Co-Occurrence of Major Depressive Episode and Posttraumatic Stress Disorder Among Survivors of War: How Is It Different From Either Condition Alone?

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ABSTRACT

Objective: Major depressive episode (MDE) and posttraumatic stress disorder (PTSD) have been shown to be the most common mental disorders following traumatic war experiences and have been found to frequently co-occur. This study, designed as a randomized cross-sectional interview survey, aimed to identify whether the co-occurence of MDE and PTSD following exposure to war-related experiences is associated with different demographics, exposure to previous traumatic events, and clinical characteristics than either condition alone.

Method: After a random-walk technique was used to randomly select participants, face-to-face interviews were conducted among war-affected community samples in 5 Balkan countries (N = 3,313) in the years 2006 and 2007. The mean age of participants was 42.3 years, and all participants had experienced potentially traumatic events during war in the countries of the former Yugoslavia. Current prevalence rates of MDE and PTSD and suicide risk were assessed using the Mini-International Neuropsychiatric Interview. Levels of general psychological distress, posttraumatic stress, and quality of life were assessed with self-reports.

Results: 30.5% of the sample met *DSM-IV* diagnostic criteria for either MDE or PTSD, and 9.1% had both disorders. Participants with concomitant MDE and PTSD reported significantly higher numbers of prewar and postwar traumatic events than participants with PTSD only and higher numbers of war-related events than those with MDE only (all *P* values < .001). Participants with both MDE and PTSD had significantly higher levels of general psychological and posttraumatic stress symptoms, a higher suicide risk, and lower levels of quality of life than participants with either condition alone (all *P* values < .001).

Conclusions: Concomitant MDE and PTSD are associated with the experience of different traumatic events and are characterized by more general psychological distress than either condition alone. The assessment of concomitant MDE and PTSD can facilitate better identification of individuals with severe psychopathology and poor quality of life. People with co-occurrence of MDE and PTSD may require specific health care programs following war.

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Exposure to war-related traumatic events has affected millions of people around the globe. A recent systematic review on major depressive episode (MDE) and posttraumatic stress disorder (PTSD) among individuals exposed to mass conflict and displacement reported prevalence rates of 30.8% and 30.6% for MDE and PTSD, respectively.[1] Yet, the existing information about concomitant MDE and PTSD among survivors of mass conflict is limited. Only a small number of surveys have relied upon psychiatric interviews to measure prevalence rates of concomitant MDE and PTSD. In studies using structured clinical interviews with refugees, high rates of co-occurrence of MDE and PTSD were reported.[2,3] While the majority of survivors of mass conflict live in the countries of former conflict, there is a lack of methodologically sound research on patterns of co-occurring MDE and PTSD as well as sociodemographic factors and psychological correlates associated with concomitant MDE and PTSD among this population.

It has been suggested that the co-occurrence of MDE and PTSD might be explained by overlapping symptoms of these 2 disorders, such as insomnia or impaired concentration. Yet, in several studies[4–7] in North America and Western Europe, co-occurrence rates remained high even after controlling for overlapping symptoms. Another suggestion has been that the preexistence of one disorder might influence the onset of the other disorder, ie, that PTSD increases the risk for the onset of MDE[8,9] and vice versa.[9,10] Similarly, it has been argued that the co-occurrence of MDE and PTSD is a result of a shared underlying vulnerability.[11,12] Studies that have specifically examined whether the co-occurrence of MDE and PTSD represents a general traumatic stress response or 2 distinct responses to trauma have revealed mixed results. In a study with 107 motor-vehicle accident survivors, Blanchard et al[4] tested a single-factor model of posttraumatic stress symptoms (general psychological impairment) versus a 2-factor model (MDE and PTSD). The findings supported a model with 2 correlated yet independent factors (ie, MDE and PTSD). Similar findings were also reported in a study by Grant et al[13] with 228 motor-vehicle accident survivors. Yet, O'Donnell et al[14] concluded in their study with 363 injury survivors that concomitant depression and PTSD are represented by a shared vulnerability with similar predictors. These same authors further reported that several predictors (such as event severity and reexperiencing symptoms) differentiated depression alone from concomitant MDE and PTSD, yet no predictor variable differentiated PTSD alone from concomitant MDE and PTSD.[14]

Clinical Points

- Co-occurring major depressive episode (MDE) and posttraumatic stress disorder (PTSD) among survivors of war are characterized by different traumatic events, more general psychological distress, higher suicide risk, and lower quality of life than either condition alone.
- Co-occurrence of MDE and PTSD should be assessed in future research and clinical settings with war survivors to better identify individuals with severe psychopathology and poor quality of life.
- War survivors with co-occurrence of MDE and PTSD may require specific health care programs.

