

Main Traumatic Events in Europe: PTSD in the European Study of the Epidemiology of Mental Disorders Survey

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A potentially traumatic event (PTE) contributes to trauma through its frequency, conditional probability of post-traumatic stress disorder (PTSD), and experience of other PTEs. A cross-sectional survey was conducted, enrolling 21,425 adults nationally representative of six European countries. Using the WHO-Composite International Diagnostic Interview, 8,797 were interviewed on 28 PTEs and PTSD. Prevalence of 12-month PTSD was 1.1%. When PTSD was present, the mean number of PTEs experienced was 3.2. In a multivariate analysis on PTEs and gender, six PTEs were found to be more traumatic, and to explain a large percentage of PTSD, as estimated by their attributable risk of PTSD: rape, undisclosed private event, having a child with serious illness, beaten by partner, stalked, beaten by caregiver.

Trauma is a condition acquired after experiencing overwhelming events. Thus, diagnosis of posttraumatic stress disorder (PTSD; American Psychiatric Association [APA], 1994) requires an environmental factor to have occurred: the potentially traumatic event (PTE). Clinical studies have shown that traumatized patients have generally experienced several PTEs in their lifetime (Carey, Stein, Zungu-Dirwayi, & Seedat, 2003). The respective roles of successive potentially traumatic events is the subject of debate, and some theoreticians consider that certain events in a series could play a secondary role in the onset of posttraumatic states (Pynoos, Steinberg, & Piacentini, 1999). Therefore, when considering PTSD, all the PTEs experienced by the individual should be envisaged rather than deciding that any one of them is the sole cause. Secondly, PTEs vary as to their likelihood of occurring, or of leading to PTSD once they have occurred (conditional probability of PTSD). Therefore, to estimate the fraction of the PTSD group explained by a traumatic event, a percentage resulting from a multivariate calculation of the attributable risk of PTSD for the event is used.

The actual use of care by people having experienced trauma is also a way to assess the severity of their disorder (Andrews, Henderson, & Hall, 2001); nevertheless, some authors have observed that people with trauma were reluctant to resort to mental health care; however, there was a considerable demand for physical care (Solomon & Davidson, 1997). Numerous psychosomatic features accompanying PTSD have been previously noted (Darves-Bornoz, Lepine, Choquet, Berger, Degiovanni, & Gaillard, 1998). Conversely, the occurrence of a trauma related to certain physical illnesses should also be considered (Frayne et al., 2004). Several studies have suggested that PTSD is one of the psychiatric disorders leading to the widest use of health care systems, and a disorder for which the cost per patient could be among the highest (Boscarino, 2004; Kessler, 2000).

Although a number of epidemiological surveys on PTSD have been implemented in North America (Helzer, Robins, & McEvoy, 1987; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), and more recently in other parts of the world (Creamer, Burgess, & McFarlane, 2001), there have been few studies on PTSD in the general European population (Frans, Rimmo, Aberg, & Fredrikson, 2005). The European Study of the Epidemiology of Mental Disorders (ESEMeD) Survey implemented in Western Europe within the World Health Organization (WHO) World Mental Health (WMH) Survey Initiative (Demyttenaere et al., 2004), has enabled, alongside other epidemiological assessments (Alonso

et al., 2004b), estimation of the association between various PTEs and the presence of PTSD among adults in six European countries. This could be useful for cross-cultural comparisons of PTSD. It can be noted that among candidate PTEs, the specific role of almost half in the presence of PTSD could not be proved. In addition, the role of physical illnesses in PTSD appears to have been neglected.

METHOD

A detailed description of the method has been previously published (Alonso et al., 2004b; Demyttenaere et al., 2004).

Participants

The European Study of the Epidemiology of Mental Disorders Survey ESEMeD is a personal household survey, conducted in six Western European countries (Spain, Italy, Germany, the Netherlands, Belgium, and France), using face-to-face interviews of 21,425 respondents aged 18 or over, between January 2001 and August 2003. It is part of the WHO-MHS-2000 survey (Demyttenaere et al., 2004), involving standardized data collection and analytical methods.

Recruitment and consent procedures were approved by the ethics committees in each country according to national regulations. A description of the demographic characteristics of the population is given in Table 1. Sample sizes ranged from 2,372 (the Netherlands) to 5,473 (Spain). Details on the method of sample constitution in each country (multistage household sampling procedure) have been previously published (Alonso et al., 2004b; Demyttenaere et al., 2004). To select the multistage household samples France used telephone directories, postal registers were used in the Netherlands and Belgium, Germany and Italy used resident registers. The overall response rate for the six countries was 61.2% (78.6% in Spain, 71.3% in Italy, 57.8% in Germany, 56.4% in the Netherlands, 50.6% in Belgium and 45.9% in France).

All interviews took place in the respondents' homes and were conducted face-to-face by trained lay interviewers using a computer-assisted personal interview. To reduce respondent burden, only part of the questionnaire was administered to all participants, the questionnaire being split into two parts (Alonso

et al., 2004b). All respondents completed questions in part 1 (demographic information, suicide attempts, depressive and anxiety disorders, and alcohol use). Part 2 questions (PTSD and chronic conditions) were administered to all part 1 respondents who were at high risk for any lifetime depressive or anxiety disorder; it was also administered to a 25% random selection of the rest of the respondents. The part 2 sample included 8,796 respondents. Analyses presented in this article are based on this weighted part 2 sample. Additional weights were used to adjust for differential probabilities of selection within households and to match the samples to sociodemographic distribution of the populations.

