

Is PTSD caused by traumatic stress?

J. Alexander Bodkin^{a,c,*}, Harrison G. Pope^{b,c}, Michael J. Detke^{a,c},
James I. Hudson^{b,c}

^a *Clinical Psychopharmacology Research Program, McLean Hospital, Belmont, MA, USA*

^b *Biological Psychiatry Laboratory, McLean Hospital, Belmont, MA, USA*

^c *Harvard Medical School, Boston, MA, USA*

Abstract

Sequential subjects ($N = 103$) presenting for pharmacologic treatment of major depression were examined prior to treatment for history of traumatic experiences. Subjects were also examined for symptoms of posttraumatic stress disorder (PTSD). Two blinded raters subsequently judged whether subjects' experiences met DSM-IV criteria for trauma (criterion A of PTSD). Among 54 subjects scored by both raters as having experienced trauma, 42 (78%) met all other DSM-IV criteria for PTSD. Among 36 subjects scored by both raters as not having experienced trauma, 28 displayed all other DSM-IV criteria for PTSD—also a rate of 78%. This equivalence suggests that in a treatment-seeking population, caution should be exercised in attributing the PTSD syndrome to trauma.

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Posttraumatic stress disorder (PTSD), as its name indicates, is a psychiatric condition believed to result from exposure to trauma. It is increasingly considered to be highly prevalent, a substantial cause of morbidity, and a serious social and economic burden (Boscarino, 2004; Brunello et al., 2001; Kessler, 2000; Walker et al., 2003). PTSD currently appears in both the *ICD-10 Classification of Mental and Behavioural Disorders* (World Health Organisation, 1992) and the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV; American Psychiatric Association [APA], 1994). Historically, however, PTSD was not formally recognized as a diagnosis until 1980, when it was first accepted into the official American nomenclature—albeit with some controversy (Scott, 1990).

* Corresponding author at: McLean Hospital, 115 Mill Street, Belmont, MA 02478, USA.

E-mail address: abodkin@mclean.harvard.edu (J.A. Bodkin).

It has since come to be seen as a psychiatric diagnosis with diminished social stigma, the patient being simply a victim of adverse events (Summerfield, 2001). PTSD has entered popular parlance, given rise to new schools of psychotherapy, become the subject of more than 10,000 scientific papers (PubMed: May 3, 2006), and spawned a specialty in civil law which seeks to recover compensation for individuals reporting symptoms of PTSD (Stone, 1994).

PTSD is among the few current psychiatric diagnoses with embedded assumptions regarding its etiology. *DSM-IV* requires a significant traumatic event as the first diagnostic criterion for PTSD (“criterion A”). If the patient does not meet criterion A (i.e., does not report (1) a history of a traumatic event together with (2) a response involving fear helplessness or horror) then the diagnosis of PTSD cannot be made, and the remaining diagnostic criteria for PTSD (*DSM-IV* criteria B–F) are not considered.

At the same time, many of the symptoms included in the diagnostic criteria of PTSD, such as intrusive thoughts, emotional numbing, and increased arousal, are similar to those observed in many other mood and anxiety disorders. Indeed, *DSM-IV* itself lists many of these symptoms, or closely analogous symptoms, in its own criteria for various other disorders, such as major depressive disorder, dysthymic disorder, generalized anxiety disorder, and others (APA, 1994). Accordingly, one must ask whether there is a distinctive set of symptoms that is specific to victims of trauma, or at least much more common among trauma victims than among other patients with mood and anxiety disorders. Therefore, we sought to test whether the clinical syndrome of PTSD requires prior exposure to trauma, or whether the same symptom picture can occur in the absence of trauma.

1. Methods

1.1. Subjects

Between 1997 and 2001, we recruited subjects for four randomized placebo-controlled clinical trials of medication for major depressive disorder. Subjects were recruited to these treatment studies via advertisements placed in public transportation (posters), in newspapers, and on radio, as well as by referral. All trials required that subjects exhibit current major depressive disorder as their primary diagnosis, but subjects were not excluded if they exhibited concomitant symptoms of anxiety, or even a simultaneous diagnosis of an anxiety disorder, including PTSD, provided that major depressive disorder was considered by the investigator to be the clinically most important diagnosis. Subjects were excluded if they exhibited a lifetime history of psychotic symptoms, bipolar disorder, recent alcohol or substance abuse or dependence, or serious medical disorders.

