

Running Title: PTSD IN HEALTH PLANNING

Planning needs and services after collective trauma: should we look for the symptoms of PTSD?

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Abstract

There is a controversy regarding which should be the conceptual framework for mental health planning after a collective traumatic event. To add to this debate, the authors analyzed data related to the Madrid March 11 2004 terrorist attacks in a sample of the population of Madrid (N=503) 18-25 days after the attacks. Post attack emotional, behavioral and cognitive reactions were measured using a wide arrange of measures. Among them, Post Traumatic Stress Disorder was systematically assessed on the basis of a self-administered interview which included, among other measures, the symptoms covered by the Posttraumatic Stress Disorder Checklist-Civilian (PCL-C). Depending upon (a) the cut-off score (b) the severity of item scoring accepted as indicative of the presence or absence of a symptom (c) the adding of DSM-IV-R criteria A (extreme emotional reaction associated to traumatic event) and or (d) DSM-IV-R Criteria F (sustained impairment in functionality), rates of probable PTSD ranged from 1.9% to 13.3%. Therefore, from using the standard PCL-C with the original cut-off points to using criteria more closely adjusted to what it is stated in DSM-IV-R, the prevalence of probable PTSD varied in a sevenfold manner. Values ranged from what can be expected as a normal prevalence in general population in Spain under non-traumatic conditions to values that when applied to the general population could be considered a dramatic epidemic of PTSD. These results demonstrate that inferences about the impact of traumatic events on the general population largely depend on the measure, definition and criteria used by the researcher that. This may help to explain so divergent and conflicting messages coming from the so-called population-based epidemiological studies on PTSD, largely based on psychometric procedures. The implications of these results for public health policies related to collective traumatic events are discussed.

Key Words: Post traumatic Stress Disorder, PCL-C, Acute Stress Disorder, risk factors, stress, terrorism.

There is a debate in the literature on the impact of collective traumatic conditions in the general population regarding which should be the proper focus for planning and intervention from the governmental and non-governmental institutions (Pérez-Sales, Cervellón, Vázquez, Vidales, Gaborit, (2005). On the one hand there is the tendency to focus the intervention on the screening and treatment for clinical diagnosable conditions using international criteria (i.e. DSM-IV-R / ICD-10). The diagnosis of Acute Stress Disorder (Bryant, Harvey, 2000) and Post-Traumatic Stress Disorder (Litz et al, 2002) are the two more cited diagnosis in the literature, although Major Depression (Prigerson HG, 1999) or Dissociative reactions (Nathaniel et al, 2002) have also been subject of screening. This is the strategy recommended by some of the leading institutions in the field like the International Society for Traumatic Stress Studies, (Foa, Keane, Friedman, (2000), Ritchie , Watson, Friedman, in press) or the USA National Center for PTSD (ie, Leskin et al, 1999).

On the other, there are a number of researchers and organizations that propose that most of the symptoms collected in these instances are normal reactions to abnormal situations and put the main focus in the breakdown of the social fabric and providing tools for community rehearsal and empowerment through a vulnerability / capacity work. The World Health Organization (Van Ommeren, Saxenas, Saraceno, 2005), the International Federation of Red Cross and Red Crescent Societies (2003) or the Inter-Agency Standing Committee (IASC, in press) are among them.

The purpose of this study is to analyze the applicability of the PTSD construct and its usage in population-based epidemiological studies after a collective traumatic condition as a tool for planning needs and services.

Epidemiology and PTSD. The first fact that must be addressed by a health planner that tries to use epidemiological data on PTSD in general population are the disparate results published in the literature depending upon the definition and measurement strategies used. This variability may be attributed to the specific characteristics of each event, the strategies of sample selection and, perhaps more important, the use of different assessment strategies which typically range from rather simple self-report symptom scales to clinical interviews following diagnostic criteria (Bryant & Harvey, 2000; Norris, Byrne, Diaz and Kaniasty, 2001).