Measures

The diagnostic instrument used was the WHO Composite International Diagnostic Interview (CIDI)-2000 (Girolamo & Bassi, 2003), a fully structured instrument for use by trained interviewers without clinical experience. Diagnoses are based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria (DSM-IV; APA, 1994). For PTSD, first the individuals were interviewed on 28 types of PTEs. Twenty-eight screening questions in the CIDI trigger complementary questions on PTEs. For example, the screening questions on assault events were "As a child, were you ever badly beaten up by your parents or the people who raised you? Were you ever beaten up by a spouse or romantic partner? Were you ever badly beaten up by anyone else? Were you ever mugged, held up, or threatened with a weapon? The next two questions are about sexual assault. The first is about rape. Being raped is defined as someone either having sexual intercourse with you or penetrating your body with a finger or object when you did not want them to, either by threatening you or by using force. Did this ever happen to you? Other than rape, were you ever sexually assaulted or molested? Has someone ever stalked you—that is, followed you or kept track of your activities in a way that made you feel you were in serious danger?"

When only one PTE had occurred, this PTE was explored for the diagnosis of PTSD. If several PTEs had been experienced (items of Group A1 in DSM-IV criteria), reexperiencing symptoms (Group B in DSM-IV criteria) were assessed, using the event designated as the worst by the respondent, and another randomly assigned event from the others experienced by the respondent (to account for symptoms of PTSD, should the respondent not appropriately pinpoint what actually was the most deleterious event among the PTEs experienced). A "worst event" method can be used as a shortcut to assessing all traumas. It has been shown that the higher conditional probability for PTSD obtained by this method is in fact only slightly higher (Breslau, Peterson, Poisson, Schultz, & Lucia, 2004).

The CIDI-2000 diagnosis of PTSD envisages groups C (avoidance/numbness) and D (hypervigilance) symptoms in the DSM-IV PTSD diagnosis with reference to any event experienced. In this

article, PTSD was considered if it had been present at some point in the year preceding the interview.

Methodological research has documented acceptable to good concordance for anxiety disorders (AUC = 0.88, a measure of classification accuracy that is not influenced by disorder prevalence) between the CIDI-2000 diagnoses and blind clinical diagnoses in the context of a multistage sampling design (Haro et al., 2006).

Data Analysis

Estimated prevalence rates were weighted to restore the distribution of the population within each country. In addition, overall estimates were weighted to restore the relative size of the population across countries. Data are reported on (a) prevalence of PTE and PTSD, and (b) associations between PTSD and PTE. The aim was to clarify the respective part of the various types of events in the existence of PTSD. Indeed, the contribution of a type of event to PTSD is related, first, to the frequency of the event, and, second, to the conditional probability of trauma if this event is experienced (approached by odds ratio [OR]). The notion of PTSD risk attributable to event i (AR_i) used here takes these two factors into account to quantify the fraction of the PTSD group explained by the event. By definition (Miettinen, 1974), $AR_i = p_{Ei} (RR_i - 1) / RR_i$, where p_{Ei} is the prevalence of exposure to the event i in the population of individuals without PTSD during the last 12-month period, and RR_i the relative risk of PTSD for that event i . Posttraumatic stress disorder can be considered as a rare disorder in the total population. Relative risks cannot directly be calculated and ORs only can be calculated. Adjusted PTSD attributable risks for main traumas were estimated for each using logistic regressions in the total sample, and the related odds ratios controlled for gender and the other main PTSD-associated PTEs.

Statistical significance is based on two-sided tests at the .001 level of significance, and tests were adjusted on gender. Statistical analysis was performed using SASTM software version 9.1 of the SAS system for Windows and SUDAAN software version 9.0.1 (Shah, Barnwell, & Bieler, 1997), a statistical package used to estimate standard errors of data from complex sampling designs (e.g., multistage, stratified, unequally weighted, or clustered; LaVange, Stearns, Lafata, & Koch, 1996).

RESULTS

The mean age of the sample was 47.0 years (95% confidence interval [CI] = 46.8–47.4), 52% were women, 35% had attended higher education, one third were living in a rural area, 15% were living alone, and 85% were married or cohabiting (Table 1). Women were less often exposed to a PTE than were men. The other demographic factors associated with exposure to PTE or PTSD are shown in Table 1. Posttraumatic stress disorder was found to be significantly more frequent in women, and in France and the Netherlands (Table 1).

