



Published in final edited form as:

*Depress Anxiety*. 2011 August ; 28(8): 686–695. doi:10.1002/da.20842.

## FUNCTIONAL IMPAIRMENT IN ADULTS WITH PAST POSTTRAUMATIC STRESS DISORDER: FINDINGS FROM PRIMARY CARE

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### Abstract

**Background**—Although many patients with posttraumatic stress disorder (PTSD) experience a reduction in posttraumatic symptoms over time, little is currently known about the extent of their residual functional impairment. This study examines functional impairment in primary care patients with a history of PTSD as compared to patients with current PTSD, and those who never developed PTSD following exposure to trauma.

**Methods**—The sample consisted of 321 trauma-exposed low-income, predominantly Hispanic adults attending a large urban primary care practice. PTSD was assessed with the Lifetime Composite International Diagnostic Interview and other psychiatric disorders with the SCID-I. Physical and mental health-related quality of life was assessed with the Medical Outcome Health Survey (SF-12), and functional impairment with items from the Sheehan Disability Scale and Social Adjustment Scale Self-Report.

**Results**—Logistic regression analyses controlling for gender, psychiatric comorbidity, and interpersonal traumas showed that although patients with past PTSD function significantly better than patients with current PTSD, they experience persisting deficits in mental health-related quality of life compared to trauma-exposed patients who never developed PTSD. Overall, results revealed a continuum of severity in psychiatric comorbidity, functioning, and quality of life, with current PTSD associated with the most impairment, never having met criteria for PTSD with the least impairment, and history of PTSD falling in between.

**Conclusions**—In this primary care sample, adults with a history of past PTSD but no current PTSD continued to report enduring functional deficits, suggesting a need for ongoing clinical attention.

### Keywords

PTSD; trauma; functional impairment; mental health-related quality of life; comorbidity; minority; primary care

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A substantial proportion of people who develop posttraumatic stress disorder (PTSD) appear to recover either spontaneously or with treatment.<sup>[1–5]</sup> Yet it remains unclear whether resolution of posttraumatic symptoms is accompanied by recovery of function. Patients who experience posttraumatic symptoms but do not meet full criteria for PTSD (often labeled subthreshold or partial PTSD) may exhibit levels of impairment and distress comparable to that of the full syndrome.<sup>[6–8]</sup> It is not known, however, whether individuals with a history of PTSD similarly experience significant levels of impairment. To answer this question, it is important to distinguish impairment related to a history of PTSD from impairment attributable to comorbid psychiatric disorders.<sup>[9,10]</sup>

Psychiatric comorbidity is associated with increased risk for PTSD and is highly prevalent among patients with PTSD. However, clinical research in this area often excludes patients with significant psychiatric comorbidity.<sup>[11]</sup> A recent longitudinal study of veterans revealed persisting impairment following improvements in PTSD symptom severity.<sup>[12]</sup> While numerous studies have documented substantial functional impairment in various patient populations with current or chronic PTSD,<sup>[13–16]</sup> little is known about adults with a history of PTSD and as a result their clinical status remains poorly defined.

The possibility that people with past PTSD will continue to manifest functional and emotional problems is especially important to examine in minority and low-income populations that rely on general medical settings for their mental health care.<sup>[17,18]</sup> Compared to economically more secure populations, low-income minority patients face an elevated risk for a range of traumatic experiences<sup>[19,20]</sup> and PTSD.<sup>[4,21–26]</sup> Hispanics in particular tend to have greater levels of trauma exposure<sup>[27,28]</sup> and have been found to have higher rates of PTSD than other ethnic groups even when using structured assessments and controlling for cultural differences in expressiveness.<sup>[29]</sup> To our knowledge, no previous study has systematically characterized the clinical status of predominantly low-income minority primary care patients with past PTSD.

The present study describes the clinical status and functional impairment of a well-characterized sample of trauma-exposed urban, low-income primary care patients. Two related questions are addressed: (1) How does the functional status of patients with past PTSD compare with that of trauma-exposed patients who never developed PTSD? (2) Do patients with past as compared with current PTSD function significantly better and experience more adaptive mental health-related quality of life?