Scientific data, journalist involvement, public health concern?. The 11-S terrorist attacks were a turning point in the scientific study of the impact of sudden mass catastrophes on public health. Data began to appear in the immediate hours after the attacks. The first available data were somewhat shocking. The [Institute of Social Research of the University of Michigan \(2001\)](#) published a survey done using non-standardized instruments that showed that a 66% of a random sample of 668 adult Americans interviewed 4 to 20 days after the attacks had “depressive symptoms” (52%), “sleep problems” (62%) or symptoms in the range of an “acute stress reaction”. The same day appeared in WebMed an article titled: “*Should America Prepare for a Mental-Health Crisis? Expert Says Terror Strikes Will Cause Millions to Need Help With PTSD*” which was quoted in most USA newspapers. According to current DSM-IV-R definitions of PTSD, being told about a traumatic event can be enough to develop the disorder. According to that, two psychiatrists explained that the fact that millions of persons had once and again seen the

images of the WTC and that this was a major issue of concern among North Americans, would imply an epidemic of PTSD all over the country of insurmountable dimensions. In a study by the RAND corporation 3 to 5 days after the attacks and published using the Priority Speed Publication in the New England Journal of Medicine of the 15 November 2001 (Schuster et al, 2001) 90% of a random sample of Americans interviewed showed “moderate stress” and a 44% living close to the NY area presented one of a list of 5 symptoms that were labeled by the authors as “substantial stress”. The paper was a cautionary note again on the necessity of a public health response to what could be considered a major community mental health problem. The recent announcement by the Commissioner of the New York City Department of Health and Mental Hygiene, that the council has created a database to make a follow up of the physical and mental health consequences of the attack in the New Yorkers shares this same line of thought. More than 25.000 thousands have already volunteered to be screened every three months for the next 20 years (CNN, 3 March 2004). The most cited study is the telephone survey of a sample of Manhattan adult residents done by Galea et al (2002, 2003) in three waves (5 to 9 weeks after S11 (Wave 1, n=998), 4 to 5 months (Wave 2, n=2001) and 6 to 9 months (Wave 3, n=1570), using a semi-structured interview (DIS), framed to S11. Although prevalence of PTSD was high in the first wave (7.5% in Manhattan, 20% in the citizens living close to the WTC) the prevalence declined rapidly in W2 (1.7%) and W3 (0.6%).

Although this was a lesson learned, similar alarming messages have been produced in other settings. One week after the terrorist attacks in Spain the mental health authorities announced an epidemic of PTSD. Under the heading “*Marked for ever*” the newspaper *El Mundo* published the 21 of March 2004 that “ The authorities expect that between 3 and 6% of the

population of Madrid will have severe psychological disorders (between 90.000 and 180.000 persons). *El País*, the main newspaper in Spain with more than two million readers in the weekend, gave similar figures (Sampedro, 2004). But damage is not only to be expected in the town. The diffusion of the images of the bombings and the reactions of victims and relatives makes all Spain vulnerable to the consequences of terrorism". A study conducted by Muñoz et al (2004) in the first days after the attacks seemed to put figures to this predictions. The authors reported that a 47% of the population presented "symptoms related to Acute Stress Disorder" using the Acute Stress Disorder Scale (ASDS) in a sample of 1179 citizens of Madrid. Although the authors were cautious in the interpretations of conclusions in the scientific papers, press interviews echoed uncritically the results. Miguel-Tobal et al (2004) conducted a study following the same methodology that Galea et al after the WTC attacks - a telephone survey to a sample of 1897 citizens of Madrid 4 to 6 weeks after the bombings)-. The authors reported *preliminary results* in a Press Conference weeks before scientific publishing stating that they had found a prevalence of 35.9% of PTSD among victims and direct witnesses, 4.8% among people in surrounding neighborhoods, and 3.9% among general population. Figures for "depression" were respectively 29.9%, 9.8% and 7.49% and an additional 10.9 of the population of Madrid were reported as having had "panic attacks" related to the bombings. The results were extensively commented in the Spanish press (i.e. *El Mundo*, 29 July 2004, *ABC* 28 July 2004.....). *El País* produced 5-columns headings: "*More than 40.000 citizens of Madrid affected by Post-Traumatic Stress Disorder*". And in the body of the news a calculation was made according to the estimated prevalence. It was stated that "more than 250.000 had major depression and similar figures have experienced panic attacks related to the bombings".

As in the American attacks, the newspapers interviewed public health authorities in each occasion to ask which would be the response. In such a sensitive political matter the answer had already come: 35 psychiatrists and 17 psychologists were employed by the Mental Health Authorities to confront this expected epidemic of PTSD. More than a 20% increase in the number of psychiatric professionals. This is a measure that is somewhat difficult to understand when no money at all has been invested until now by the health authorities in any psychosocial or community program related to the attacks.

