Research Article

RACIAL DIFFERENCES IN PSYCHOTIC SYMPTOMS AMONG COMBAT VETERANS WITH PTSD

B. Christopher Frueh, Ph.D.,[1*] Mark B. Hamner, M.D.,[1] Jeffrey A. Bernat, Ph.D.,[1] Samuel M. Turner, Ph.D.,[2] Terence M. Keane, Ph.D.,[3] and George W. Arana, Ph.D.[1]

We tested the hypothesis that race may influence clinical presentation and symptomatology in combat veterans with posttraumatic stress disorder (PTSD). African-American and Caucasian veterans were administered the Psychotic Screen Module of the Structured Clinical Interview for DSM, Minnesota Multiphasic Personality Inventory-2 (MMPI-2), and other psychometric measures at a Veterans Affairs outpatient PTSD clinic. Subjects were consecutive referrals who were not matched for level of combat trauma or preexisting trauma; however, there were no group differences in other relevant demographic or diagnostic variables. Significant racial differences, with modest effect sizes, were found on clinician ratings of psychotic symptoms, MMPI-2 scale 6 ("paranoia"), and a measure of dissociation. No significant differences were found for the MMPI-2 scale 8 ("schizophrenia"), or on measures that might suggest comorbid depression or anxiety. African-Americans with PTSD endorsed more items suggesting positive symptoms of psychosis, without higher rates of primary psychosis, depression, or anxiety than Caucasians. Depression and Anxiety 16:157–161, 2002. © *2002 Wiley-Liss, Inc.*

Key words: *PTSD; psychosis; racial differences; veterans; combat*

INTRODUCTION

Data from both general [Neal and Turner, 1991] and veteran [Frueh et al., 1996] populations suggest that there may be racial differences in the presentation of mental disorders, as well as in the process and outcome of care. Data from the National Vietnam Veterans Readjustment Survey [Kulka et al., 1990] show that African-American and other minority combat veterans evidence higher rates of posttraumatic stress disorder (PTSD) than their Caucasian counterparts. These differences in absolute rates largely disappear, however, when factors such as level of combat trauma and preexisting trauma are taken into account. The scientific literature on racial differences in the manifestation of clinical symptoms in combat-related PTSD is less developed, with little empirical research conducted to date. Our review of racial differences in combat-related PTSD found that a number of studies have investigated the issue of psychopathology using standardized psychometric instruments (e.g., Minnesota Multiphasic Personality Inventory; MMPI) or retrospective chart review with conflicting results reported across studies [Frueh et al., 1998]. Some authors reported broad differences in the manifestation of symptoms across general measures of psychopathology, others found only circumscribed differences on measures of psychotic and dissociative symptomatology [e.g., Frueh et al., 1996], whereas others failed to find

[1]Medical University of South Carolina, Veterans Affairs Medical Center, Charleston, South Carolina
[2]Universityof Maryland, College Park, Maryland
[3]Boston University School of Medicine, Veteran Affairs Medical Center, Boston, Massachusetts

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*Correspondence to: B. Christopher Frueh, Ph.D., Mental Health Service (116), Veterans Affairs Medical Center, 109 Bee Street, Charleston, SC 29401-5799. E-mail: fruehbc@musc.edu

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any significant racial differences across relevant variables [e.g., Frueh et al., 1997; Monnier et al., 2002; Trent et al., 2000]. These studies suggest that veterans from different racial groups with PTSD are more similar than they are different. Conclusions from these studies must be somewhat tentative as they represent mixed findings, and reliable clinician rating instruments have not yet been used to evaluate racial differences in clinical presentation.

Based on previous research, one area where racial differences may be present is that of psychotic and dissociative symptoms [Frueh et al., 1996]. This is interesting because emerging evidence suggests that positive symptoms of psychosis may occur in 30–40% of male veterans with combat-related PTSD [Butler et al., 1996; David et al., 1999; Hamner, 1997;] and may represent a distinct subtype of the disorder with unique biological features [Hamner and Gold, 1998; Sautter et al., 1999]. This suggests a possible biological component to psychotic symptoms in this population. It has been well documented in other anxiety disorder populations that African-Americans describe their symptoms differently than Caucasians such that they are often inappropriately diagnosed with psychotic features or disorders [Friedman et al., 1994; Paradis et al., 1992;]. Thus, the differences in presentation of psychotic symptoms between racial groups may be related to the manner in which patients describe their symptoms rather than to actual phenomenological differences.

Further research in this area is needed as it may have implications for delivery of clinical services. There is evidence that African-American veterans may be more likely to under-utilize mental health services in both the Veterans Affairs (VA) and other health care sectors [Rosenheck and Fontana, 1994]. Additionally, there is data to suggest that African-American veterans may be more likely to receive neuroleptic medications [White and Faustman, 1989] than their Caucasian counterparts. These findings are consistent with research from general populations showing that African-Americans are more likely to be misdiagnosed/undiagnosed [Brown et al., 1995], and are less likely to receive appropriate treatment [Paradis et al., 1992] or to remain in treatment [Friedman et al., 1994]. Recent data indicate that racial differences do not exist in levels of clinical improvement at post-treatment [Rosenheck et al., 1995]. Thus, the question of racial differences in service delivery is also unresolved.

The purpose of this study is to test the hypothesis that African-American veterans with PTSD endorse more psychotic symptoms than Caucasians, without an increase of comorbid primary psychosis, depression, or anxiety. Given the previous conflicting findings on psychometric instruments, we are seeking to examine this issue using clinician ratings of psychotic symptoms, which have not been used in previous studies, as the primary dependent variable of interest.