Table 1. Sociodemographic Profile of the Total Sample According to Lifetime Exposure to a Potentially Traumatic Event (PTE) and to the Diagnosis of 12-Month CIDI/DSM-IV PTSD (Weighted %)

	Total		Exposure to PTE			12-Month PTSD		
	<i>n</i> ^a	% ^b	Yes (<i>n</i> = 5845) % ^b (SE)	No (<i>n</i> = 2951) % ^b (SE)	χ^2 (<i>df</i>)	Yes (<i>n</i> = 200) % ^c (SE)	No (<i>n</i> = 5645) % ^c (SE)	χ^2 (<i>df</i>)
Age, years								
18–24	664	11.4	10.7 (0.4)	12.7 (0.6)		7.4 (2.7)	10.7 (0.4)	
25–34	1599	18.3	16.5 (0.5)	21.5 (0.7)		20.3 (4.1)	16.5 (0.5)	
35–49	2669	27.8	26.6 (0.6)	29.9 (0.8)	130.6 (4)*	30.3 (4.7)	26.5 (0.6)	13.3 (4)
50–64	2197	21.8	22.1 (0.6)	21.2 (0.7)		31.3 (4.7)	21.9 (0.6)	
>65	1667	20.7	24.1 (0.6)	14.7 (0.6)		10.8 (3.2)	24.3 (0.6)	
Gender								
Female	5107	51.8	49.2 (0.7)	56.3 (0.9)	41.1 (1)*	80.8 (4.0)	48.6 (0.7)	39.3 (1)*
Male	3689	48.2	50.8 (0.7)	43.7 (0.9)		19.2 (4.0)	51.4 (0.7)	
Country								
Belgium	1043	3.8	3.9 (0.3)	3.6 (0.3)		2.3 (1.5)	4.0 (0.3)	
France	1436	20.5	23.5 (0.6)	15.4 (0.6)		43.2 (5.0)	23.1 (0.6)	
Germany	1323	31.5	33.3 (0.6)	28.4 (0.8)	185.1 (5)*	19.0 (4.0)	33.6 (0.6)	36.0 (5)*
Italy	1779	22.4	19.8 (0.5)	27.1 (0.8)		14.4 (3.6)	19.9 (0.5)	
Netherlands	1094	6.1	6.3 (0.3)	5.8 (0.4)		13.8 (3.5)	6.2 (0.3)	
Spain	2121	15.6	13.2 (0.5)	19.7 (0.7)		7.2 (2.6)	13.3 (0.5)	
Education level, years								
0–12	5515	65.4	64.6 (0.6)	66.7 (0.8)	3.9 (1)*	69.1 (4.7)	64.5 (0.6)	0.9 (1)
≥13	3281	34.6	35.4 (0.6)	33.3 (0.8)		30.9 (4.7)	35.5 (0.6)	
Employment status								
Working	4863	56.5	54.7 (0.7)	59.7 (0.9)		52.7 (5.1)	54.8 (0.7)	
Student	172	2.8	2.3 (0.2)	3.6 (0.3)	149.6 (4)*	0.8 (0.9)	2.3 (0.2)	11.1 (4)
Homemaker	986	9.1	7.9 (0.4)	11.3 (0.6)		12.4 (3.3)	7.8 (0.4)	
Retired	1881	23.5	27.4 (0.6)	16.8 (0.7)		19.8 (4.1)	27.6 (0.6)	
Other ^d	894	8.1	7.8 (0.4)	8.7 (0.5)		14.3 (3.6)	7.6 (0.4)	
Place of residence								
Rural	2525	33.2	32.2 (0.6)	34.8 (0.8)		33.1 (4.8)	32.2 (0.6)	
Mid-size town	3840	38.7	37.1 (0.6)	41.6 (0.9)	53.1 (2)*	40.5 (5.0)	37.0 (0.7)	0.9 (2)
Large city	2431	28.1	30.7 (0.6)	23.5 (0.7)		26.4 (4.5)	30.8 (0.6)	
Living arrangement								
Live alone	1636	15.4	16.9 (0.5)	12.7 (0.6)	27.6 (1)*	19.2 (4.0)	16.8 (0.5)	0.4 (1)
Live with someone	7160	84.6	83.1 (0.5)	87.3 (0.6)		80.8 (4.0)	83.2 (0.5)	
Marital status								
Married/cohabiting	5788	66.8	66.4 (0.6)	67.3 (0.8)		63.5 (4.9)	66.5 (0.6)	
Separated/widow/divorced	1327	11.1	12.7 (0.4)	8.4 (0.5)	45.5 (2)*	21.3 (4.2)	12.6 (0.4)	7.4 (2)
Never married	1681	22.1	20.8 (0.5)	24.3 (0.8)		15.2 (3.6)	20.9 (0.5)	

Note. CIDI = Composite International Diagnostic Interview; DSM-IV = APA Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition; PTSD = Posttraumatic Stress Disorder; PTE = potentially traumatic event.

^aUnweighted *n* out of the 8,796 participants who were administered the PTSD section. ^bWeighted percentages that restore the representativeness of the figures for the European populations. ^cComparison according to exposure (yes vs. no) in the total sample for each socio-demographic variable. ^dComparison according PTSD (yes vs. no) in the group of participants exposed to PTE for each sociodemographic variable. ^dIncluding maternity leave, illness leave, disablement, other, and don't know/refused.

**p* < .001.

In the sample, 63.6% reported a lifetime experience of at least one of the 28 PTEs (95% CI = 61.6–64.8, 60.5% of women and 67.0% of men). The mean number of PTE in the total sample was 1.5 ($SD = 2.8$). It reached 2.4 ($SD = 2.6$) in the group reporting at least one PTE, and 3.2 ($SD = 2.5$) in the group with 12-month PTSD.

