Psychotic Symptoms in Combat-Related Posttraumatic Stress Disorder

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Background: Posttraumatic stress disorder (PTSD) is known often to be comorbid with other anxiety, mood, and substance use disorders. Psychotic symptoms have also been noted in PTSD and have been reported to be more common in Hispanic veterans. However, the occurrence of psychotic symptoms, including the degree to which they are accounted for by comorbid disorders, have received limited systematic investigation. Our study objectives were to assess psychotic symptoms according to DSM-III-R criteria in patients with a primary diagnosis of combat-related PTSD and determine the associations of those symptoms with psychiatric comorbidity and ethnicity.

Method: Fifty-three male combat veterans consecutively admitted to a PTSD rehabilitation unit were assessed for psychotic symptoms and Axis I disorders. Ninety-one percent were Vietnam veterans; 72% were white, 17% were Hispanic, and 11% were black. Associations between psychotic symptoms and comorbid depression, substance use disorders, and minority status were compared by chi-square analyses; associations between psychotic symptoms and both PTSD and dissociative symptom severity were compared by t test analysis.

Results: Forty percent of patients reported a psychotic symptom or symptoms in the preceding 6 months. These symptoms featured auditory hallucinations in all but 1 case. The psychotic symptoms typically reflected combat-themes and guilt, were nonbizarre, and were not usually associated with formal thought disorder or flat or inappropriate affect. Psychotic symptoms were significantly associated with current major depression ($p < .02$), but not with alcohol or drug abuse or with self-rated PTSD and dissociation severity. Psychotic symptoms and current major depression were more common in minority (black and Hispanic) than white veterans ($p < .002$).

Conclusion: Psychotic symptoms can be a feature of combat-related PTSD and appear to be associated with major depression. The association with minority status may be a function of comorbidity.

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There has been debate in the literature regarding the diagnostic boundaries of posttraumatic stress disorder (PTSD), including its categorization within the anxiety versus the dissociative disorders.[1] Much of this debate has focused on the syndromal overlap and comorbidity of PTSD with other anxiety and mood disorders and dissociation occurring with PTSD.[2–6] Psychotic features may also bear on the appropriate conceptualization of PTSD, but have been relatively underinvestigated.

A community-based epidemiologic study by Davidson et al.[7] suggested a strong association of PTSD with schizophrenia and schizophreniform disorder. However, Helzer et al.[8] did not find increased risk for schizophrenia in subjects with PTSD in the Epidemiologic Catchment Area Survey. The more recent, large epidemiologic studies of PTSD that addressed comorbidity did not report data on psychotic disorders.[4,9,10]

Several case series have described psychotic features with PTSD. Van Putten and Emory[11] described 4 Vietnam veterans whom they determined to have had "transient psychotic states" secondary to "traumatic neuroses"[11(p697)] and in the authors' view had been misdiagnosed with schizophrenia. None of these patients had thought disorder or inappropriate affect. Mueser and Butler[12] interviewed 36 combat veterans with PTSD and found that 5 had auditory hallucinations that did not respond to neuroleptic treatment. The status of other possible psychotic symptoms was not specified. The veterans with auditory hallucinations had higher combat exposure, more severe PTSD symptoms, and were less responsive to treatment with imaginal flooding. There was a greater proportion of Hispanic veterans among the subjects with hallucinations. These authors also noted an absence of gross impairment in reality testing. Wilcox et al.[13] reported a lifetime prevalence of auditory hallucinations of 29% in 59 combat veterans with PTSD based on clinical interviews and chart reviews. An association was again found with Hispanic ethnicity, but not with length of combat exposure, prisoner of war (POW) status, drug abuse history, or family history of psychiatric illness. Butler et al.[14] recently reported increased rates of hallucinations, delusions, and bizarre behavior, but not formal thought disorder, in 20 combat veterans with PTSD compared to 18 combat veterans without PTSD, based on a clinician rating of psychosis.