Talking to the newspaper *La Vanguardia* (22/12/2004) Martin-Tobal and cols stated that “only 3014 persons had been attended by the Mental Health authorities during the first year” with “unknown consequences for the future”. The same group presented data in the IX European Congress of Psychology (Granada 3-8 July 2005) from a second wave 6 months after the attacks that showed figures close to what would be expected in normal conditions (2.5% prevalence of major depression, 1% PTSD and 3% panic attacks among general population) although the authors discussed the data in terms of “chronification” of symptoms, something also quoted in press (i.e *La Vanguardia*, next day).

Similar messages are also produced in other contexts. In a survey after the 1999 flooding in Mexico, [Norris et al \(2004\)](#) using the CIDI assessed PTSD and depression in four samples of survivors, reporting an average prevalence of 24% of PTSD in combined samples. The authors conclude that “the findings demonstrate that the international health community needs to be prepared for epidemics of PTSD when disasters strike developing areas of the world” although the same authors had already proposed in a previous meta-analytic review to confront this

“epidemics” with family and community measures, with some small resources devoted to clinical work (Norris, Friedman, Watson, 2002).

Methods to assess trauma.

In regard to measurement strategies, researchers have typically used three different ways of assessing the impact of these events on the general population. The first strategy, and probably the most frequently used, has been to use instruments that basically cover a number of symptoms related to traumatic stress reactions. One interesting example of this approach was the Schuster et al., (2001) study published in the *New England*. In a second part of the same study, conducted two months after the attack, the authors found that 16% of those who had a substantial stress level in September 2001 still had that reaction in November of the same year (Stein, Elliot, Jaycox et al., 2004). The initial conclusions of these studies were very alarming and suggested, according to these authors, the need for early psychological interventions given that “*by intervening as soon as symptoms appear, physicians, psychologists and other clinicians may be able to help people to identify normal reactions and take steps to cope effectively*” (Schuster et al., 2001, p. 1511). Likewise, they predicted “*the psychological effects of the recent terrorism are unlikely to disappear soon*”. A similar study based on non-structured data (Herman, Felton, Susser, 2002) conducted three weeks after the 11-S attacks predicted that “*over 520,000 persons in New York City and the surrounding counties would experience posttraumatic stress disorder resulting from exposure to the attacks, and that more than 129,000 would seek treatment for this disorder during 2002*”. However, a critical analysis of these studies may lead to different

conclusions (see Vázquez, 2005). In fact, what the authors defined as ‘Substantial stress’ in the study by Schuster et al. was simply to get a score of 4 (“quite a bit”) or 5 (“Extremely”) in any of 5 selected items related to PTSD symptoms¹ and stress measurement in the Herman study used a list of emotional symptoms, some of them related to PTSD in a non-random sample. These studies use *ad-hoc* definitions of emotional consequences of traumatic events.

A second measurement strategy has been the use of self-report symptom questionnaires that estimate caseness based on cut-off scores. The questionnaires do not strictly follow DSM-IV (APA, 1996) diagnostic criteria (i.e. Silver et al. (2002), Blanchard et al. (2004)), and cut-off scores have been previously proposed using divergent methodologies.

One of the most frequently used questionnaires has been the PCL-C (Weathers et al., 1993), a self-report instrument covering the 17 symptoms included in the definition of PTSD as described in the DSM-IV (APA, 2000). In terms of probable PTSD diagnoses based on the PCL-C scores, Schlenger et al. (2002) found that among their nationally representative sample of 2,273 adults, interviewed 1-2 months after September 11, the overall rates of probable PTSD using the cut-off score of 50 were 11.2% in NYC, 2.7% in Washington, D.C., 3.6% in major metropolitan areas, and 4% in the rest of the country. However, using a lower cut-off score of 40 in the same instrument, Blanchard et al. (2004) have published that the prevalence of probable PTSD for their university samples from Albany, Augusta, and North Dakota (thousands of kilometers away from NY) were, respectively, 11.3%, 7.4% and 3.4%. Unfortunately, there is no agreement on the best cut-off strategies and different results may be related to this important diagnostic decision.

