999;156:1677–85.
 29. Koren D, Argon I, Klein E. Acute stress response and PTSD in traffic road accident victims: a one-year prospective, follow-up study. *Am J Psychiatry* 1999;156:367–73.
 30. Hickling EJ, Blanchard EB, Buckley TC, Taylor AE. Effects of attribution of responsibility for motor vehicle accidents on severity of PTSD symptoms, ways of coping and recovery over six months. *J Trauma Stress* 1999;12:345–53.
 31. Harvey AG, Bryant RA. The relationship between acute stress disorder and posttraumatic stress disorder: a prospective evaluation of motor vehicle accident survivors. *J Consult Clin Psychol* 1998;66:507–12.
 32. Hickling EJ, Blanchard EB. *International handbook of road traffic accidents and psychological trauma: current understanding, treatment and law*. Oxford: Elsevier Science; 1999.

Manuscript received August 2002 and accepted January 2003.

¹Psychiatrist, University of Lille II and INSERM U513, France.

²Associate Professor of Psychology, Douglas Hospital Research Center, McGill University, Montreal, Quebec.

³Professor of Psychiatry, Hôpital d'instruction des armées Percy (Clamart), France.

⁴Psychiatrist, Department of Psychiatry, University of Lille II, France.

⁵Psychiatrist, Department of Psychiatry, University of Lille II, France.

⁶Biostatistician, Department of Statistics, University of Lille II, France.

⁷Professor of Surgery and Chief, Department of Traumatology, University of Lille II, France.

⁸Professor of Psychiatry and Chief, Department of Psychiatry, University of Lille II, France.

Address for correspondence: Dr G Vaiva, Clinique Michel Fontan, CHRU de Lille, 6 rue du Professeur Laguesse 59037 LILLE cedex, France
e-mail: gvaiva@chru-lille.fr

Résumé : Effroi et autres réactions péritraumatiques après un sérieux accident d'automobile : influence prospective sur le développement du syndrome de stress post-traumatique aigu

Objectif : Nous avons fait un examen prospectif de la relation entre les diverses réactions péritraumatiques (peur, impuissance, horreur, amnésie et effroi) et le développement du syndrome de stress post-traumatique (SSPT), 2 mois après un traumatisme.

Méthode : Les participants incluait 123 victimes d'accidents d'automobile (AA) hospitalisées consécutivement dans une unité de traumatologie pour plus de 72 heures sur une période de 16 mois. Entre le 2^e et le 5^e jour de leur hospitalisation, un psychiatre a évalué les réactions péritraumatiques et le trouble de stress aigu (TSA) des patients. Deux mois après l'accident, un psychiatre expérimenté a contacté les patients par téléphone, et les symptômes du SSPT ainsi que le diagnostic ont été évalués à l'aide d'une version modifiée de l'échelle du SSPT administrée par un clinicien (CAPS).

Résultats : Parmi les participants, 48 ont déclaré une réaction d'effroi immédiate quand ils ont fait face à leur propre mort. Les participants qui ont déclaré avoir connu l'effroi avaient un risque 17 fois plus grand de satisfaire subséquemment aux critères diagnostiques du SSPT (rapport de cotes = 16,75). Une réaction d'effroi prédisait le développement du SSPT avec une spécificité de 0,93 et une sensibilité de 0,60.

Conclusion : Les réactions immédiates décrites au critère (309.81 A2) du *DSM-IV* (peur intense, sentiment d'impuissance ou d'horreur) se semblaient pas également pertinentes. Un sentiment initial d'effroi semble être un facteur qualitatif essentiel dans la description clinique d'un traumatisme psychologique.