Table 2 details the prevalence of each PTE and also shows those PTEs that entail a particular risk for onset of PTSD when experienced. The total number of individuals with PTSD among the 5,845 exposed was 200. The prevalence of PTSD over the last 12 months in the total sample was 1.1% (95% CI = 1.0–1.3): 0.5% in men and 1.7% in women; 0.76% in Belgium, 2.32% in France 0.68% in Germany; 0.73% in Italy; 2.63% in the Netherlands 0.56% in Spain.

In univariate analyses adjusted on gender, six events were found to be the most significantly associated with PTSD ($p < .001$) among individuals exposed to at least one event. They were being raped (OR = 8.9), being beaten up by spouse or romantic partner (OR = 7.3), experiencing an undisclosed private event (OR = 5.5), having a child with serious illness (OR = 5.1), being beaten up by a caregiver (OR = 4.5), or being stalked (OR = 4.2).

A multivariate analysis was performed to disentangle the role of each PTE independently. Taking into account the frequency of the events, the analysis of attributable risks (controlled for gender and the PTEs most significantly associated with PTSD in the exposed population), yields percentages of PTSD explained by the following: child with serious illness (AR = 19.9%), undisclosed private event (AR = 16.8%), being raped (AR = 12.3%), being beaten up by spouse or romantic partner (AR = 11.6%), being stalked (AR = 11.6%), and being beaten up by caregiver (AR = 7.6%) (Table 2).

DISCUSSION

Derived from a survey on trauma in Western Europe (Alonso et al., 2004a; Bernal et al., 2007), this study has shed light on undocumented aspects of current PTSD such as what events account for the highest proportions of PTSD, or what prevention for traumatic disorders could be reasonably offered in view of the classification of these events according to particular severity or frequency. Nevertheless, as there are few surveys in this area (Frans, Rimmo, Aberg, & Fredrikson, 2005; Kessler et al., 1995; Perkonig, Kessler, Storz, & Wittchen, 2000), the present findings require confirmation by further studies. This is one reason why a high level of significance was chosen in the analyses: to reduce the possibility of significant results arising by chance.

When interpreting the results, certain limitations should be noted. First, diagnoses were made using fully structured computer-assisted diagnostic interviews administered by lay interviewers. CIDI diagnoses have shown acceptable reliability and validity (Kessler et al., 2003; Wittchen, 1994; Wittchen, Robins, Cottler, Sartorius, Burke, & Regier, 1991), but have shown some vari-

ance compared to diagnoses by clinicians (Haro et al., 2006). Second, some data were based on recall. Although there can be considerable recall bias in recording lifetime disorders (Wittchen et al., 1989), this is much less likely for the 12-month disorders used here. Third, the overall response rate is relatively low (61%). Should nonrespondents differ from respondents for type of PTE and PTSD diagnosis, the prevalence observed could be under- or overestimated. In addition, response rates varied considerably from one country to another, but there was no correlation between the response rate in a given country and prevalence of PTSD in that country. Finally, small groups (homeless individuals, people not sufficiently fluent in the national language(s) or long-term institutionalized patients) were not sampled in the ESEMeD project. It may be that PTE occurrence and PTSD diagnosis in these groups differ from the participants described here.

In this study, prevalence of current PTSD was low, as in other European studies (Frans et al., 2005; Perkonig et al., 2000), and this was also true for a recent Australian survey (Creamer et al., 2001). In the two decades up to 2000, American surveys found low prevalence (Davidson, Hughes, Blazer, & George, 1991; Helzer, Robins, & McEvoy, 1987) and higher rates thereafter. If the PTE assessment lacks sensitivity, particularly for some of the higher magnitude events, this could affect the PTSD prevalence rates recorded. However, other authors do consider that PTSD is a relatively rare disorder (Yehuda & McFarlane, 1995). Nevertheless, any optimism as to low prevalence should be tempered because although PTSD may not be more frequent than schizophrenia or bipolar disorders, it may be as much a burden for the health system, thus making it a subject for concern.

Female gender was found to be a risk factor for PTSD without being a risk factor for exposure to PTEs. This has already been observed in Sweden (Frans et al., 2005) and in American studies (Breslau, 2002). Women seem to be at greater risk for those PTEs that constitute greater risk factors for PTSD. Caution is however required in drawing conclusions on the consequences of trauma in men because men tend to express their distress more through behavioral than through emotional disorders (Choquet, Darves-Bornoz, Ledoux, Manfredi, & Hassler, 1997; Darves-Bornoz, Choquet, Ledoux, Gasquet, & Manfredi, 1998).

Individuals with PTSD show a slight trend towards a lower rate of employment than those without PTSD (Alonso et al., 2004a). This social status can be a cause of their exposure to PTE as well as a consequence of such events, which can be particularly disabling. Indeed, a reduction in means of subsistence heightens the risk of exposure to certain PTEs, a situation well demonstrated in the extreme case of homelessness (Kipke, Simon, Montgomery, Unger, & Iversen, 1997). This ambivalence (a variable that is neither solely a risk factor nor solely a consequence of PTSD) can also be noted for other sociodemographic variables. Exposure to PTE, generally, is a frequent occurrence.