Finally, a third measurement strategy is to use full diagnostic criteria to verify the presence of mental disorders (typically PTSD or Acute Stress Disorder). In this case, a diagnosis of PTSD, for example, must include not only symptoms (Criteria B, C, and D according to the DSM-IV criteria –see Table 1-) but also other requirements (e.g., Criterion A1. *Being exposed to a traumatic event that involved physical threat*, Criterion A2 *Subjective reactions of fear, helplessness or horror* and Criterion F: *Social impairment in daily activities*). The above mentioned studies by the groups of Galea in the US and Miguel-Tobal in Spain are good examples of this diagnostic approach, by using structured telephone interviews related to DSM-IV (APA, 1996) criteria.

Provision of services.

In spite of these apocalyptic announcements data on mental health services clearly showed that there was no increase in the demand for psychiatric consultation even in the initial 30 days neither among general population (Boscarino, J. A., Galea, S., Ahern, J., Resnick, H., & Vlahov, D. (2002) nor among Vietnam Veterans (Rosenheck, R., & Fontana, A. (2003). Yet, the epidemiological studies conducted in New York (Galea et al., 2002) and in other US cities (Schlenger et al., 2002) had already shown that prevalence rates of PTSD significantly dropped after the first few months after the tragedy. Consistent with these findings, the data from large managed behavioral health organizations had similarly shown a pattern of no significant increases in prescription of psychotropic medications between September 2001 and January 2002 (McCarter and Goldman, 2002). In a follow up of a subsample of the RAND corporation study the authors conclude that for the vast majority of people family and friends was the source for advise and talking, 11% sought some advice from the general health system, and there was

almost no demand from the mental health system (Stein et al., 2004). Interestingly enough, in a study conducted in London three weeks after the 7 July 2005 bus bombings following the same methodology as the New York and Madrid studies found out that less than 1% of 1,010 people interviewed felt that they needed professional help to deal with their emotional response to the attacks (Rubin et al., 2005).

Given the disparities of results and messages among divergent studies which have used different instruments and/or measurement strategies, the fact that no actual demand seems to arise from general population, and the implications of all these data in terms of public health policies, we designed a study to test to what extent the use of different methodologies in the estimate of needs based on general-population epidemiological studies may help to explain this somewhat confusing situation.

Our study compared psychometric measures using different cut-off scores in the PCL-C, (see Ruggiero, Del Ben, Scotti, & Rabalais, 2003), and additional diagnostic criteria to estimate DSM-IV-R probable cases of PTSD in a sample of the general population of Madrid assessed 2-3 weeks after the terrorist attacks of March 11 2004. As explained before, symptom-based instruments as the PCL-C adequately cover Criteria B, C and D of the DSM-IV definition of PTSD (i.e., symptoms), but not Criterion A1 and A2 (i.e., severe exposure and initial subjective response)² and, more important, Criterion F (i.e., significant problems in the *daily functioning*) – see Table 1. This latter criterion is extraordinarily important as the inclusion of functioning difficulties may reduce epidemiological figures of mental disorders in the general population up to one half (Narrow et al., 2002). Functionality is also the main criteria proposed by the World

Health Organization to measure the global burden of disease and its impact in terms of public health policies (WHO, 2005). Thus, we designed the study to include an assessment of Criteria A and F besides the PTSD symptoms which are well covered by the PCL-C. Our overall hypothesis was that the impact of the traumatic event in the general population, according to what it was already known after the 11S US attacks would be rather limited (see Vázquez, 2005) and, furthermore, that impact would depend largely on the criteria used to define “cases”.

Insert Table 1 here

Method

Participants

One week after the March 11, 2004 attack, a class of university psychology students in Madrid was asked to participate in a study on the effects of terrorist attacks. Students completed a questionnaire and recruited two other adult persons aged 18 and older who were in Madrid on March 11 2004. The final sample was composed of a 194 university students and 309 persons from the general population³. All participants returned the questionnaires 18-25 days after the terrorist event. The final total sample consisted of 503 respondents (67% female) whose average age was 31.4 years.