Several studies[4,15–19] showed that concomitant MDE and PTSD are associated with more severe psychopathology, higher risk for attempted suicide, and lower global functioning than either condition alone. More specifically, research[16] suggests that individuals with concomitant MDE and PTSD report both higher levels of general psychopathology and more severe PTSD than do PTSD sufferers without comorbid MDE. Research[18] also shows that individuals with concomitant MDE and PTSD report higher levels of general psychopathology as well as more severe MDE than do those who suffer from MDE without comorbid PTSD. None of these studies, however, investigated community samples in war-affected areas.

Against this background, we examined whether co-occurring MDE and PTSD were associated with distinct demographics, exposure to previous traumatic events, and clinical characteristics in war-affected populations living in areas of former conflict. Provided that concomitant MDE and PTSD are associated with different demographics, exposure to previous traumatic events, and clinical characteristics than either condition alone, the assessment of these co-occurring conditions could facilitate better identification of individuals with more severe psychopathology following war-related stress. In a large sample of war survivors, we assessed sociodemographic and trauma-related variables as well as levels of psychological symptoms, quality of life, and suicide risk in individuals with concomitant MDE and PTSD as compared to people with either condition alone. The study was conducted with adults who had experienced war-related traumatic events in the countries of the former Yugoslavia. The armed conflicts in these regions involved the worst open conflicts in Europe since the Second World War.

METHOD

The data were obtained in a multicenter study assessing long-term mental health outcomes in people who had experienced potentially traumatic events during the war in the former Yugoslavia and who were still living in the countries of former conflict (Bosnia Herzegovina, Croatia, Kosovo, Macedonia, and Serbia). Details about the rationale, methods, and general findings of the study have been described elsewhere.[20,21] Participants were recruited in the years 2006 and 2007 using a multistage probabilistic sampling frame and random-walk approach in administrative regions that had been directly exposed to war activities. First, 20% of administrative regions in each country were randomly chosen among those directly exposed to war. Then, 3 localities with a minimum population of 3,000 each were randomly selected in these administrative regions in each country. Finally, streets in these localities were randomly identified, with every fourth household being selected. Informed consent was obtained from all participants before the interview. The study was approved by the relevant national ethics committees.

Participants

Of 5,330 contacted individuals, 11.3% did not meet the inclusion criteria (4.9% because they had not experienced any stressful war event). The total refusal rate was 29.9%. Altogether, 3,313 participants were interviewed face-to-face. The mean age of participants was 42.3 years, 53.3% were female, 35.9% were unemployed, and 17.4% reported combat involvement. Participants reported experiencing a mean of 0.7 (standard deviation [SD] = 1.1) potentially traumatic events before the war, 4.2 (SD = 2.8) during the war, and 0.6 (SD = 0.8) after the war.

Instruments

Participants' age, gender, marital status, educational level, and employment were assessed with a brief structured questionnaire.

The Life Stressor Checklist-Revised[21] was modified for the current study to fit the context of potentially traumatic events before, during, and after the war in the countries of the former Yugoslavia. In total, 24 such events were assessed. The modified version of the checklist was back-translated by bilingual mental health professionals.

The Mini-International Neuropsychiatric Interview (MINI)[22–24] was used to assess current diagnoses for MDE and PTSD as well as suicide risk. This structured diagnostic interview is based on *DSM-IV* and *ICD-10* criteria and has demonstrated good reliability and validity in comparison to the Composite International Diagnostic Interview[25] and the Structured Clinical Interview for *DSM-III-R* (SCID).[26] In comparison to the SCID, the 2 MINI modules of interest for the current study, MDE and PTSD, demonstrated high interrater reliability (κ values = 1.00 and 0.95, respectively) and acceptable test-retest reliability (κ values = 0.87 and 0.73, respectively). Further, the MINI MDE module was shown to exhibit sensitivity of 0.96, specificity of 0.88, positive predictive value of 0.87, and negative predictive value of 0.97. The MINI PTSD module was shown to exhibit sensitivity of 0.85, specificity of 0.96, positive predictive value of 0.82, and negative predictive value of 0.97.[22]