The prevalence of rape and sexual assault, however, was not found to be high. This suggests that the undisclosed PTEs,

Table 2. Potentially Traumatic Events (PTEs): Lifetime Exposure and Contribution to 12-Month CID/DSM-IV PTSD (weighted %) (First Part)

Item	PTE (lifetime)	N ^b	% (SE)	Total (n = 8796)				Exposed to PTEs (n = 5845)		Total (n = 8796)
				12-Month PTSD		PTSD when PTEi		Univariate analysis	Multivariate analysis	
				Yes (n = 200)	No (n = 8596)	ORi (95% CI) ^d	ORj (95% CI) ^d			
1	Combat experience	214	3.4 (0.4)	0.2 (0-0.7)	3.5 (2.8-4.3)	0.1 (0-0.3) ^a	0.1 (0-0.3) ^a	0.1 (0-0.2) ^a	0.05 (0.01-0.24)	-2.2%
2	Relief worker in a war zone	80	1.1 (0.2)	0.1 (0-0.7)	1.1 (0.8-1.6)	0.2 (0-1.2)	0.2 (0-1.2)	0.1 (0-0.7)		
3	Civilian in war zone	693	7.8 (0.5)	4 (1.8-8.4)	7.9 (7-8.8)	0.5 (0.2-1)	0.5 (0.2-1)	0.3 (0.1-0.6)		
4	Civilian in a region of terror	236	2.3 (0.3)	0.7 (0.2-2.6)	2.4 (1.9-3)	0.3 (0.1-1.3)	0.3 (0.1-1.3)	0.2 (0-0.8)		
5	Refugee	209	2.8 (0.3)	3 (1.1-8.1)	2.8 (2.3-3.5)	1.1 (0.4-3.1)	1.1 (0.4-3.1)	0.6 (0.2-1.9)		
6	Kidnapped	94	0.8 (0.1)	4.1 (1.3-12.6)	0.7 (0.5-1)	9.8 (2.8-34.3) ^a	9.8 (2.8-34.3) ^a	6.1 (1.8-21.5)		
7	Toxic chemical exposure	277	2.9 (0.3)	3 (1.3-6.9)	2.9 (2.4-3.5)	1.5 (0.6-3.6)	1.5 (0.6-3.6)	0.9 (0.4-2.2)		
8	Automobile accident	1087	11.7 (0.5)	24.2 (16.1-34.7)	11.5 (10.6-12.6)	3.3 (1.9-5.7) ^a	3.3 (1.9-5.7) ^a	1.9 (1.1-3.3)		
9	Other life threatening accident	384	4.1 (0.3)	6.2 (2.9-12.9)	4.1 (3.5-4.8)	2.3 (1-5.4)	2.3 (1-5.4)	1.4 (0.6-3.3)		
10	Natural disaster	487	5.9 (0.4)	5.1 (2.6-10)	5.9 (5.2-6.8)	1 (0.5-2)	1 (0.5-2)	0.6 (0.3-1.2)		
11	Man-made disaster	385	4.7 (0.4)	4 (1.8-8.8)	4.7 (4-5.5)	0.9 (0.4-2.2)	0.9 (0.4-2.2)	0.6 (0.2-1.3)		
12	Life threatening illness	1024	10.5 (0.5)	17.7 (10.6-28.2)	10.5 (9.5-11.5)	2 (1.1-3.7)	2 (1.1-3.7)	1.1 (0.6-2.1)		
13	Beaten up by caregiver	417	3.6 (0.3)	13.7 (8.7-21)	3.5 (2.9-4.1)	4.5 (2.6-7.9) ^a	4.5 (2.6-7.9) ^a	2.7 (1.5-4.7) ^a	1.9 (1-3.52)	7.6%
14	Beaten up by spouse or romantic partner	267	2.0 (0.2)	15.7 (10.4-23.1)	1.8 (1.4-2.4)	7.3 (4.3-12.7) ^a	7.3 (4.3-12.7) ^a	4.3 (2.5-7.5) ^a	3.0 (1.5-5.98)	11.6%
15	Beaten up by someone else	311	2.9 (0.3)	5.9 (3.2-10.9)	2.9 (2.4-3.5)	3.6 (1.8-7.3) ^a	3.6 (1.8-7.3) ^a	2.2 (1.1-4.5)		
16	Mugged or threatened with a weapon	967	8.9 (0.4)	15.1 (9.5-23.2)	8.8 (8-9.7)	2.5 (1.5-4.4) ^a	2.5 (1.5-4.4) ^a	1.5 (0.9-2.6)		
17	Raped	223	1.6 (0.2)	16 (10.5-23.6)	1.4 (1.1-1.9)	8.9 (5-16) ^a	8.9 (5-16) ^a	5.3 (2.9-9.5) ^a	3.5 (1.77-7.02)	12.3%
18	Sexually assaulted (other than raped)	365	3.4 (0.3)	12.9 (8.5-19.1)	3.3 (2.8-4)	3.1 (1.9-5.2) ^a	3.1 (1.9-5.2) ^a	1.8 (1.1-3)		
19	Stalked	541	4.7 (0.3)	20 (13.4-28.7)	4.6 (4-5.2)	4.2 (2.5-7) ^a	4.2 (2.5-7) ^a	2.4 (1.5-4.1) ^a	1.9 (1.12-3.2)	11.6%
20	Unexpected death of loved one	2342	24.6 (0.7)	48.4 (38.5-58.4)	24.4 (23-25.8)	2.9 (1.9-4.3) ^a	2.9 (1.9-4.3) ^a	1.4 (0.9-2.1)		
21	Having a child with serious illness	620	5.9 (0.4)	25.1 (16.3-36.5)	5.7 (5-6.5)	5.1 (2.9-9) ^a	5.1 (2.9-9) ^a	3 (1.7-5.2) ^a	3.3 (1.85-6.02)	19.9%
22	Traumatic event to loved one	318	2.9 (0.3)	9 (5.5-14.5)	2.8 (2.3-3.4)	3.4 (1.9-6) ^a	3.4 (1.9-6) ^a	2 (1.1-3.6)		
23	Witnessed death or dead body or saw person seriously hurt	1771	20.6 (0.7)	18.1 (12.6-25.3)	20.7 (19.4-22)	1.1 (0.7-1.7)	1.1 (0.7-1.7)	0.6 (0.4-0.9)		
24	Accidentally caused serious injury or death	121	1.4 (0.2)	4.1 (1.6-10.2)	1.4 (1-1.8)	5.2 (1.8-15)	5.2 (1.8-15)	3.3 (1.2-9.4)		
25	Purposely injured, tortured or killed someone	48	0.4 (0.1)	0.8 (0.2-3.3)	0.4 (0.2-0.6)	3.8 (0.9-16.8)	3.8 (0.9-16.8)	2.4 (0.6-10.7)		
26	Saw atrocities	174	2.3 (0.3)	2 (0.7-5.7)	2.3 (1.8-3)	1.2 (0.4-3.7)	1.2 (0.4-3.7)	0.8 (0.2-2.3)		
27	Saw some other event	380	3.4 (0.3)	7.8 (4.8-12.6)	3.3 (2.8-4)	2.4 (1.4-4.3)	2.4 (1.4-4.3)	1.5 (0.8-2.6)		
28	Undisclosed private event	510	4.3 (0.3)	21.1 (14.2-30.1)	4.1 (3.5-4.8)	5.5 (3.3-9.2) ^a	5.5 (3.3-9.2) ^a	3.2 (1.9-5.4) ^a	3.5 (2.06-6.06)	16.8%