Measures

Initial reactions (Criterion A2, DSM-IV). To explore whether different initial reactions could affect the development of subsequent trauma-related symptoms, we used a 10-point rating scale (from 0 = 'Not at all' to 10 = 'Extreme intensity') on which participants rated the intensity of 'fear', 'feelings of horror' and 'helplessness' in the first hours after the trauma occurred. In addition to these three symptoms that make up DSM-IV Criterion A2 for PTSD (APA, 2000), we also examined other initial reactions that may play an important role in the development of PTSD (e.g., fear that someone known to the person could have been affected, bodily symptoms such as sweating, trembling, feeling upset and anger) -Brewin, 2003; Bracha, Williams, Hayes et al., 2004). Participants also rated the length in hours of these emotional reactions in the 24-hour period following the attacks.

Post-traumatic symptoms (Criteria B, C and D -DSM-IV). The Posttraumatic Stress Disorder Checklist-Civilian (PCL-C) is a 17-item self-report measure of posttraumatic stress reactions that adequately covers the set of symptoms associated with PTSD as defined in the DSM-IV (Weathers, Litz, Herman, Huska & Keane, 1993) – Criteria B (Reexperiencing), C (Avoidance) and D (Hyperarousal). Items are scored on a scale anchored from 1 (not at all) to 5 (extremely). The possible range of scores is 17–65. Test–retest reliability at 2-3 days has been reported at 0.96 (Weathers, Litz, Herman, Huska & Keane, 1993) and the overall diagnostic efficiency has been found to be acceptably high at 0.90 (Blanchard, Jones-Alexander, Buckley & Forneris, 1996). In our study, the scale revealed to be highly consistent (Cronbach's $\alpha = .89$).

Similar to the majority of studies related to the September 11 events (e.g., Blanchard et

al., 2004), questions were explicitly framed with respect to the March 11 terrorist attacks. The scores on the PCL-C were used in three different ways:

a) PCL-C total scores. PCL total score and the three subscales which correspond to the DSM-IV Criteria B, C and D respectively (APA, 1994).

b) Substantial stress level (SL). To compare our data with those from previous studies (Schuster et al., 2001; Stein et al., 2004; Matt and Vazquez, submitted), SL was defined as an answer of 4 (“Quite a bit”) or 5 (“Extremely”) to one or more of five PCL-C items.

c) Probable PTSD diagnosis. To determine rates of psychological distress related to PTSD, three strategies differing in restrictiveness were compared:

c.1) *Low threshold Criterion* (PCL total score >44). This criterion, which minimizes the number of false negative cases, has been repeatedly used in epidemiological studies related to the September 11 attacks (Blanchard et al., 2004).

c.2) *High Threshold Criteria* (PCL>50). A cut-off score of 50 or above has also been used in national studies on the effects of the 9/11 attacks (Schlenger et al., 2002). Yet, to reduce false positive cases (see Ruggiero et al., 2003), items were computed only when reaching a severity threshold (i.e., a score of 4 or 5: ‘quite a bit’ or ‘extremely’, respectively)⁴.

c.3) *Clinical Criteria based on Psychometric Measures*. We established a DSM-IV-based strategy consisting on checking whether a given criterion was fulfilled. Criterion A2 was considered met when a participant responded with a score of 8 or above to any of the reactions described in DSM-IV (i.e., horror, fear, or helplessness)⁵. Criterion B, C, and D were met whenever a participant met the number of symptoms required respectively for each criterion (one out of five reexperiencing symptoms, three out of seven avoidance symptoms, and two out of

five hyperarousal symptoms). Presence of a symptom was defined by a score of 4 or 5 on each corresponding PCL-C item. Criterion F was met if a participant scored 8 or above on the Global functioning item⁶.

Global functioning (Criterion F, DSM-IV). Problems in ‘Global functioning’ (Criterion F for DSM-IV PTSD, APA 2000) assessed the extent to which the March 11 events were still affecting participants’ daily activities -at work, at home or in interpersonal relations- on a scale of 1 (Not affected in daily activities) to 10 (Extremely affected in daily activities).

Results

Posttraumatic stress responses (PCL-direct scores)

The mean PCL-C total score was 31.9 (Sd = 12.9) –see Table 2. An analysis of gender differences showed that women had a more intense reaction than men as reflected in higher scores on the PCL-C total ($t(487) = 3.15, p < 0.002$), symptoms of reexperiencing ($t(487) = 3.85, p < 0.001$) and hyperarousal ($t(487) = 2.97, p < 0.003$). Yet, there were no significant gender differences on avoidance total score ($t(487) = 1.16, p < 0.11$).