The Brief Symptom Inventory[27–29] is a 53-item self-report screening instrument to assess general psychological distress during the previous week. A general severity index is calculated by summing all scores. Furthermore, the Brief Symptom Inventory items cover 9 symptom dimensions: somatization, obsession-compulsion, interpersonal sensitivity, depression,

anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. All items are rated on a scale ranging from 0 (not at all) to 4 (extremely). The authors[27] have reported good test-retest reliability for the general severity index (0.90) and the 9 Brief Symptom Inventory subscales (0.68–0.91). In the current study, the general severity index had a high internal consistency of $\alpha = 0.97$, and the α coefficients for the subscales ranged from 0.77 (for paranoid ideation and psychoticism subscales) to 0.89 (for obsession-compulsion and somatization subscales).

The Impact of Event Scale-Revised[30–32] was designed to assess posttraumatic stress reactions in accordance with the *DSM-IV* criteria for PTSD. The responses for the 22 items range from 0 (not at all) to 4 (extremely) and are divided into 3 subscales: intrusion, avoidance, and hyperarousal. The authors[30] reported high internal consistencies of the 3 subscales, with α coefficients ranging from 0.79 to 0.92, and high test-retest reliabilities, with correlation coefficients ranging from 0.51 to 0.92. In the current study, the Impact of Event Scale-Revised had a high and similar internal consistency of the total scale, as well as of the 3 subscales, ranging from $\alpha = 0.92$ to $\alpha = 0.95$.

Participants rated their subjective quality of life using the Manchester Short Assessment of Quality of Life (MANSA).[33–35] The MANSA is a shortened and modified version of the Lancashire Quality of Life Profile (LQLP),[28] containing 12 questions to assess subjective quality of life including social relationships, family relationships, work, leisure, sex life, financial situation, living situation, personal safety, and physical and mental health. The scales range from 1 (couldn't be worse) to 7 (couldn't be better). An examination[33] of the concurrent validity of the MANSA with the LQLP yielded a coefficient of ≥ 0.83, and the satisfaction mean score had a coefficient of 0.94. The satisfaction ratings of the MANSA showed high internal consistency ($\alpha = 0.87$).[33]

Data Analysis

Prevalence rates of mental disorders were calculated as percentages of existing cases of the disorders at the time of survey. To analyze differences in sociodemographic characteristics, traumatic experiences, prevalence of mental disorders, and levels of psychological symptoms between groups (neither MDE nor PTSD, MDE only, PTSD only, concomitant MDE and PTSD), χ^2 tests, *t* tests, and univariate analyses of covariance were used, depending on the type of data. Multinomial regression was used to determine sociodemographic and trauma-related factors, with concomitant MDE and PTSD as the reference group. On the basis of prior research, sociodemographic characteristics (age, gender, educational level, employment status, and marital status); number of prewar, war-related, and postwar traumatic experiences; and active combat involvement during the war were considered as variables potentially associated with mental health outcomes. Educational level, marital status, and employment status were collapsed into dichotomous variables according to model goodness-of-fit. Multicollinearity among potential predictor variables was assessed using the variance inflation factor statistic from the equivalent linear regression model, and the assessment did not indicate serious multicollinearity (variance inflation factor exceeding 10). Analyses were done on cases with complete data, using SPSS Version 18 (SPSS Inc; Chicago, Illinois). Because of the large sample size, a significance level of $P < .01$ was applied.

RESULTS

Preliminary Results

All participants reported exposure to at least 1 war-related potentially traumatic event that can be regarded as equivalent to the objective component of the stressor criterion 1A for PTSD described by the *DSM-IV*. The most reported traumatic events among all participants were shelling or bombardment (85.1%), followed by lack of shelter (64.5%), siege (40.1%), and murder or death of a dear person due to violence (35.9%). The number and percentage of traumatic events experienced by participants in each group are reported in Table 1.

Prevalence Rates of MDE, PTSD, and MDE + PTSD

In total, 1,011 participants (30.5%) fulfilled *DSM-IV* criteria for either MDE or PTSD, whereas 303 participants (9.1%) met criteria for MDE + PTSD. Further, 356 participants (10.7%) fulfilled criteria for PTSD without MDE, and 352 (10.6%) fulfilled criteria for MDE without PTSD.