When subjects arrived for their screening visit and signed informed consent to participate in one of the antidepressant trials, they were also invited to sign consent to participate simultaneously in the present study, which was characterized as including questions about certain symptoms usually asked only if patients reported a history of trauma, but which in this study would be asked regardless of history of trauma. Participation was voluntary, without any offer of payment or other inducement, and patients were assured that their agreeing or declining to participate would in no way prejudice their participation in the clinical trial for which they had initially presented. All subjects gave written informed consent prior to the administration of any study procedures. The study was approved by the McLean Hospital Institutional Review Board.

1.2. Interviewing procedures

All subjects were administered the *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID; First, Spitzer, Gibbon, & Williams, 1996) by either of two investigators to make baseline study diagnoses, as required by the protocols for the primary placebo-controlled studies of antidepressants in which the subject had enrolled. Normally, when administering the PTSD module of the SCID, the investigator asks the subject about a history of a traumatic event (DSM-IV criterion A, parts 1 and 2); if subjects do not meet the full A criteria, the interviewer is then instructed to skip the remaining questions in the module (criteria B–F) and to score the subject as not having a history of PTSD. However, as discussed above, we were interested in criteria B–F regardless of whether the subject described a trauma meeting criterion A. Therefore, even in subjects who reported seemingly minor traumatic events, apparently below the threshold described in criterion A, the interviewers summarized these events in the chart, and proceeded to inquire into the remaining criteria for PTSD as presented in the SCID, including such symptoms as re-experiencing of the event (criterion B), avoidance of stimuli associated with the event, together with emotional numbing (criterion C), increased arousal since the event (criterion D), symptom duration of at least 1 month (criterion E), and significant impairment in functioning (criterion F). Subjects reporting multiple traumatic events were rated for the PTSD symptom cluster in association with each event.

Some subjects, when administered the SCID, denied traumatic events entirely, and were unable to supply even minor events in response to the criterion A query. In these cases, it was difficult to probe for criteria B–F for PTSD using the SCID, because these inquiries must be couched with reference to a specific event, such as, “Do you have recurrent distressing recollections of (the traumatic event)?” or, “since (the traumatic event), have you experienced difficulty falling or staying asleep?” Since such questions cannot be asked of subjects who do not provide a history of trauma, we created a “proxy for trauma” in these subjects by inquiring about any thoughts, worries, or fears that had troubled them. We then used these thoughts, worries, or fears to frame our PTSD symptom queries. Specifically, subjects denying any trauma were asked:

“Sometimes people are plagued by distressing thoughts, worries, or fears. These can come in many forms. Examples might be worries about death or harm to family members, or thoughts about having something seriously wrong with you. These may be appropriate and warranted by events, or only distressing fantasies. Do you recall going through a period when such experiences were a prominent part of your life? This includes periods when you suffered from anxiety or depression. If so, can you describe them?”

Responses were summarized in the subject’s chart by the interviewer and used to frame the subsequent questions from the PTSD module of the SCID. For example, if a subject described an experience of irrational worries that his parents might die, this was used as a proxy for trauma. Therefore, subsequent questions would be phrased as: “Did you think about (the possibility of your parents dying) when you didn’t want to, or did thoughts about (your parents dying) come to you suddenly when you didn’t want them to?” or, “since (you started worrying about the possibility that your parents would die) have you had trouble sleeping?” On the rare occasions where subjects offered more than one troubling thought, all were recorded, and consecutively used to rate PTSD symptoms. The interviewers also encountered subjects who reported one or more events in response to the criterion A query, but who failed to meet criteria B–F for these events. In such cases, the interviewers also sought proxies for trauma in the manner described above, and assessed criteria B–F for these as well.

Subjects' trauma histories, or alternatively, troubling thoughts, were later presented as brief typed narratives between 1 and 12 sentences in length, in random order (i.e., if a single subject described multiple traumas or troubling thoughts, these would not be presented consecutively, but would instead be scattered throughout the list of narratives) to each of two blinded raters separately. These raters were aware that subjects had been recruited for medication trials, but the raters were not themselves involved in the trials. The raters knew only the subjects' age and sex, and were blinded to all other aspects of the subjects' histories. In addition, the raters were not informed whether a given subject had generated single or multiple narratives. Raters classified each brief narrative as meeting DSM-IV criterion A for a traumatic event or failing to meet this criterion. Throughout the process, the raters were blinded to each other's ratings of the narratives.