Insert Table 2 here

Substantial stress

Overall, a high percentage of respondents (59.2%) manifested a “substantial stress level” as defined by Schuster (2001). The mean magnitude of the PCL-C symptoms ($M=1.88$) did not even reach the severity threshold of 2 (i.e.: “A little bit”).

Probable PTSD diagnosis

Table 2 shows the data on probable PTSD diagnosis based on PCL scores using different strategies. As it can be seen, rates of PTSD significantly changed depending on which criterion was used. For the entire sample, using the cut-off score >44 proposed by Blanchard et al. (1996), 13.3% of the sample were considered cases (i.e. having a probable PTSD disorder diagnosis), whereas the prevalence rate dropped to just 3.4% when the stricter criterion suggested by Ruggiero et al. (2003) was used instead. Thus, applying different criteria commonly used in studies with the PCL-C resulted in a *fourfold* difference between probable diagnostic rates.

The results were even more striking when data were calculated according to the approach modeled after DSM-IV criteria. Only 1.9% of the total sample received a probable diagnosis of PTSD – which means one out of every seven persons of the “probable cases” using the standard $PCL>44$ strategy.

Initial reactions and posttraumatic response

With the exception of bodily symptoms ($M=3.2$), the average initial reaction was rather intense, ranging from $M=6.0$ (“fear”) to $M=7.5$ (“helplessness”). This included the three symptoms of the DSM-IV definition of Criterion A as well as other reactions (e.g., feelings of ‘anger’, ‘fear that someone I know could be affected’, and feeling ‘upset’ about what happened).

The average duration of the initial reaction was 1.9 hours and, in general, the intensity of these emotional reactions was significantly correlated with all the PCL-C scores (correlations between emotional reactions and PCL-C total score ranged from $r=.54$ for bodily symptoms to $r=.32$ for Anger).

The analysis of participants' global functioning revealed that, on a 0-10 scale, that the average impact was very low ($M = 3.7$). Gender differences revealed that, compared to men, women had more difficulties in daily activities ($t(475) = 4.27, p < 0.001; 3.84$ vs. 3.32) in relation to the March 11 attacks.

Discussion

“Substantial stress”. There is a big discrepancy between results based on concepts like “substantial stress” or “symptoms of acute stress” and more standard measures. This kind of *ad-hoc* questionnaires show data which can hardly be concealed with results coming from any other study suggesting a widespread clinical disorder in the general population. This kind of circumstantial instruments might lead to an overestimation of the epidemiological needs unless a careful analysis of the data and measurement strategies is previously made. But their impact in terms of media and public in general is very important and are largely quoted even in scientific journals. It does not seem that these kind of figures, even if they are significant, do correspond to a need for psychological intervention or that they truly correspond with clinical significant conditions, especially in the case of studies in which remarkably low diagnostic thresholds are

used, or are based in self-report tools which may be very vulnerable to social desirability biases specially in immediate days after a collective disaster (North and Pfefferbaum, 2002; Muñoz et al., 2004). Being upset or having ‘substantial stress’ does not mean having a clinical disorder (Wessely, 2004) but having a normal reaction to an abnormal situation. Therefore, studies trying to identify subthreshold levels of traumatic responses, such as the studies of Schuster et al. (2001) or of Stein et al., (2004) based in such simple definitions of stress (e.g., “substantial stress”) may, therefore, induce public alarm and confusion (Southwick and Charney, 2004; Shalev, 2004)⁷.

“**Acute Stress Disorder**”. Based on the symptoms reported in a questionnaire, a preliminary study conducted by Muñoz, et al. (2004) between 18-24 March 2004 showed that 47% of a Madrid general population sample (N = 1,179) had an acute stress reaction in relation to the March 11 attacks, as measured by the Acute Stress Disorder Scale (ASDS, Bryant and Harvey, 2000). Yet, although initial psychological reactions to the March 11 events were in some cases dramatic and, as our data showed, intense initial reactions (criterion A2) were very common, there is also mounting evidence that these acute responses are limited in scope and quickly return to normal levels (Marshall, Spitzer, and Liebowitz 1999; McNally et al., 2003; Muñoz et al., 2004). Silver et al., (2002) found that 17% of their nationwide sample of adults residing outside New York City reported posttraumatic stress symptoms 2 months after September 11 but only 6% reported symptoms at 6 months. A similar pattern has been found for PTSD diagnoses in the general population. In the telephone survey by Galea et al. (2003) analyzed the prevalence of PTSD declined between waves 1 and 3 from 7.5% to 0.6% six months after the incident. Therefore, the *transitory nature* of traumatic stress responses found in