The association between PTSD and MDE was statistically significant ($\chi^2_1 = 353.63$, $P < .001$). Specifically, 46.0% of participants with PTSD met criteria for MDE, whereas 13.3% of participants without PTSD met criteria for MDE. On the other hand, 46.3% of participants with MDE had concomitant PTSD, whereas 13.5% of those without MDE met criteria for PTSD.

Factors Associated With MDE + PTSD

Results from the multinomial logistic regression analysis are shown in Table 2. Relative to individuals without MDE or PTSD, participants with MDE + PTSD reported higher numbers of prewar, war-related, and postwar traumatic events and were more likely to be unemployed. Compared to participants with PTSD only, participants with MDE + PTSD reported higher numbers of prewar and postwar traumatic events. Finally, among participants with MDE + PTSD, there were higher numbers of war-related traumatic events as well as more individuals with combat involvement than among participants with MDE only.

General Psychological Symptoms, Posttraumatic Stress Symptoms, Suicide Risk, and Quality of Life

Participants with MDE + PTSD reported significantly higher scores on general psychological symptoms as measured with the general severity index and the 9 single scores of the Brief Symptom Inventory than all 3 comparison groups. Participants with MDE + PTSD also reported significantly higher scores on posttraumatic stress symptoms as measured with the Impact of Event Scale-Revised. Additionally,

Table 1. Traumatic Events Experienced by Diagnostic Group (N = 3,301)[a]

Traumatic Event	Neither MDE nor PTSD (n = 2,290), n (%)	MDE Only (n = 352), n (%)	PTSD Only (n = 356), n (%)	MDE + PTSD (n = 303), n (%)
Serious accident, fire, or explosion	104 (4.5)	30 (8.5)	25 (7.0)	40 (13.2)
Natural disaster	19 (0.8)	7 (2.0)	3 (0.8)	7 (2.3)
Nonsexual assault by someone known	44 (0.9)	7 (2.0)	12 (3.4)	16 (5.3)
Nonsexual assault by stranger	129 (5.6)	30 (8.5)	37 (10.4)	45 (14.9)
Sexual assault by someone known	1 (0.0)	0 (0.0)	1 (0.3)	2 (0.7)
Sexual assault by stranger	1 (0.0)	0 (0.0)	5 (1.4)	2 (0.7)
Imprisonment	61 (2.7)	15 (4.3)	35 (9.8)	25 (8.3)
Life-threatening illness	50 (2.2)	13 (3.7)	20 (5.6)	21 (6.9)
Sudden death of a dear person	173 (7.6)	27 (7.7)	53 (14.9)	35 (11.6)
Lack of food or water	701 (30.6)	150 (42.6)	211 (59.3)	155 (51.2)
Illness without access to medical care	124 (5.4)	44 (12.5)	50 (14.0)	54 (17.8)
Lack of shelter	1,050 (45.9)	195 (55.4)	239 (67.1)	200 (66.0)
Expelled from home under threat	808 (35.3)	163 (46.3)	141 (39.6)	150 (49.5)
Combat	330 (14.4)	24 (6.8)	103 (28.9)	82 (27.1)
Shelling or bombardment	1,959 (85.5)	258 (73.3)	323 (90.7)	247 (81.5)
Mine explosion	141 (6.2)	21 (6.0)	34 (9.6)	35 (11.6)
Siege	777 (33.9)	156 (44.3)	229 (64.3)	165 (54.5)
Serious injury	104 (4.5)	19 (5.4)	57 (16.0)	43 (14.2)
Witnessed an assault, murder, or death	428 (18.7)	73 (20.7)	159 (44.7)	125 (41.3)
Learned about murder or death of a dear person	684 (29.9)	132 (37.5)	206 (57.9)	159 (52.5)
Disappearance or kidnapping of a dear person	344 (15.0)	63 (17.9)	106 (29.8)	64 (21.1)
Torture	82 (3.6)	30 (8.5)	37 (10.4)	42 (13.9)
Being lost	134 (5.9)	38 (10.8)	60 (16.9)	54 (17.8)
Being kidnapped	45 (2.0)	14 (4.0)	23 (6.5)	18 (5.9)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Time since most traumatic war trauma, y	8.0 (3.5)	7.5 (2.4)	8.9 (3.1)	8.6 (2.9)
No. of war-related traumatic events	3.6 (2.5)	4.3 (2.6)	6.1 (3.1)	5.9 (3.2)
No. of prewar traumatic events	0.6 (1.0)	0.9 (1.1)	0.7 (0.9)	1.1 (1.5)
No. of postwar traumatic events	0.5 (0.7)	0.7 (0.9)	0.5 (0.7)	0.9 (1.0)

[a]Of 3,313 participants, 12 had missing values with regard to meeting criteria for MDE or PTSD.
Abbreviations: MDE = major depressive episode, PTSD = posttraumatic stress disorder, SD = standard deviation.

they were more likely to report current suicide risk and lower levels of quality of life than the comparison groups (Table 3).