## METHODS

### PARTICIPANTS AND PROCEDURES

Data for this study derive from a survey of adult primary care patients conducted at the Associates in Internal Medicine (AIM) practice of Columbia University Medical Center, in New York City, one and five years after September 11, 2001 terrorist attacks.<sup>[30–33]</sup> AIM is the faculty and resident group practice of the Division of General Medicine and annually serves approximately 18,000 adult patients from the surrounding community each year.

Eligible patients were between 18 and 70 years of age, had made at least one prior visit to the practice, could speak and understand Spanish or English, were waiting for face-to-face contact with a primary care physician, and were in sufficiently good general health to complete the survey. The interviewers held doctoral or master degrees in psychology and were trained and supervised by licensed health care professionals. Training involved role playing structured interviews, observing experienced clinicians administering the interviews, and conducting interviews with live supervision. While reliability was not formally assessed, interviewers received regular supervision from the licensed clinician and participated in weekly consensus meetings to prevent rater drift.

The analytic sample of this study comprised participants who completed Wave 1 (conducted between December 2001 and January 2003) and Wave 2 (conducted between January 2004 and May 2007) surveys. As reported elsewhere,<sup>[32–34]</sup> the response rate was 88.7% (991/1,117) for Wave 1 and 47.8% (474/991) for Wave 2. At Wave 2, consenters and nonconsenters did not differ significantly with respect to background sociodemographic characteristics (gender, age, race/ethnicity, education, employment, and income) or rates of current psychiatric disorders. The analytic sample for the present analysis included 321 subjects who were exposed to trauma and either developed PTSD in the past, had PTSD in the present, or had never developed PTSD.

## MEASURES

**Sociodemographic characteristics and trauma exposure**—All participants completed a background history form to assess sociodemographic characteristics. Trauma exposure was measured with a modified version of the Life Events Checklist (LEC),<sup>[35]</sup> a 17-item scale to assess exposure to various types of common traumatic events. Trauma exposure was determined by a positive report (“happened to me”) of at least one of the following events: natural disaster, fire or explosion, serious accident, exposure to toxic substances, physical assault, assault with weapon, sexual assault, other unwanted sexual experience, combat exposure, captivity, life-threatening illness or injury of self or close family member, a sudden or violent death, a sudden unexpected death of someone close, a serious injury, harm or death caused to somebody else, transportation accident, or any other very stressful event or exposure excluding bereavement, chronic illness, business loss, marital or family conflict, or reaction to a book, a movie or a television program. In addition, we added a number of items measuring exposure to 9/11 trauma (being below 14th Street in Manhattan or in the World Trade Center on 9/11; lost a loved one on 9/11). We also assessed the patient’s age at first experience of each trauma. Because high-impact traumatic events are particularly likely to result in PTSD,<sup>[36,37]</sup> we created a summary “interpersonal trauma” variable that comprised the following four items: physical assault, assault with weapon, sexual assault, and other unwanted sexual experience. To capture other types of nonassaultive traumatic events, we created a summary “nonassault trauma” variable including all other types of the 17 events listed in the LEC.

**Clinical status**—The lifetime CIDI PTSD module was used to determine PTSD diagnostic status.<sup>[38]</sup> Participants who met DSM-IV PTSD symptom criteria A through F in the CIDI PTSD section were diagnosed with PTSD. Participants who had experienced event-related symptoms in the preceding month were classified as PTSD-current; while those who reported that they had experienced event-related symptoms at any time before the preceding month were classified as PTSD-past. Participants who did not score positive for PTSD at any time point despite having experienced trauma were classified as PTSD-resistant. For this group, we defined trauma as either interpersonal trauma (as defined above) or 9/11 trauma (i.e., close proximity to the World Trade Center on 9/11 or losing a loved one on 9/11).