the majority of the general population suggests that acute emotional distress should not be mistaken for direct indicators of delayed PTSD. Furthermore, the overall magnitude of the general population's stress reaction found in these studies is quite low. Both in our study as in previous ones the overall mean intensity of the PTSD symptoms was never above 2 in a 1-5 scale.

As McNally, Bryant, & Ehlers (2003) and Silver et al. (2002) have argued, high initial emotional responses may be part of the natural recovery, improving without the assistance of professional help in the presence of supportive environments. Thus, a pattern of acute stress reactions after trauma in the hours, days or even weeks after a traumatic event occurs, should be cautiously interpreted (North and Pfefferbaum, 2002; Kilpatrick, Resnick, Freedy et al., 1998). In fact, there is a strong debate on the clinical and epidemiological significance of this type of findings. Studies trying to identify subthreshold levels of traumatic responses (e.g., Stein et al., 2004; Muñoz et al., 2004) based in simple definitions of stress may also induce public alarm and confusion (Southwick and Charney, 2004; Shalev, 2004).

The Psychometric and the DSM-IV-R approaches. In the present study we used three different strategies to diagnose PTSD based on the PCL-C. Using two different scoring methods and a clinical approach, we found the prevalence rate to drop from 13.3% to 1.9%. Researchers and policy makers should pay attention to these variations in probable prevalence rates, which depend upon the use of different diagnostic and threshold criteria (North and Pfefferbaum, 2002), for an adequate and sensible planning of health services (Southwick and Charney, 2004). Unfortunately, there is no sound epidemiological study, as far as we know, that had been conducted in the Madrid general population on the prevalence of PTSD before March 11, 2004.

Yet, it is interesting to note that in an ongoing project on the prevalence of DSM-IV mental disorders in six European countries (ESEMeD/MHEDEA, 2004) - Belgium, France, Germany, Italy, the Netherlands and Spain (total N = 21,425) - PTSD 12-month and lifetime-prevalence rates are 0.9%-1.9%, respectively. This would mean that figures in Madrid may fall *in the range of normality* from previous figures of PTSD estimates in Spain. Additionally it must be stressed that the ESEMeD estimated prevalence for PTSD are quite lower than those found in comparable US studies (e.g., Kessler et al., 1995). Future studies should pay attention to the possibilities of directly comparing the figures on psychological reactions to traumatic events in different countries and cultures.

Our findings portray a response to these traumatic events that is consistent with other research, showing a dramatic surge in some emotional symptoms immediately following a collective disaster with little, if any, implication for psychopathology in the general population (McNally et al., 2003). Yet, the pattern of results on the magnitude of the response calls for the need to be cautious of the dangers of confounding normal emotional distress with clinically significant disorders, especially when using psychometric criteria as the main source of data. The dangers of this kind of decision, from an epidemiological and public health perspective on media and population impact in terms of fear and alarm, and the vast amount of resources allocated to clinical services should be seriously thought out. Although the present study cannot be considered as a robust epidemiological research, mainly due to sampling limitations, it provides some critical hints on the limitations of methods that intend to screen for mental disorders in the general population. In our opinion, epidemiological estimates of similar studies should be carefully examined, as variations in diagnostic cut-off scores and strategies may have

dramatic effects on the resulting estimates. Researchers and policy makers should pay attention to these variations in probable prevalence rates, which depend upon the use of different criteria. This is not to be confused with the situation of the survivors and witnesses which may have needs and demands which are not addressed specifically by our study. Whether the PTSD model is useful in this population is something also under discussion. In terms of understanding the problems in a cultural, sociopolitical context, having a diachronic perspective, working trying to provide meaning to the experience and built new narratives of the world, oneself and the others, and in terms of defining a space of sharing based in resilience and growth, it is usefulness may also be questioned. Further research is needed, in this regard.