DISCUSSION

Co-occurrence of MDE and PTSD among survivors of war was different from either condition alone. People with MDE and PTSD had experienced more traumatic events at different time periods and reported more psychological symptoms, a higher suicide risk, and a lower quality of life as compared to participants with MDE or PTSD alone.

Co-occurring MDE and PTSD were associated with higher levels of general psychological symptoms on all 9 measured dimensions of psychological symptoms (including depression), higher levels of posttraumatic symptoms, a higher rate of suicidality, and a lower subjective quality of life than either condition alone. These findings are in line with previous research.[4,15–19] The differences between the groups not only were statistically highly significant for each tested subscale, but also were of clinical relevance. While people with PTSD alone tended to have less favorable scores on all symptom scales as compared to people with MDE alone, the differences between these 2 groups were much smaller than the differences between either group and those with both MDE and PTSD. The scores of people with both MDE and PTSD indicated substantially higher levels of psychopathology and distress in all aspects of the studied symptomatology. Another indicator of the different level of clinical need in people with MDE and PTSD was suicide risk that was about twice as high as in people with MDE alone. Finally, subjective quality of life was low in people with both disorders, with a mean score below 4 (ie, the neutral middle point on the scale between satisfaction and dissatisfaction). This score reflects an explicit dissatisfaction with life, on average, and was much less favorable than the quality-of-life rating in people with PTSD or MDE alone.

Participants with both MDE and PTSD reported significantly more prewar and postwar traumatic events than those with PTSD only, and more war-related events than those with MDE only. Our results are consistent with previous findings suggesting that co-occurring MDE and PTSD are not associated with more war-related traumatic events than PTSD alone.[36,37] Yet, when prewar and postwar experiences are also considered, the picture is different, and people with both MDE and PTSD report more traumatic events during those periods as compared to people with PTSD alone. These findings suggest that additional traumatic experiences before and after the war may lead to MDE in addition to PTSD.

Relatively little research has addressed whether concomitant MDE and PTSD are associated with different traumatic experiences as compared to MDE alone. In a questionnaire-based study by Ikin et al[38] with Korean war veterans, participants with both MDE and PTSD reported greater combat exposure than participants with MDE

Table 2. Associations Between Prewar, War, and Postwar Factors and Indices of MDE + PTSD as Compared to Other Groups (N = 3,301)[a]

Variable	Neither MDE nor PTSD (n = 2,290)	MDE Only (n = 352)	PTSD Only (n = 356)	MDE + PTSD (n = 303)	MDE + PTSD vs Neither Coefficient (95% CI)	*P*	MDE + PTSD vs MDE Without PTSD Coefficient (95% CI)	*P*	MDE + PTSD vs PTSD Without MDE Coefficient (95% CI)	*P*
Prewar context										
Age, mean (SD), y	41.6 (12.2)	42.3 (11.6)	45.8 (11.1)	45.4 (10.8)	0.99 (0.98–1.00)	.09	0.99 (0.97–1.00)	.07	1.01 (1.00–1.03)	.12
Gender, female, n (%)	1,201 (52.5)	223 (63.4)	194 (54.5)	159 (52.5)	1.33 (0.97–1.81)	.07	1.00 (0.69–1.45)	.99	0.82 (0.56–1.21)	.33
Education level, primary or none, n (%)[b]	636 (27.8)	113 (32.1)	137 (38.5)	119 (39.3)	0.81 (0.60–1.08)	.16	0.79 (0.55–1.14)	.21	0.93 (0.65–1.33)	.69
No. of prewar traumatic event types, mean (SD)	0.6 (1.0)	0.9 (1.1)	0.7 (0.9)	1.1 (1.5)	0.77 (0.69–0.86)	< .001	0.95 (0.84–1.07)	.37	0.77 (0.67–0.89)	< .001
War context										
No. of war traumatic event types, mean (SD)	3.6 (2.5)	4.3 (2.6)	6.1 (3.1)	6.0 (3.2)	0.76 (0.73–0.80)	< .001	0.88 (0.83–0.94)	< .001	1.02 (0.97–1.08)	.40
Combat involvement, yes, n (%)[c]	356 (15.5)	28 (8.0)	105 (29.5)	84 (27.7)	1.14 (0.79–1.65)	.48	3.22 (1.88–5.51)	< .001	0.87 (0.56–1.35)	.53
Postwar context										
No. of postwar traumatic event types, mean (SD)	0.5 (0.7)	0.7 (0.9)	0.5 (0.7)	0.9 (1.1)	0.64 (0.55–0.76)	< .001	0.83 (0.69–0.98)	.03	0.66 (0.55–0.80)	.001
Employment status, unemployed, n (%)[d]	998 (43.6)	198 (56.3)	171 (48.0)	165 (54.5)	0.42 (0.31–0.57)	< .001	0.66 (0.45–0.96)	.03	0.61 (0.42–0.90)	.13
Living with partner, no, n (%)[e]	670 (30.2)	107 (32.1)	109 (30.7)	94 (32.3)	0.86 (0.66–1.14)	.31	1.00 (0.71–1.40)	.98	1.04 (0.74–1.46)	.81