Psychiatric comorbidity was assessed using the Structured Clinical Interview for DSM-IV Disorders (SCID).<sup>[39]</sup> Physical- and mental health-related quality of life were measured respectively with the Physical (PCS-12) and Mental Component (MCS-12) Summary scores of the Medical Outcome Study 12-Item Short Form Health Survey (SF-12).<sup>[40]</sup> Functional impairment was evaluated with the 10-point self-rated social life and family life/home responsibilities subscales of the Sheehan Disability Scale (SDS),<sup>[41]</sup> (0 = none, 1–3 = mild, 4–6 = moderate, 7–9 = marked, 10 = extreme). Consistent with previous studies conducted in this patient population,<sup>[33,34,42]</sup> we chose a relatively conservative threshold (> 7) for classifying significant impairment. Because only 107 (33.3%) of the 321 patients were gainfully employed, the work subscale of the SDS was not used. An assessment was conducted of the number of days in the past month that patients had missed school or work (paid or unpaid), or had been unable to housework or regular activities. The resulting variable work loss (yes or no) was based on missing > 7 days of these activities. Finally, two items were included from the Social Adjustment Self-Report Scale<sup>[43]</sup> to measure how well patients got along with their spouse/partner and children over the past month.

## DATA ANALYSIS

Individuals in each of the three PTSD diagnostic groups were classified by age (18–54 versus 55–82), gender, marital status (married/cohabiting versus others), levels of education (graduated high school versus did not graduate high school), household income (<\$12,000 versus ≥\$12,000), employment status (employed versus not employed), and having children (yes versus no) and having a partner (yes versus no), and race/ethnicity (Hispanic versus Non-Hispanic). Patients were categorized as Hispanic if they identified their national origin as Latin American, were born in Spain, or chose to complete the study forms in Spanish.

We first conducted omnibus tests of bivariate associations between PTSD diagnostic status (current, past, and resistant) and potential confounders including sociodemographic characteristics and trauma exposure, psychiatric diagnoses and functioning, using chi-square analyses for categorical variables and ANOVA for continuous variables (Tables 1–3). Pairwise comparisons were conducted only on variables that were significant at  $P < .05$  in the omnibus tests, using  $t$  tests for continuous variables and chi-square tests for categorical variables. Fisher's exact test was used when expected cell counts were less than five.

Next, we selected variables for inclusion in subsequent multivariate analyses based on the results of the omnibus tests. Only variables that were associated with diagnostic outcome at  $P < .05$  were included. To investigate the relation between each functioning variable and PTSD diagnostic status (current, past, and resistant), we conducted a series of logistic regressions with a two-level outcome (impairment versus no impairment). In subsequent analyses, we adjusted for the categorical variables gender and presence of at least one comorbid psychiatric diagnosis and the continuous variable number of interpersonal trauma. Linear regression was used to assess the effect of PTSD diagnostic status on SF-12 scores expressed as unstandardized betas with 95% confidence intervals. All tests were two-tailed, and significance was set at  $P < .05$ . Statistical analyses were conducted with SPSS software version 17.0.

## RESULTS

### SOCIODEMOGRAPHIC CHARACTERISTICS AND PTSD STATUS

Aside from gender, the three study groups did not significantly differ with respect to background socio-demographic characteristics. The PTSD resistant group included proportionately more males than the other two groups (Table 1).

## TRAUMA EXPOSURE AND PTSD STATUS

To examine the relationship between trauma exposure and diagnostic status (Table 2), we first examined the association between number of interpersonal and noninterpersonal trauma categories endorsed and age at which the first trauma occurred with PTSD diagnosis. Although nonassault trauma and age at which traumas occurred were not significantly associated with PTSD diagnostic status, the three study groups significantly differed with respect to mean number of interpersonal traumatic events reported. Accordingly, we considered interpersonal trauma as a potential confounder in subsequent multivariate logistic and regression analyses.

## CLINICAL DIAGNOSES AND PTSD STATUS

Omnibus group comparisons of psychiatric diagnoses and functional status (Table 3) showed that PTSD diagnostic status was significantly associated with several comorbid diagnoses. For example, compared to PTSD-resistant patients, PTSD-past patients had significantly higher prevalence of MDD and panic disorder. A complete description of significant pairwise comparisons of each group is available upon request. Given the small number of cases for several DSM-IV Axis I diagnoses, we created a summary variable representing presence or absence of any comorbid DSM-IV Axis I psychiatric diagnosis. This variable was considered as a potential confounder in subsequent regression analyses.