Thus, several studies document psychotic symptoms occurring with PTSD in the absence of formal thought disorder or gross impairment in reality testing. Relationships to conditions that could potentially account for psychotic symptoms, such as affective, schizophrenia-spectrum, or substance use disorders or dissociative states, however, have not been systematically addressed.

The objectives of the present study were (1) to determine the prevalence and nature of psychotic symptoms in a population of combat veterans with a primary diagnosis of PTSD who were electively referred to an inpatient rehabilitation unit, (2) to assess comorbid psychiatric disorders and their possible relationships to psychotic symptoms, and (3) to evaluate the previously reported association of psychotic symptoms with ethnicity.

METHOD

Subjects

Fifty-three male combat veterans were evaluated during consecutive, elective admissions to an inpatient rehabilitation unit for combat-related PTSD. Forty-eight (91%) were Vietnam War veterans, 2 were Korean War veterans, 2 were Gulf War veterans, and 1 was a veteran of the war in Somalia. The mean ± SD age was 46.9 ± 6.2 years (range, 26–63). Thirty-eight (72%) were white, 9 (17%) were Hispanic, and 6 (11%) were black. All patients spoke English fluently.

Assessments and Analysis

The evaluation was a routine part of the unit's admission procedures. Service in a combat zone was verified by review of the DD-2-14 military discharge form. Patients were assessed for current and lifetime psychiatric morbidity with the Structured Clinical Interview for DSM-III-R (SCID) patient version[15] including the PTSD, affective, anxiety, alcohol and substance use, and psychotic disorder modules. SCID interviews were conducted by bachelor- and master-level psychology technicians. Each patient was also clinically evaluated by a psychiatrist (D.D.) in order to resolve any diagnostic questions, confirm PTSD as the primary diagnosis, and further assess the nature of psychotic symptoms and their relationship to PTSD symptomatology. Findings from the structured and clinical interviews were discussed by the investigators (D.D., G.S.K., T.A.M.), and consensus determinations of psychotic features and psychiatric diagnoses were made. Hallucinatory experiences were considered psychotic in nature if they were not accompanied by the perception of being back in the traumatic situation (i.e., flashbacks), and if there was at least momentary disturbance in reality testing (i.e., behavioral response to hearing voices, experiencing voices as "real"). Paranoia was distinguished from hypervigilance by the elaboration of idiosyncratic and implausible beliefs.

Table 1. Frequency of Psychotic Symptoms in Combat-Related Posttraumatic Stress Disorder (N = 21)

	Present		Absent	
Psychotic Symptoms	N	%	N	%
Auditory hallucinations (eg, voices of dead comrades calling "help" or "medic"; "people screaming in the back of my head")	20	95.2	1	4.8
Visual hallucinations (eg, visions of "dead bodies," "faces of the dead")	18	85.7	3	14.3
Delusions (eg, belief that there was continued persecution related to an interpersonal conflict that occurred in Vietnam and which required violent resolution)	7	33.3	14	66.7

Patients also completed the Mississippi Scale for Combat-Related PTSD (M-PTSD),[16] and a consecutive subgroup of patients (N = 24) completed the Dissociative Experiences Scale (DES).[17] The DES was collected only from 24 subjects due to its inclusion in the assessment after starting the study. Associations between the presence of psychotic symptoms and other Axis I disorders and ethnicity were analyzed using the chi-square test. For the analysis of ethnicity, black and Hispanic veterans were grouped as a minority category, since analysis of separate black, Hispanic, and white groupings resulted in expected frequency cells of less than 5. Relationships of psychotic symptoms to M-PTSD and DES severity scores were analyzed by independent t tests.