Note. CID/DSM-IV = Composite International Diagnostic Interview; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; PTSD = Posttraumatic Stress Disorder; OR = odds ratio; CI = Confidence Interval; PTEi = potentially traumatic event number i.

^aSignificantly different for the participants with 12-month CID/DSM-IV diagnosis of PTSD at the 0.001 level in two-sided tests controlling for gender. ^bUnweighted n. ^cWilson's 95% confidence interval. ^dOR_i based on univariate logistic regression, controlling for gender. ^eOR_j based on multivariate logistic regression, controlling through covariates for gender and the seven potentially traumatic events most significantly associated with PTSD (see univariate OR_i with ^a in exposed to PTEs), and using 12 month CID/DSM-IV diagnosis of PTSD as the dependent variable. ^fEstimation of the rate of PTSD explained by the potentially traumatic event number i (PTE i), controlling for gender and the 6 other potentially traumatic events most significantly associated with PTSD.

classified under the heading "Private Event" in this study, could often hide experiences of rape and other sexual assault in childhood or adulthood. It has been suggested that in the United States the percentage of women with a history of rape could be 12.9% (Foa & Riggs, 1993), even though in a population of young adults in Detroit, the prevalence of rape was reported to be 1.6% (Breslau, Davis, Andreski, & Peterson, 1991). In France, INSERM studies found that 1% of adolescents report that they have been victims of rape (Choquet et al., 1997), and that 7% of women under 35 state that they have experienced forced sexual intercourse (Spira & Bajos, 1993). Victims are still reluctant to talk about their experiences. It has been shown in the past in the United States (Koss, 1992), that many studies on rape, especially when few questions are actually asked, minimize the incidence of this event. Besides structured interviews for PTSD, American epidemiologists use instruments to screen for PTE experienced. These instruments have become more descriptive of the events with less use of legal terms such as rape or assault that are found in the CIDI. This approach seems to yield a more sensitive assessment (Gray, Litz, Hsu, & Lombardo, 2004; Wolfe, Kimerling, Brown, Chrestman, & Levin, 1996). In the CIDI, questioning on the occurrence of rape is unequivocal, but limited to one item. This may have led to the lower prevalence of rape in the present study.

Individuals suffering from PTSD had experienced on average three PTEs. Therefore, analyses to determine the main current traumas in Western Europe were performed in a multivariate procedure, controlling for the various types of traumatic events experienced. The focus was on current PTSD, which explains why some PTEs are not found in association with a number of these PTSDs. For instance, in the countries of Western Europe under study, there has not been a war involving a large population for several decades. In addition, it can be hypothesized that some of the most traumatized individuals among those exposed to more historically distant events such as war are already dead. Indeed, veterans of the Vietnam or Falklands wars claim that more soldiers died from suicide afterwards than in combat (Spooner, 2002).

Thirteen events did not occur significantly more often, nor indeed less often, in the PTSD group than in the non-PTSD group. This could mean that these events, as they are defined, are not generally sufficient to lead to trauma despite being unpleasant or adverse. For instance, "being a civilian in a war zone" corresponds to an experience that probably varies considerably according to what was actually experienced by the individual.