## FUNCTIONAL IMPAIRMENT AND MENTAL HEALTH-RELATED QUALITY-OF-LIFE AND PTSD STATUS

A series of post hoc pairwise comparisons were performed with functioning variables that were significantly associated with PTSD diagnostic status in omnibus tests (Table 3). Several of the post hoc comparisons were significant (available upon request).

Logistic regressions controlling for comorbid psychiatric diagnosis, gender, and interpersonal trauma (Table 4) showed past PTSD as compared to PTSD resistance was significantly associated with lower mental health-related quality of life. PTSD-current as compared to PTSD-resistant status was associated with increased odds of reporting child relational problems and impairments in social functioning and was inversely associated with mental health-related quality of life. PTSD-current as compared to PTSD-past status was associated with increased likelihood of child relational problems and loss 7 workdays and inversely associated with mental health-related quality of life. Inspection of the parameter estimates in the logistic and linear regression analyses (not displayed here) revealed that when controlling for psychiatric comorbidity, differences in the number of interpersonal trauma among the three groups ceased to be significantly associated with functioning while gender remained significant.

## DISCUSSION

Using data from a low-income, predominantly Hispanic sample of primary care patients exposed to a range of traumas including 9/11 and controlling for psychiatric comorbidity, we found that: (1) patients with a history of PTSD but no current PTSD continued to experience significantly diminished mental health-related quality of life compared to patients who did not develop PTSD after trauma exposure, and (2) patients with past PTSD reported significantly lower levels of conflict with their children, fewer missed work days, and higher mental health-related quality of life compared to patients with current PTSD.

Patients with PTSD often exhibit persisting impairment in occupational and social functioning even after receiving specialized mental health treatment.<sup>[44–51]</sup> The present study demonstrates that independent of psychiatric comorbidity, primary care patients with a

history of past PTSD also experience significantly poorer mental health-related quality of life than their trauma-exposed counterparts without PTSD. This is consistent with primary care studies comparing patients with partial or subthreshold PTSD to trauma-exposed patients without PTSD. One primary care study<sup>[6]</sup> found that individuals who experienced subthreshold PTSD symptoms exhibited significantly higher levels of social and work impairment than trauma-exposed individuals without PTSD. A telephone-based community survey<sup>[52]</sup> reported that individuals with partial PTSD reported more work loss and work cutback days than trauma-exposed individuals without PTSD. Neither of these studies, however, controlled for comorbid psychiatric disorders that are common in PTSD.<sup>[53–58]</sup>

A study of veterans reported that after controlling for psychiatric comorbidity patients with partial and full PTSD reported lower mental health-related quality of life than trauma-exposed patients without PTSD.<sup>[59]</sup> By revealing a similar pattern of differences among an understudied population, Spanish-dominant primary care patients, our study adds to a growing body of research documenting persisting effects of PTSD on quality of life.<sup>[60]</sup>

Patients with past PTSD tended to fare better than those with current PTSD with regard to their ability to work, interact with their children, and mental health-related quality of life. This pattern is consistent with four randomized clinical trials of psychopharmacological treatments for PTSD that reported treatment-related improvements in social and family role functioning in patients who met criteria for PTSD remission.<sup>[61]</sup> Our finding that differences in social and family role functioning in the present study were not significant after controlling for psychiatric comorbidity suggests that improvements in functioning among patients with remitted PTSD may depend more on the presence of psychiatric disorders than on their PTSD status.

Child relational problems were associated with PTSD diagnostic status independent of psychiatric comorbidity. Specifically, past PTSD patients reported less discord with children over the past month compared to patients with current PTSD. Because of the cross-sectional nature of the data, it was not possible to determine whether better child relations contributes to improvements in PTSD or whether PTSD, perhaps through emotional numbing and social withdrawal, tends to disrupt parent–child relationships. Nevertheless, these findings suggest that child–parent relations may be worthy of clinical attention in this patient population. Positive child relations may provide an important source of meaning and motivation to recover from PTSD, particularly in Latino populations where mother–child relationships are known to be particularly close.<sup>[62]</sup>

Consistent with earlier work, female gender was strongly associated with PTSD following trauma exposure.<sup>[63,64]</sup> Current or past PTSD status was also significantly related to interpersonal trauma but not to nonassault-related trauma.<sup>[65,66]</sup> Physicians and other health professionals often fail to assess for a history of sexual assault and abuse.<sup>[67]</sup> Beyond problems with assessment, underdetection of sexual abuse histories may be compounded by cultural constraints on the disclosure of sensitive family-related information.<sup>[68]</sup> After controlling for psychiatric comorbidity, however, interpersonal trauma ceased to be significantly associated with PTSD diagnostic status.