[a]MDE + PTSD was the reference group. Of 3,313 participants, 12 had missing values with regard to meeting criteria for MDE or PTSD. [b]Reference was "secondary or higher." [c]Reference was "no combat involvement." [d]Reference was "employed." [e]Reference was "with partner."
Abbreviations: MDE = major depressive episode, PTSD = posttraumatic stress disorder, SD = standard deviation.

Table 3. General Psychological Symptoms, Posttraumatic Stress Symptoms, Suicidality, and Quality of Life Among Diagnostic Groups (N = 3,301)[a]

Variable	(1) Neither MDE nor PTSD (n = 2,290), Mean (SD)	(2) MDE Only (n = 352), Mean (SD)	(3) PTSD Only (n = 356), Mean (SD)	(4) MDE + PTSD (n = 303), Mean (SD)	ANCOVA or χ^2, $F_{3,3996}$	Comparison Between Groups, *P* Value 4 vs 1	4 vs 2	4 vs 3
BSI global	23.7 (24.3)	50.6 (31.7)	64.1 (34.5)	95.9 (41.9)	543.59	< .001	< .001	< .001
BSI anxiety	3.2 (3.7)	6.8 (4.7)	9.4 (5.3)	12.5 (5.8)	467.87	< .001	< .001	< .001
BSI somatization	3.6 (4.4)	7.5 (5.9)	9.5 (6.2)	13.1 (7.3)	312.42	< .001	< .001	< .001
BSI depression	2.6 (3.4)	6.7 (5.0)	8.1 (5.0)	12.7 (5.3)	548.31	< .001	< .001	< .001
BSI obssessive-compulsive	3.0 (3.5)	6.0 (4.7)	8.1 (5.2)	11.6 (6.0)	377.32	< .001	< .001	< .001
BSI psychoticism	1.1 (2.1)	3.0 (3.0)	4.0 (3.6)	6.7 (4.4)	361.00	< .001	< .001	< .001
BSI paranoid ideation	3.3 (3.7)	5.7 (4.6)	6.1 (4.7)	9.6 (5.2)	194.03	< .001	< .001	< .001
BSI anger-hostility	2.0 (2.7)	4.4 (3.9)	5.3 (4.4)	7.9 (5.1)	284.41	< .001	< .001	< .001
BSI phobic anxiety	1.5 (2.6)	3.1 (3.3)	5.0 (4.2)	7.2 (5.1)	272.09	< .001	< .001	< .001
BSI interpersonal sensitivity	1.7 (2.4)	3.6 (3.2)	4.2 (3.3)	6.8 (4.0)	265.87	< .001	< .001	< .001
IES-R total	14.9 (17.0)	31.5 (22.6)	49.0 (17.4)	56.1 (17.4)	605.89	< .001	< .001	< .001
IES-R intrusion subscale	5.6 (6.7)	11.7 (9.1)	18.5 (7.0)	21.3 (6.9)	569.31	< .001	< .001	< .001
IES-R avoidance subscale	5.8 (6.8)	11.0 (8.5)	17.0 (6.5)	18.7 (6.9)	395.32	< .001	< .001	< .001
IES-R hyperarousal subscale	3.5 (4.9)	8.8 (6.7)	13.4 (5.6)	16.2 (5.6)	639.57	< .001	< .001	< .001
MANSA	5.0 (0.8)	4.5 (0.9)	4.3 (0.9)	3.8 (1.0)	134.62	< .001	< .001	< .001
	n (%)	n (%)	n (%)	n (%)				
Suicide risk[b]	101 (4.4)	81 (23.0)	51 (14.3)	138 (45.5)	516.79[c]	< .001	< .001	< .001