Our data suggest that great caution must be paid to general-population based epidemiological studies for “substantial stress”, “acute stress disorder”, PTSD or PTSD-related symptoms among general population, as a tool for psychosocial or mental health planning after a collective disaster.

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Footnotes

Table 1. Outline of the DSM-IV-TR diagnostic criteria for PTSD (APA, 2000)

POSTTRAUMATIC STRESS DISORDER (PTSD)
Criterion A1. Exposed to a traumatic event that involved physical threat and,
Criterion A2. Subjective reactions of fear, helplessness or horror
Criterion B. Reexperiencing the event (1 out of 5 symptoms):
1. Intrusive recollections.
2. Distressing dreams
3. Reacting or feeling again the event
4. Distress at exposure
5. Physiological reactivity on exposure
Criterion C. Persistent avoidance (3 out of 7):
1. Efforts to avoid thoughts, feelings,..
2. Efforts to avoid reminding activities
3. Inability to recall aspects of trauma
4. Diminished interest to participate in activities
5. Feelings of detachment from others
6. Restricted range of affect
7. Sense of foreshortened future
Criterion D. Hyperarousal (1 out of 5):
1. Insomnia.
2. Irritability or outbursts of anger
3. Difficulty concentrating
4. Hypervigilance.
5. Exaggerated startling response
Criterion E. Duration of symptoms (B, C, and D): >1 month
Criterion F: Significant distress or social impairment

Table 2

Percentage of participants meeting levels of substantial stress (SL) and probable PTSD according to different diagnostic strategies.

	Total sample	Male	Female	PCL definition : DSM-IV-based definition ratio
<u>Psychometric criteria (PCL scores)</u>				
Substantial Stress (Selected PCL-C items scored 4 or 5)	59.2	52.0	61.7*	
PTSD using PCL>44	13.3	11.3	14.4	7:1
PTSD using PCL>50 <u>and</u> items scoring >4	3.4	2.0	3.8	1.7:1
<u>DSM-IV-based Clinical criteria</u>				
All DSM-IV criteria	1.9	1.4	2.1	1:1
Criterion A2 (Initial reaction to the event)	78.2	58.2	86.9***	
Criterion B (Reexperiencing: 1/5)	56.2	49.0	59.3*	
Criterion C (Avoidance: 3/7)	3.8	2.8	4.2	
Criterion D (Hyperarousal: 2/5)	19.1	15.8	20.5	
Criterion F (Functioning)	6.3	5.6	6.6	
Criteria B+C+D (cluster of symptoms)	3.2	2.0	3.6	
Criteria A2+B+C+D (Initial reaction and symptoms)	2.0	1.4	2.1	

* $p < 0.05$; ** $p < 0.01$

¹ The items chosen were those reported as present by 50% or more of the survivors of the bombing attack in Oklahoma City (North, Nixon, Shariat et al., 1999): 1) “Feeling very upset when something reminds you of what happened?”; 2) “Repeated, disturbing memories, thoughts, or dreams about what happened?”; 3) “Having difficulty concentrating?”; 4) “Trouble falling or staying asleep?”; 5) “Feeling irritable or having angry outbursts?”.

² Although initial response is restricted to Criterion A2, we assume that all participants met criterion A1 as the nature of the March 11 traumatic experience literally fits the definition of trauma described in the DSM-IV Criterion A1: “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”.

³ We conducted a series of analyses comparing PCL-C scores in both samples finding no significant differences in any PCL scale. Thus, both samples were combined in this report.

⁴ A score of 3 or above is required for items 1, 2, 9, 10, 12 and 15, whereas a score of 4 or above is required for the rest of the items.

⁵ A score of 8 or above in a 1-10 scale would be equivalent to a score of 4 or above in the 1-5 scale of the PCL-C.

⁶ Criterion E (duration of symptom more than 1 month) was not directly assessed as this study was conducted between the third and fourth week after the attacks. Thus, the responses covered a 3-4 week period as the PCL instructions asked subjects to rate the severity of symptoms since March 11.

⁷ Similar variations in results have been found when researchers have studied initial psychological reactions with the controversial category of Acute Stress Disorder (ASD) –see Vázquez (2005). This new category was first introduced in the DSM-IV (APA, 1996) -see a systematic critical review by Marshall, Spitzer and Liebowitz, 1999- to cover the measurement of psychological reactions to traumatic events within the first 30 days after a traumatic event.