It is possible that a history of repeated sexual and physical assault or abuse may increase risk to PTSD indirectly by contributing to the onset of other psychiatric disorders such as MDD, which in turn increase risk for developing PTSD following trauma exposure. Without prospective data, it is not possible to test this hypothesis.

The relatively modest magnitude of differences in functional impairment and mental health-related quality of life between patients with past PTSD and no PTSD may be related to sociocultural characteristics of the study sample. A majority of participants were of Puerto



Rican and Dominican Republican ancestry, two groups at high risk for psychiatric disorders and associated impairment among US Latino immigrant populations.<sup>[69]</sup> Carribean immigrants with African ancestry are exposed to more racial discrimination than lighter-skinned Hispanics with indigenous and European origins, such as Argentineans.<sup>[70-73]</sup> Many also face language-related discrimination due to their continued use of Spanish or accented English.<sup>[74]</sup> Exposure to social stereotyping and work-place discrimination is common among Latinos in the United States<sup>[75,76]</sup> and is associated with increased risk of PTSD.<sup>[77,78]</sup>

The high prevalence of unmarried mothers with children among study participants may reflect erosion of family ties and low social support, which are associated with increased vulnerability to psychiatric disorders<sup>[79]</sup> and greater PTSD symptom severity among US Latinos.<sup>[80]</sup> One representative population survey of the New York City metropolitan area reported higher rates of probable PTSD after the 9/11 attacks in Hispanics of Dominican or Puerto Rican origin compared to other Hispanic groups.<sup>[81]</sup> Low social support and acculturation in this study were among the most important predictors of risk for PTSD.<sup>[81]</sup> While not atypical for the family structure of Puerto Ricans in the United States,<sup>[82,83]</sup> single mother headed households may experience significant stress related to gender role differentiation in Puerto Rican culture<sup>[84]</sup> and loss of support from extended family members.<sup>[69]</sup>

The study has several clinical implications. The finding that comorbid psychiatric conditions accounted for most of the differences in functional impairment between our trauma-exposed groups, with patients with current PTSD having the highest and no-PTSD patients the lowest level of psychiatric comorbidity, attests to the importance of screening and mental health treatment. When assessing primary care patients with a history of PTSD or psychiatric symptoms that do not reach the diagnostic threshold, primary care physicians should consider conducting a broader psychiatric assessment of potential comorbid disorders.

The finding of persisting deficits in mental health-related quality of life among patients with a history of PTSD underscores the need for continued mental health status surveillance following trauma-related psychopathology. The finding that mental health related quality of life was independently associated with PTSD diagnostic status supports the view that quality of life presents an important dimension of health that should be routinely incorporated into treatment planning and assessment.<sup>[60]</sup> Most PTSD psychotherapy<sup>[85]</sup> and pharmacological treatment efficacy studies<sup>[61]</sup> have determined recovery based on a specified cut-off point on a PTSD symptom measure in combination with clinician-rated change in functioning. However, global scores of symptom severity and clinicians' subjective ratings of general improvement do not identify specific domains of functioning or capture perceived ability to cope with daily life. Including a short self-report measure of quality of life such as the SF-12 in clinical outcome studies may provide valuable information about the extent to which PTSD symptom remission corresponds with meaningful subjective changes in quality of life.