In this study, six PTEs were found to be strongly associated with PTSD. These six make it possible to confirm that assaults on personal integrity and rights, whatever the form, are a major source of trauma, especially for children and females (Sabin, Lopes Cardozo, Nackerud, Kaiser, & Varese, 2003). Breslau and her colleagues also found that the events involving assault and violence highlighted in our study (being raped or beaten up) were more strongly associated with PTSD (Breslau et al., 1997). One can also speculate on the so-called undisclosed private events, which were observed to be

very traumatic. A paradigm of undisclosed and severe trauma is incest (Fruman, 1992). Finally, another cause of trauma should be noted: bodily threats to the participant's child. This type of trauma has been documented for events such as a sudden death or illness of a child (Landolt, Vollrath, Laimbacher, Gnehm, & Sennhauser, 2005). This issue certainly warrants attention in terms of public health intervention.

Some events (e.g., being kidnapped or taken hostage) were related to a strong likelihood of PTSD (high OR), but they were rare and therefore explained only a low percentage of the PTSD group (low attributable risk). Other events (e.g., automobile accidents) were less likely to trigger PTSD (moderate OR), and though frequent, also explained a low percentage of the PTSD group (low attributable risk).

In terms of public health management, for an infrequent type of event presenting a high risk of PTSD, the strategy could be to offer secondary prevention with active psychiatric treatment of the whole population involved, whereas for common events that are less likely to lead to PTSD, the tendency will be to suggest primary prevention of the PTE, given the lack of means to offer preventive therapeutic interventions to the whole group. Finally, prevention interventions should target sexual or physical violence as a priority, as well as the trauma associated with serious illness in a child.

REFERENCES

- Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., et al. (2004a). Disability and quality of life impact of mental disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica*, 420(Suppl), 38-46.
- Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., et al. (2004b). Sampling and methods of the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica*, 420(Suppl), 8-20.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andrews, G., Henderson, S., & Hall, W. (2001). Prevalence, comorbidity, disability and service utilisation. Overview of the Australian National Mental Health Survey. *British Journal of Psychiatry*, 178, 145-153.
- Bernal, M., Haro, J. M., Bernert, S., Brugha, T., de Graaf, R., Bruffaerts, R., et al. (2007). Risk factors for suicidality in Europe: Results from the ESEMeD study. *Journal of Affective Disorders*, 101, 27-34.
- Boscarino, J. A. (2004). Posttraumatic stress disorder and physical illness: Results from clinical and epidemiologic studies. *Annals of the New York Academy of Sciences*, 1032, 141-153.
- Breslau, N. (2002). Gender differences in trauma and posttraumatic stress disorder. *Journal of Gender Specific Medicine*, 5, 34-40.
- Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry*, 48, 216-222.
- Breslau, N., Davis, G. C., Peterson, E., & Schultz, L. (1997). Psychiatric sequelae of posttraumatic stress disorder in women. *Archives of General Psychiatry*, 54, 81-87.