A given narrative was then classed as *traumatic* if both raters independently agreed that it met DSM-IV criterion A for a traumatic event; *non-traumatic* if both agreed that it did not meet DSM-IV criterion A; or *equivocal* if the raters disagreed. If a subject provided multiple narratives, then that subject was classified as having a history of trauma by DSM-IV criterion A if at least one narrative was classified as traumatic; the subject was classified as having no trauma history if no narrative was judged traumatic, and equivocal if one but not both raters considered any of the subject's narratives to be traumatic. Several examples of narratives in each category are presented in the footnote.¹

After this rating process was complete, we consulted each subject's SCID (completed upon intake into the study) to determine whether the subject had exhibited the symptom cluster of PTSD (DSM-IV criteria B–F) following the traumatic event or, in the absence of a traumatic event, following the "proxy event" elicited as described above. In subjects reporting more than one event or proxy, we chose a single index event for classifying the subject according to the following rules: (1) if any event offered by a subject was rated by both judges as traumatic, we checked whether they had met PTSD symptoms B–F in association with this event; (2) if no event was rated traumatic by both raters, we looked for an equivocal event (where the raters split) and established whether they had reported symptoms B–F for that event; and (3) if subjects displayed neither traumatic nor equivocal events, we then noted whether they had met symptoms B–F for proxy events. If a subject reported more than one event at any of the three rank levels above (say, no traumatic events but two different equivocal events), we checked whether they had met criteria B–F for any event at that rank level and scored the subject as meeting criteria B–F (i.e., showing the full symptom cluster of PTSD) if the subject met these criteria for at least one of the events at that rank level. Thus, by these rules, we generated one pair of measures for each subject: (1) the maximum traumatic event rank that the subject reported (traumatic, equivocal, non-traumatic) and (2) whether the subject

¹ Examples of narratives judged as traumatic include: (a) he was almost killed in a motor vehicle accident with pregnant fiancée, who was killed. He could not get her out of the car; (b) she was sexually abused from ages 12 to 19 by both older brothers, it was non-consensual; (c) he found son's blood all over the basement after the son had cut his wrist in a drunken suicide attempt. Examples of non-traumatic narratives include: (a) he worries about his looks. It is a big problem; (b) she has worried about what might happen to her children since their birth. When a child, she worried about her mother the same way. The problem is much worse in the past 5 years since the kids have not been nearby; and (c) she worries about losing her siblings. She is the youngest. People of her age are dying and she worries about being alone. Examples of equivocal narratives include: (a) he was diagnosed with atrial flutter, which proceeded to fibrillation 1 year ago during a routine physical exam. He became obsessed with mortality after this benign cardiac abnormality; (b) she was locked in a room at a party with four men who started to approach her sexually, but she escaped; and (c) when 7 years old he was persuaded to fondle an old man. No force was used and he felt curious at the time, not upset. A more complete list of narratives can be obtained by writing the first author.

exhibited criteria B–F in association with any event at that rank (criteria present or criteria absent).

2. Results

Of the 103 consecutive subjects enrolling in the 4 antidepressant studies, all agreed to participate in the present study. The participants included 39 women and 64 men; their mean (S.D.) age was 42.8 (12.0) years (range 18–65). Sixty-five subjects reported traumatic experiences in response to the SCID query regarding criterion A for PTSD; note that this number included individuals with even seemingly minor traumatic experiences, because of our deliberately low threshold for scoring traumatic experiences, as described in Section 1. The remaining 38 subjects were unable to provide any traumatic experience in response to the SCID question. All of those 38 subjects, however, were able to provide at least one proxy for trauma in the form of a troubling thought, worry, or fear that had been prominent in their lives. Although some of the 103 subjects reported only one trauma or proxy, others reported multiple events, leading to a total of 198 events for the entire subject group; these events were then abstracted as narratives as described above.

Following the blinded rating and selection procedure described in Section 1, 54 subjects (52.4%) were classified by the raters as having experienced at least one traumatic event by DSM-IV criterion A, 36 (35.0%) as never having experienced such an event, and 13 (12.6%) as equivocal. Looking next at criteria B–F for PTSD, without regard to trauma history, we found that 81 (78.6%) subjects met these criteria and 22 (21.4%) did not. Strikingly, we found that the PTSD clinical syndrome was almost equally prevalent in the traumatized, non-traumatized, and equivocal groups, at about 80% across the board (see Table 1). There was no evidence to reject the null hypothesis of no difference in the prevalence of criteria B–F among the three groups ($P = 0.89$, by Fisher's exact test, two-tailed for a 3×2 contingency table).