The present study has several limitations. First, the cross-sectional design does not permit temporal sequencing of the association between PTSD status and functional impairment. Impairment associated with pre-trauma psychiatric comorbidity may continue even after spontaneous or treatment-induced remission of PTSD symptoms. Longitudinal studies are needed to examine the extent to which functional impairment related to preexisting psychiatric conditions precede and contribute to the development of PTSD in the wake of trauma. A related limitation was the use of retrospective self-report to determine PTSD-past status. Second, it would have been desirable to have continuous data on the number and severity of PTSD symptoms to permit an examination of the extent to which patients with

past PTSD are comparable to patients with subthreshold or partial PTSD. The skip out pattern of our diagnostic instrument for PTSD did not allow us to measure subthreshold symptoms of PTSD. Third, because the survey had a relatively low response rate at Wave 2, a potential for selection bias exists. For example, rates of PTSD and functional impairment in our sample may have been inflated by overrepresentation of more impaired patients with limited access to specialty mental health clinics seeking help in primary care clinics. Fourth, while pairwise comparisons were only conducted for those variables that were found to be significantly related to PTSD diagnostic status in the omnibus analyses, we did not adjust *P* values for multiple comparisons and therefore the results are vulnerable to increased risk of type I error. Fifth, the study was conducted in an urban primary care practice that serves a predominantly low-income immigrant population. Therefore, findings may not generalize to primary care patients from other socioeconomic groups<sup>[86,87]</sup> nor to the general population not selected based on care-seeking behavior.

Although patients with past PTSD exhibit better overall functioning than patients with current PTSD, they experience persisting deficits in mental health-related quality of life. This highlights a need for continued clinical attention following resolution of trauma-related clinical symptoms. Low use of mental health services in urban ethnic minority populations increases the potential for undiagnosed and untreated posttrauma sequelae. Furthermore, limited access to social and economic resources that might buffer the impact of trauma<sup>[88]</sup> increases the likelihood that minority patients will experience functional impairment after acute symptoms of PTSD have subsided. Prospective longitudinal outcome studies are necessary to assess the risk of relapse and long-term course of PTSD including functional impairment. A greater understanding of these issues is needed to inform future treatment efforts to promote remission and prevent persistence of PTSD.

## Acknowledgments

Partial support was provided by NIMH grant 1RO1-MHO72833 (Neria), and investigator-initiated grants from GlaxoSmithKline and Eli Lilly & Co (Weissman).

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Table 1

Sociodemographic characteristics, family psychiatric history, and PTSD status among trauma-exposed patients ( $N=321$ )

	PTSD status			Omnibus test		Pairwise differences <sup>a</sup>
	I. PTSD-current ( $n=94$ ) %	II. PTSD-PTSD-past ( $n=87$ ) %	III. PTSD-resistant ( $n=140$ ) %	$\chi^2$	$P$	
Age <sup>b</sup>				.65	.72	–
18–54 ( $n=140$ )	47.8	44.2	50.0			
55–70 ( $n=153$ )	52.2	55.8	50.0			
Gender				18.72	<.001	I, II > III
Male ( $n=79$ )	14.9	16.1	36.4			
Female ( $n=242$ )	85.1	83.9	63.6	2.30	.32	–
Ethnicity				.03	.99	–
Hispanic ( $n=273$ )	89.4	85.1	82.1			
Non-Hispanic ( $n=48$ )	10.6	14.9	17.9			
Marital status				.03	.99	–
Married/cohabiting ( $n=94$ )	28.7	29.9	29.3			
Separated/divorced/widowed/never married ( $n=227$ )	71.3	70.1	70.7	2.26	.32	–
Education				1.48	.48	–
High school grad ( $n=135$ )	36.6	41.4	46.4			
Not high school grad ( $n=185$ )	63.4	58.6	53.6			
Annual household income				2.25	.33	–
<\$12,000 ( $n=232$ )	75.3	77.6	70.6			
>\$12,000 ( $n=82$ )	24.7	22.4	29.4			
Gainfully employed				1.33	.51	–
Yes ( $n=107$ )	27.7	37.9	34.3			
No ( $n=214$ )	72.3	62.1	65.7			
Has children				.45	.80	–
Yes ( $n=291$ )	91.4	94.3	89.9			
No ( $n=27$ )	8.6	5.7	10.1			
Has spouse/partner				.45	.80	–
Yes ( $n=109$ )	36.6	34.9	32.4			

	PTSD status			Omnibus test		Pairwise differences <sup>d</sup>
	I. PTSD-current (n = 94) %	II. PTSD-PTSD-past (n = 87) %	III. PTSD-resistant (n = 140) %	$\chi^2$	P	
No (n = 209)	63.4	65.1	67.6			

PTSD, posttraumatic stress disorder.