- Breslau, N., Peterson, E. L., Poisson, L. M., Schultz, L. R., & Lucia, V. C. (2004). Estimating posttraumatic stress disorder in the community: Lifetime perspective and the impact of typical traumatic events. *Psychological Medicine*, 34, 889-898.
- Carey, P. D., Stein, D. J., Zungu-Dirwayi, N., & Seedat, S. (2003). Trauma and posttraumatic stress disorder in an urban Xhosa primary care population: Prevalence, comorbidity, and service use patterns. *Journal of Nervous and Mental Disease*, 191, 230-236.
- Choquet, M., Darves-Bornoz, J. M., Ledoux, S., Manfredi, R., & Hassler, C. (1997). Self-reported health and behavioral problems among adolescent victims of rape in France: Results of a cross-sectional survey. *Child Abuse & Neglect*, 21, 823-832.
- Creamer, M., Burgess, P., & McFarlane, A. C. (2001). Post-traumatic stress disorder: Findings from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine*, 31, 1237-1247.
- Darves-Bornoz, J. M., Choquet, M., Ledoux, S., Gasquet, I., & Manfredi, R. (1998). Gender differences in symptoms of adolescents reporting sexual assault. *Social Psychiatry & Psychiatric Epidemiology*, 33, 111-117.
- Darves-Bornoz, J. M., Lepine, J. P., Choquet, M., Berger, C., Degiovanni, A., & Gaillard, P. (1998). Predictive factors of chronic post-traumatic stress disorder in rape victim. *European Psychiatry*, 13, 281-287.
- Davidson, J. R., Hughes, D., Blazer, D. G., & George, L. K. (1991). Post-traumatic stress disorder in the community: An epidemiological study. *Psychological Medicine*, 21, 713-721.
- Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, I., Kovess, V., Lepine, J. P., et al. (2004). Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *Journal of the American Medical Association*, 291, 2581-2590.
- Foa, E. B., & Riggs, D. S. (2003). Posttraumatic stress disorder and rape. In J. M. Oldham, M. B. Riba, & A. Tasman (Eds.), *Review of psychiatry: Vol. 12* (pp. 273-303). Washington, DC: American Psychiatric Press.
- Frans, O., Rimmo, P. A., Aberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatrica Scandinavica*, 111, 291-299.
- Frayne, S. M., Seaver, M. R., Loveland, S., Christiansen, C. L., Spiro, A. 3rd, Parker, V. A., et al. (2004). Burden of medical illness in women with depression and posttraumatic stress disorder. *Archives of Internal Medicine*, 164, 1306-1312.
- Fruman, L. S. (1992). Sexual misuse of children by family members: The dynamics of a complex problem. *Medicine and Law*, 11, 501-525.
- Girolamo, G., & Bassi, M. (2003). Community Survey of Mental Disorders: Recent achievements in progress. *Current Opinion in Psychiatry*, 1, 403-411.
- Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the Life Events Checklist. *Assessment*, 11, 330-341.
- Haro, J. M., Arbabzadeh-Bouchez, S., Brugha, T. S., de Girolamo, G., Guyer, M. E., Jin R., et al. (2006). Concordance of the Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health surveys. *International Journal of Methods in Psychiatric Research*, 15(4), 167-180.
- Helzer, J. E., Robins, L. N., & McEvoy, L. (1987). Post-traumatic stress disorder in the general population. Findings of the Epidemiologic Catchment Area Survey. *New England Journal of Medicine*, 317, 1630-1634.
- Kessler, R. C. (2000). Posttraumatic stress disorder: The burden to the individual and to society. *Journal of Clinical Psychiatry*, 61(Suppl 5), 4-12; discussion 13-14.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., et al. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *Journal of the American Medical Association*, 289, 3095-3105.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52, 1048-1060.
- Kipke, M. D., Simon, T. R., Montgomery, S. B., Unger, J. B., & Iversen, E. F. (1997). Homeless youth and their exposure to and involvement in violence while living on the streets. *Journal of Adolescent Health*, 20, 360-367.
- Koss, M. P. (1992). The underdetection of rape: Methodological choices influence incidence estimates. *Journal of Social Issues*, 48, 61-75.
- Landolt, M. A., Vollrath, M., Laimbacher, J., Gnehm, H. E., & Sennhauser, F. H. (2005). Prospective study of posttraumatic stress disorder in parents of children with newly diagnosed type 1 diabetes. *Journal of American Academy of Child and Adolescent Psychiatry*, 44, 682-689.
- LaVange, L., Stearns, S., Lafata, J., & Koch, G. (1996). Innovative strategies using SUDAAN or analysis of health surveys with complex samples. *Statistical Methods in Medical Research*, 5, 311-329.
- Miettinen, O. S. (1974). Proportion of disease caused or prevented by a given exposure, trait or intervention. *American Journal of Epidemiology*, 99, 325-332.
- Perkonig, A., Kessler, R. C., Storz, S., & Wittchen, H. U. (2000). Traumatic events and post-traumatic stress disorder in the community: Prevalence, risk factors and comorbidity. *Acta Psychiatrica Scandinavica*, 101, 46-59.
- Pynoos, R. S., Steinberg, A. M., & Piacentini, J. C. (1999). A developmental psychopathology model of childhood traumatic stress and intersection with anxiety disorders. *Biological Psychiatry*, 46, 1542-1554.
- Sabin, M., Lopes Cardozo, B., Nackerud, L., Kaiser, R., & Varese, L. (2003). Factors associated with poor mental health among Guatemalan refugees living in Mexico 20 years after civil conflict. *Journal of the American Medical Association*, 290, 635-642.
- Shah, B. V., Barnwell, B. G., & Bieler, G. S. (1997). SUDAAN User's Manual Release 8.0.1. Research Triangle Park, NC: Research Triangle Institute.
- Solomon, S. D., & Davidson, J. R. (1997). Trauma: Prevalence, impairment, service use, and cost. *Journal of Clinical Psychiatry*, 58(Suppl 9), 5-11.
- Spira, A., & Bajos, N. (1993). *Les comportements sexuels en France*. Paris: La Documentation Française.
- Spooner, M. H. (2002). Suicide claiming more British Falkland veterans than fighting did. *Canadian Medical Association Journal*, 166, 1453.
- Wittchen, H. U. (1994). Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): A critical review. *Journal of Psychiatric Research*, 28, 57-84.
- Wittchen, H. U., Burke, J. D., Semler, G., Pfister, H., Von Cranach, M., & Zaudig, M. (1989). Recall and dating of psychiatric symptoms. Test-retest reliability of time-related symptom questions in a standardized psychiatric interview. *Archives of General Psychiatry*, 46, 437-443.
- Wittchen, H. U., Robins, L. N., Cottler, L. B., Sartorius, N., Burke, J. D., & Regier, D. (1991). Cross-cultural feasibility, reliability and sources of variance of the Composite International Diagnostic Interview (CIDI). The Multicentre WHO/ADAMHA Field Trials. *British Journal of Psychiatry*, 159, 645-653.
- Wolfe, J. W., Kimerling, R., Brown, P. J., Chrestman, K. R., & Levin, K. (1996). Psychometric review of the Life Stressor Checklist-Revised. In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation*. Lutherville, MD: Sidran Press.
- Yehuda, R., & McFarlane, A. C. (1995). Conflict between current knowledge about PTSD and its on final conceptual basis. *American Journal of Psychiatry*, 152, 1705-1713.