3. Discussion

In a series of 103 consecutive patients entering randomized clinical trials for major depressive disorder, we found that criteria B–F for PTSD (symptom clusters B–D, duration of at least 1 month, and impairment of functioning) occurred commonly, regardless of trauma history. Indeed, the prevalence of the PTSD symptom cluster was almost identical in participants who had experienced trauma and those who had not. This observation suggests that the symptom cluster traditionally associated with PTSD may be nonspecific, in that it may frequently occur in the

Table 1
Rates of the PTSD symptom cluster in patients with and without a history of trauma

History of trauma ^a	PTSD symptom cluster ^b			
	Yes		No	
	<i>N</i>	%	<i>N</i>	%
Yes	42	(78)	12	(22)
Equivocal	11	(85)	2	(15)
No	28	(78)	8	(22)

^a Meeting DSM-IV criterion A, based on independent assessments of blinded raters.

^b Meeting DSM-IV criteria B–F, based on initial interview.

absence of trauma. It would follow, therefore, that in patients manifesting the symptom cluster of PTSD, it may be hazardous to assume that these symptoms were *caused* by trauma, even if an unequivocal traumatic event occurred.

This finding has practical importance, as psychotherapy may be structured, research studies designed, and legal compensation awarded on the basis of an unexamined assumption that symptoms of PTSD are caused by specific traumatic events. Our findings suggest caution in this regard, as the diagnosis of posttraumatic stress disorder may harbor an uncertain theory of etiology within its name.

Several possible limitations of this study should be acknowledged. First, it might be asked whether the raters of the narratives were idiosyncratic in their assessment of subjects' experiences as traumatic or non-traumatic. This possibility seems unlikely, in that the raters were experienced clinicians who agreed in their ratings of 87% of the index events while blinded to one another. Further, the raters were also blinded to subjects' levels of other symptomatology (and in particular whether subjects qualified for DSM-IV criteria B–F for PTSD), thereby eliminating potential bias from this source.

A second potential problem is that the SCID interviewers were not blinded to subjects' trauma histories. Therefore, it is possible that the two interviewers were biased toward over-diagnosis of symptoms of PTSD in subjects denying a trauma history, or under-diagnosis of these symptoms in patients reporting a history of trauma. Although we cannot exclude this possibility, we would note that the interviewers followed the precise wording of the SCID in all of the PTSD questions to minimize possible bias. Also, the interviewers were unaware of whether experiences judged traumatic or non-traumatic by the patient would be subsequently rated as such when reviewed in narrative form by the blinded raters. Admittedly, the interviewers could likely guess how certain events would later be rated – at least in clear-cut cases – but this design may have offered some degree of further protection against bias. Finally, we would note that virtually all studies of PTSD are vulnerable to similar potential bias, because the investigator assessing putative PTSD symptoms is never blinded to the subject's reported history of trauma.

Third, it might be argued that our use of troubling thoughts, worries, and fears was in some way flawed as a proxy for a history of traumatic experience. However, this technique was necessary for us to be able to probe for the symptoms of PTSD using the SCID's semi-structured format, outside of the usual mandatory context of having experienced a trauma. To disallow the assessment of symptoms apart from their presumed cause is to beg the question of whether these symptoms were in fact caused, and could only follow from, specific traumatic events.

Finally, it is possible that our findings, obtained in a population of patients seeking treatment for depression, might not generalize to the community at large. In other words, individuals in the community, not seeking psychiatric care for depression, might exhibit a more specific association of trauma with the symptom cluster of PTSD. Although we cannot exclude this possibility, it is important to recognize that most research and treatment work on PTSD involves treatment-seeking populations. Therefore our findings would appear relevant even if they do not apply to non-clinical populations.

Our findings are consistent with a number of case reports that document PTSD following sub-threshold traumatic events, including divorce (Helzer, Robins, & McEvoy, 1987), collapse of adoption arrangements (Burstein, 1985), money problems (Scott & Stradling, 1994), and loss of cattle to foot and mouth disease (Olf, Koeter, Van Haften, Kersten, & Gersons, 2005). In addition Gold, Marx, Soler-Baillo, and Sloan (2005) found that college students who had not experienced a traumatic event were more likely to meet other diagnostic criteria for PTSD than students who did meet criterion A. Finally, Mol et al. (2005) found no significant differences in

PTSD symptom levels when comparing adults who did or did not experience a criterion A traumatic event. These findings combine with ours to form a growing body of literature that raises the important question of whether the symptoms of PTSD are necessarily caused by trauma. Instead, it appears that the symptom cluster currently attributed to PTSD may be a non-specific group of symptoms widely observed in patients with mood and anxiety disorders, regardless of trauma history.

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