<sup>a</sup>Pairwise differences significant at  $P < .05$  are displayed. Pairwise tests were conducted only when the omnibus test was significant at  $P < .05$ .

<sup>b</sup>Mean age (N = 321): 55.89, SD = 10.60, Range: 24–82. Current: Mean age: 54.17, Range: 24–71. Past: Mean age: 56.54, Range: 29–82. Resistant: Mean age: 56.64, Range: 28–75.



**Table 2**

History of traumatic life events<sup>a</sup> and PTSD status among trauma-exposed patients (*N* = 321)

	PTSD status			Omnibus test		Pairwise differences <sup>b</sup>
	I. PTSD-current ( <i>n</i> = 94) <i>M</i> ( <i>SD</i> )	II. PTSD-past ( <i>n</i> = 87) <i>M</i> ( <i>SD</i> )	III. PTSD-resistant ( <i>n</i> = 140) <i>M</i> ( <i>SD</i> )	<i>F</i>	<i>P</i>	
Interpersonal trauma <sup>c</sup>	3.81 (6.97)	2.78 (4.72)	1.43 (3.66)	6.25	.002	I > III, II > III
Noninterpersonal trauma	2.4 (1.5)	2.2 (1.7)	2.1 (1.5)	1.03	.36	–
Age at first trauma <sup>d</sup>	24.0 (16.7)	25.4 (16.3)	27.7 (15.3)	1.43	.24	–

PTSD, posttraumatic stress disorder.

<sup>a</sup> Assessed with the Life Events Checklist and additional items measuring exposure to 9–11 trauma (being below 14th St; in the WTC on 9/11, or lost a loved one on 9/11).

<sup>b</sup> Pairwise differences significant at *P* < .05 are displayed. Pairwise tests were conducted only when the omnibus test was significant at *P* < .05.

<sup>c</sup> Observed ranges of the number of times participants reported ever experiencing sexual/physical assault or abuse events; PTSD-current: 0–31; PTSD-past: 0–21; PTSD-resistant: 0–30.

<sup>d</sup> Observed ranges of age at first trauma: PTSD-current: 1–67; PTSD-past: 3–74; PTSD-resistant: 3–69. Current versus resistant: *t*[128.03] = –3.04, *P* = .003; past versus resistant: *t*[149.90] = –2.78, *P* = .02.

**Table 3**  
PTSD status and prevalence of comorbid psychiatric disorders, functional impairment, and health

	PTSD status			Pairwise differences <sup>d</sup>	
	I. PTSD-current (n = 94) %	II. PTSD-past (n = 87) %	III. PTSD-resistant (n = 140) %		
	Omnibus test		χ <sup>2</sup>		P
DSM-IV diagnoses <sup>b</sup> (n = 321)					
Major depressive disorder	58.5	31.0	15.0	48.9 <.001	I > II, III; II > III
Bipolar disorder	17.0	17.2	14.3	0.5 .79	–
Panic disorder	13.8	12.6	3.6	9.1 .01	I, II > III
Generalized anxiety disorder	9.6	4.6	2.1	6.6 .04	I > III
Substance-related disorder	4.3	3.4	1.4	1.8 .40	–
Any of the above	73.4	43.7	20.7	<.001	I > II, III; II > III
Sheehan disability scale (n = 317)					
Family <sup>c</sup>	38.5	19.8	12.1	22.7 <.001	I > II, III
Social <sup>c</sup>	46.7	24.7	12.2	34.6 <.001	I > II, III; II > III
Social adjustment scale					
Problems with partner (n = 109)	26.5	13.3	11.1	3.6 .16	–
Problems with children (n = 291)	20.0	4.9	7.3	12.5 .002	I > II, III
At least 7 days work lost	49.5	23.0	23.1	21.0 <.001	I > II, III
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>P</i>
Health/functioning <sup>d</sup> (n = 308)					
SF-12 Mental Component Summary	34.2 (9.8)	42.1 (11.4)	48.8 (11.5)	47.7 <.001	I > II, III; II > III
SF-12 Physical Component Summary	38.0 (11.1)	38.7 (11.5)	37.6 (12.2)	0.3 .77	–

PTSD, posttraumatic stress disorder; SF-12, 12-Item Short Form Health Survey.