RESULTS

Twenty-one patients (40%) were found to have a history of psychotic symptoms that were reported to have been active in the 6 months prior to admission. Auditory hallucinations were the most common symptom (20/21, 95%), followed by visual hallucinations (18/21, 86%), and delusions (7/21, 33%) (Table 1). All of the patients with psychotic symptoms had hallucinations that reflected combat themes and guilt and were nonbizarre (e.g., voices of dead comrades calling "help" or "medic," visions of "dead bodies" or "faces of the dead"). Six patients (29%) additionally had delusions or visualizations with bizarre content that did not appear to directly refer to combat experiences (e.g., beliefs that they were being stalked or that there was a plan to harm them, visualization of "flying women in black shrouds"). Two of these 6 patients met criteria for schizoaffective disorder owing to periods of depressed mood associated with mood-congruent psychotic symptoms and periods in which bizarre and/or paranoid delusions and hallucinations occurred independently of affective symptoms. These patients also displayed circumstantial and tangential speech and occasionally inappropriate affect. The other 4 patients who had bizarre delusions

Table 2. Associations Between Psychotic Symptoms and Possible Risk Factors for Psychosis in Combat-Related Posttraumatic Stress Disorder[a]

Variable	Psychotic Symptoms Present (N = 21)		Psychotic Symptoms Absent (N = 32)		Significance		
	N	%	N	%	χ^2	df	p
Current major depression	17	81.0	16	50.0	5.16	1	< .02
Lifetime major depression	20	95.2	29	90.6	0.39	1	NS
Lifetime drug use	14	66.7	20	62.5	0.10	1	NS
Lifetime alcohol use	19	90.5	27	84.4	0.41	1	NS
Minority subjects	11[b]	52.4	4	12.5	9.94	1	< .002
	N	Mean SD	N	Mean SD	t	df	p
M-PTSD score (N = 52)	21	147.5 16.1	31	143.3 16.9	0.90	50	NS
DES score (N = 24)	10	35.8 18.7	14	25.2 16.4	1.47	22	NS

[a]Abbreviations: DES = Dissociative Experiences Scale, M-PTSD = Mississippi Scale for Combat-Related Posttraumatic Stress Disorder, PTSD = Posttraumatic Stress Disorder.
[b]5 (83.3%) of 6 blacks and 6 (66.7%) of 9 Hispanics were positive for psychotic symptoms.

met criteria for major depression with psychotic features. None of the other patients displayed disorganized speech or behavior, sustained impaired reality testing, flat or inappropriate affect, or functional impairment resulting specifically from the psychotic symptoms and therefore did not meet diagnostic criteria for schizophrenia. Also, none of the patients had sustained periods of elevated mood meeting criteria for mania. The 2 patients who were diagnosed with schizoaffective disorder had brief hypomanic episodes.

Psychotic symptoms were associated with the presence of current major depression (17/21, 81% versus 16/32, 50%; $\chi^2 = 5.2$, df = 1, $p < .02$) and were more common in the minority veterans (11/21, 52% versus 4/32, 13%; $\chi^2 = 9.9$, df = 1, $p < .002$). Five (83%) of 6 blacks, 6 (67%) of 9 Hispanics, and 10 (26%) of 38 whites had psychotic symptoms. Current major depression was more common in minority veterans (13/15, 87%) versus white veterans (20/38, 53%; $\chi^2 = 5.3$, df = 1, $p < .02$). Minority and white veterans did not differ in employment status (unemployed/retired versus employed part- or full-time) or education level (up to versus above high school level). There was a trend for more minority veterans to be married (8/15, 53% versus 10/38, 26%; $\chi^2 = 3.5$, df = 1, $p < .06$).

No association was found between psychotic symptoms and a lifetime history of major depression or of alcohol or drug abuse or with the severity of scores on the M-PTSD and DES scales (Table 2). Due to program admission requirements, all patients with a history of substance abuse met criteria for either early or sustained remission.

DISCUSSION

We found that psychotic symptoms were common in an electively admitted inpatient population of combat veterans with chronic PTSD and were associated with current major depression and minority status. Consistent with prior reports, formal thought disorder and inappropriate affect were infrequent. Findings do not suggest that the psychotic symptoms were secondary to schizophrenia-spectrum disorders or substance abuse; however, it is possible that they were related to major depression. The DSM-IV[18] specifies that psychotic symptoms in major depression most commonly have content that is congruent with depressive mood. In this population, the majority of psychotic symptoms were thematically related to trauma and temporally overlapped PTSD symptomatology.