[a]Results were adjusted for age; employment status; and number of prewar, war, and postwar traumatic events. Of 3,313 participants, 12 had missing values with regard to meeting criteria for MDE or PTSD. [b]Number of participants who reported thinking about suicide and/or having a suicide plan and/or attempting suicide in the past month on the Mini-International Neuropsychiatric Interview. [c]χ^2 test.
Abbreviations: ANCOVA = analysis of covariance, BSI = Brief Symptom Inventory, IES-R = Impact of Event Scale-Revised, MANSA = Manchester Short Assessment of Quality of Life, MDE = major depressive episode, PTSD = posttraumatic stress disorder, SD = standard deviation.

alone. Our findings show that the result applies also to a sample of mostly civilian survivors of war living in the area of former conflict. People with both MDE and PTSD appear to have similar traumatic experiences before and after war as those with PTSD alone, but they report more traumatic events during the war. Concomitant MDE and PTSD might require a combination of high levels of traumatic experiences both during war itself and during other periods of life.

The association of co-occurring MDE and PTSD with different traumatic experiences and, especially, clinical characteristics, as compared to either condition alone, suggests that it may be clinically useful to assess this co-occurrence in order to identify individuals with more severe psychiatric distress. This suggestion is in line with several findings from studies conducted in Western countries.[17,18,39] Our study underlines these differences in a war-affected population that stayed in the area of conflict and links co-occurring

MDE and PTSD with demographics and exposure to previous traumatic events, as well as higher symptom levels.

The differences are likely to be relevant for the course of distress and treatment. In several studies, co-occurring MDE and PTSD were found to be associated with a more chronic course of impairment,[40] increased health-service utilization,[41,42] and attenuated treatment response,[43,44] as compared to either disorder alone. The assessment and recording of concomitant MDE and PTSD in addition to either disorder alone may help to specifically screen for survivors of war in need of mental health services. Furthermore, this assessment might help to improve specific intervention strategies. The consensus guideline for PTSD[45] has suggested that the presence of MDE should change the treatment practice for PTSD. A recent study[46] showed that a modified approach to delivering behavior therapy for concomitant PTSD and depression in war veterans can produce significant results. Although findings on outcomes of treatment of PTSD in war-affected areas are inconsistent, some studies[35,47] reported very poor treatment outcomes for patients with persistent PTSD living in war-affected areas. Research also indicates that high levels of depressive symptoms among civilian war survivors with PTSD are associated with poor treatment outcome.[35] A consideration of distinct clinical aspects of concomitant MDE and PTSD might help improve specific intervention strategies for this population. To the best of our knowledge, no study has evaluated the efficacy of modified psychotherapeutic approaches for concomitant MDE and PTSD in postconflict countries. Therefore, future research needs to investigate whether modified psychotherapeutic approaches for individuals with concomitant MDE and PTSD can improve the efficacy of psychotherapy for civilian war survivors with this co-occurence.

The study has several limitations. No conclusions of causal relations between the measured variables can be drawn because of the cross-sectional design of the interview survey. Future research should use a longitudinal design to investigate the temporal order of onset of MDE and PTSD. Exposure to traumatic events was assessed retrospectively and might have been influenced by recall bias, which might apply to all groups.[48] Finally, our findings cannot be generalized to non–war-affected populations. Strengths of the study include that this survey is the largest community-based survey among survivors of war still living in the area of former conflict, used a probabilistic sampling frame, applied standardized instruments in face-to-face interviews, and implemented the same methodology among several countries.

Our results indicate that co-occurring MDE and PTSD, relative to either condition alone, are associated with different traumatic experiences and greater clinical impairment. The assessment and recording of concomitant MDE and PTSD following war may facilitate a better identification of individuals with severe psychopathology, high suicide risk, and poor quality of life. This assessment in turn may also support the improvement of intervention strategies for a particularly distressed group of war survivors.

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