<sup>a</sup> Pairwise differences significant at  $P < .05$  are displayed. Pairwise tests were conducted only when the omnibus test was significant at  $P < .05$  and values for significant comparisons are reported in the results section.

<sup>b</sup> Assessed with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I).

<sup>c</sup> Impairment was defined as a score 7 (marked or extreme impairment).

<sup>d</sup> Assessed with the Medical Outcome Study SF-12. Higher scores are more favorable.

Table 4

Functional impairment and mental health-related quality-of-life among trauma-exposed patients with current, past, and no PTSD ( $N=321$ )

Diagnostic status	Child relational problems		OR (95% CI)	AOR <sup>a</sup> (95% CI)	OR (95% CI)	AOR <sup>a</sup> (95% CI)			
	Yes ( $n = 30$ )	No ( $n = 261$ )							
PTSD-current	17	20.0	68	80.0	3.17 (1.34, 7.50)	3.25 (1.16, 9.11)	4.88 (1.56, 15.19)	4.53 (1.40, 14.60)	
PTSD-past	4	4.9	78	95.1	0.65 (0.19, 2.18)	0.72 (0.20, 2.53)	1.00	1.00	
PTSD-resistant	9	7.3	115	92.7	1.00	1.00	–	–	
	Work loss								
	Yes ( $n = 95$ )		No ( $n = 213$ )						
PTSD-current	45	49.5	46	50.5	3.23 (1.81, 5.76)	1.76 (0.91, 3.42)	3.28 (1.72, 6.26)	2.57 (1.31, 5.05)	
PTSD-past	20	23.0	67	77.0	0.99 (0.52, 1.88)	0.69 (0.34, 1.37)	1.00	1.00	
PTSD-resistant	30	23.1	100	76.9	1.00	1.00	–	–	
	Social impairment								
	Yes ( $n = 81$ )		No ( $n = 235$ )						
PTSD-current	43	46.7	49	53.3	6.25 (3.25, 11.99)	2.69 (1.28, 5.66)	2.67 (1.41, 5.08)	1.84 (0.92, 3.67)	
PTSD-past	21	24.7	64	75.3	2.34 (1.15, 4.74)	1.46 (0.68, 3.15)	1.00	1.00	
PTSD-resistant	17	12.2	122	87.8	1.00	1.00	–	–	
	Family impairment								
	Yes ( $n = 69$ )		No ( $n = 248$ )						
PTSD-current	35	38.5	56	61.5	4.49 (2.32, 8.68)	1.94 (0.91, 4.16)	2.54 (1.29, 5.00)	1.78 (0.87, 3.65)	
PTSD-past	17	19.8	69	80.2	1.77 (0.85, 3.69)	1.09 (0.49, 2.42)	1.00	1.00	
PTSD-resistant	17	12.1	123	87.9	1.00	1.00	–	–	
	SF-12 MCS Score ( $n = 280$ )								
	$n$	$M (SD)$							
PTSD-current	88	34.2 (9.8)							
PTSD-past	86	42.1 (11.4)							
PTSD-resistant	134	48.8 (11.5)							
					Mean Difference (95% CI)	Adjusted mean difference <sup>a</sup> (95% CI)	Mean difference (95% CI)	Adjusted mean difference <sup>a</sup> (95% CI)	
PTSD-current					-14.63 (-17.60, -11.65)	-7.92 (-10.94, -4.90)	-7.92 (-11.20, -4.64)	-4.52 (-7.51, -1.52)	
PTSD-past					-6.71 (-9.70, -3.71)	-3.40 (-6.17, -0.63)	reference	reference	
PTSD-resistant					reference	reference	–	–	

OR, odds ratio; AOR, adjusted odds ratio; MCS, Mental Component Summary score (SF-12).

<sup>a</sup>Adjusted for current DSM-IV diagnosis, number of interpersonal trauma events reported, and gender.