The relatively high prevalence of psychosis in this population (40%) may be a function of greater illness severity associated with inpatient status. Admissions to the unit follow referrals by outpatient clinicians and are generally related to PTSD symptoms that persist despite outpatient treatment. This rate of psychosis is not dissimilar, however, from those reported by Wilcox et al.[13] and Butler et al.[14] in outpatient populations. The possibility of patients exaggerating and/or consciously manufacturing symptoms is also a consideration. The consistency with which patients reported these symptoms during 12 weeks of close clinical observation mitigates against this concern.

Major depression and psychosis may both be markers of severity of PTSD. Coryell et al.[19] found that patients with psychotic depression, compared with patients with nonpsychotic depression, had greater illness severity. The absence of a significant association of psychotic symptoms with lifetime major depression in our study is likely due to its high prevalence in both groups. Similarly, the lack of association of psychotic symptoms with M-PTSD scale scores is likely due to elevated scores in both groups (see Table 2). The lack of association with alcohol or substance abuse histories is consistent with the observations of Wilcox et al.[13] and argues against the psychotic symptoms being accounted for by intoxication or withdrawal states.

A higher prevalence of psychotic symptoms in Hispanic veterans with PTSD has been reported by Mueser and Butler[12] and Wilcox et al.[13] Escobar et al.[20] described Hispanic veterans with PTSD as having "severe and polymorphous psychopathology"[20(p585)] and being more alienated from their cultural heritage and their families when compared with a control group of other Hispanic veterans. Penk and Allen[21] characterized minorities as "a distinct group among Vietnam combat veterans"[21(p41)] and presented data that showed differential rates of PTSD, health

services utilization, and vocational and social adjustment. We found psychotic symptoms to be more common in a combined grouping of black and Hispanic veterans. This finding is limited by the small number of minority veterans in our study, however. Comorbid depression, which was associated with psychosis, was also more prevalent in the minority veterans. It's therefore possible that the higher frequency of psychotic symptoms in minority combat veterans is a function of comorbidity.

Another factor that could have contributed to these findings is selection bias. It has been shown that minority individuals (Mexican Americans[22] and blacks[23]) tend to avoid using mental health services even when suffering from a diagnosed mental disorder or emotional problem. Thus, when presenting to treatment, they may be more severely ill. The minority and white veterans in this study did not differ in employment rate and education level; therefore, socioeconomic status does not appear to be a confounding factor. However, more precise socioeconomic status measures are needed in order to make a final determination on this issue. Finally, we cannot rule out the influence of ethnocultural and linguistic bias in our study, as it has been postulated to occur in psychological assessments of Hispanics[24,25] and blacks[26] by white clinicians. Studies of psychotic comorbidity and minority status in larger and community-based samples would be helpful toward resolving these issues.

The occurrence of psychosis in some PTSD populations could have implications regarding neurobiological mechanisms, prognosis, and treatment. Dysregulation of the dopaminergic system could play a role in the development of psychotic symptoms and could also contribute to the irritability, hypervigilance, and affective numbing that are prevalent in this disorder.[27] In the study by Coryell et al.,[19] depressed patients with psychotic symptoms had greater severity of illness, as denoted by shorter illness-free intervals and greater psychosocial impairment. It is also of interest whether neuroleptic treatment would be beneficial in PTSD patient subpopulations with psychotic features, as was suggested in a recent case report by Hamner.[28]

The available findings regarding psychosis and PTSD do not resolve whether the psychosis is related to combat exposure, depression, PTSD, and/or other factors. Further studies addressing this question, as well as course of illness and treatment response in patients with PTSD and psychotic symptoms, would be of interest.

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