SUBJECTS AND METHODS

SUBJECTS

Participants were 53 African-American (n=23; 43%) and Caucasian (n=30; 57%) DSM-IV diagnosed combat veterans with PTSD evaluated in an outpatient VA Medical Center PTSD clinic. Subjects were consecutive referrals who were not matched for level of combat trauma or preexisting trauma. This represents a new sample, distinct from our previous studies. Mean age was 49.6 years (SD=6.5), years of education was 12.7 years (SD=2.4), 58.8% were compensation-seeking for VA disability, 58.5% were married, 67.9% were not employed, 83.0% served in Vietnam, and 63.5% served in the Army. Clinical diagnoses of PTSD were based on the Clinician-Administered PTSD Scale [Blake et al., 1990]. Thirty-seven (69.8%) patients were diagnosed with mood disorders, 24 (45.3%) with current substance abuse/dependence disorders, and eight (15.1%) with psychotic disorders.

ASSESSMENT

Clinician ratings. The Psychotic Screen module from the Structured Clinical Interview for DSM (SCID) [Spitzer et al., 1990] was used to assess psychotic symptoms. Clinician ratings were made by one of two authors (MBH or BCF). To establish interrater reliability, nine (17%) interviews were scored by both raters, with 79% agreement across all items.

Self-report inventories. A battery of psychometric inventories was administered as part of the evaluation, including the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) [Graham, 1993]; Beck Depression Inventory (BDI) [Beck and Steer, 1987]; Mississippi Scale for PTSD (M-PTSD) [Keane et al., 1988]; and a revised version of the Dissociative Experiences Scale (DES) with a fixed response format (DES-FRF) [Frueh et al., 1996].

STATISTICAL ANALYSES

To determine whether African-Americans and Caucasians differed across demographic or diagnostic variables, Chi-square analyses or t-tests were conducted on diagnoses, employment status, compensation-seeking status, age, education, clinician ratings of global assessment of functioning (GAF), and the MMPI-2 F–K validity index. It was planned a priori that each demographic or diagnostic variable found to be significant would be included as a covariate in subsequent analyses so as to control for the effects of predisposing factors. Because we wanted to take a conservative approach to controlling for predisposing factors in the analyses that follow, we did not include a correction for family-wise (Type I) error rates in this initial series of analyses. To assess for racial differences on psychotic symptoms on our primary variable of interest, a single t-test was conducted on the SCID Psychotic Screen total score. Finally, two between

groups MANOVAs were conducted on sets of theoretically related variables: 1) variables related to psychosis and dissociation (MMPI-2 scales 6, 8, DES-FRF) and 2) variables related to anxiety and depression (MMPI-2 scales 2, 7, BDI, M-PTSD).

RESULTS

Results indicated no significant differences across groups on any demographic or diagnostic variables. Therefore, no demographic or diagnostic variables were included as covariates in subsequent analyses. With regard to our primary variable of interest, the SCID Psychotic Screen total score, African-Americans (M=14.5; SD=3.7) endorsed more items suggesting positive symptoms of psychosis than Caucasian (M=12.2; SD=3.1) veterans [t (51)=−2.42, P<.02; η^2=.084]. With regard to secondary analyses, one MANOVA approached significance [Pillais' trace statistic: F(3,41)=2.66, P<.06]. Because the trend in this analysis was toward significance, we conducted subsequent stepdown analyses, which showed significant univariate racial effects on MMPI-2 scale *6* [F(1,43)=5.86, P<.02, η^2=.12] and the DES-FRF, [F(1,43)=5.04, P<.03, η^2=.103]. African-American veterans endorsed more paranoid (M=88.2; SD=4.2) and dissociative (M=56.4; SD=3.0) symptoms than Caucasians veterans (M=75.0; SD=3.4 and M=47.6; SD=2.5, respectively). MANOVA results showed nonsignificant multivariate and univariate effects for variables related to depression and anxiety (MMPI-2 scales *2*, 7, BDI, M-PTSD).

DISCUSSION

In this sample, African-American combat veterans with PTSD endorsed more items suggesting positive symptoms of psychosis (e.g., 14.5 vs. 12.2 on the SCID Psychotic Screen), and endorsed more items suggesting symptoms of paranoid ideation (MMPI-2 scale *6*) and dissociation (DES-FRF) than Caucasians. The effect sizes (eta squared) of these differences were modest, however, and significant differences were not found on a more general self-report measure of disturbed thinking (MMPI-2 "schizophrenia" scale *8*). Additionally, and consistent with our previous work [Frueh et al., 1997], no racial differences were found on self-reported anxiety, depression, or PTSD symptomatology; nor on psychiatric comorbidity, illness severity (GAF), or demographic variables. This is consistent with the conclusion we have reached elsewhere that African-Americans and Caucasians with combat-related PTSD both experience severe psychiatric difficulties and are more similar to each other than they are different [Frueh et al., 1998].

Several issues merit additional discussion. First, it is important to acknowledge that there may be several different sources of bias in any research with minority populations. The racial differences found here may be a result of cultural or biological differences between groups, or they may be artifacts of: 1) clinician rater biases (e.g., Caucasian clinicians may misunderstand African-American veterans); 2) patient biases (e.g., African-American veterans may behave differently with Caucasian clinicians); 3) cultural or linguistic biases in the measures used; 4) an adaptive response pattern learned from past experiences (e.g., paranoia may stem from prior experiences with racism); or 5) some combination of the above. Although the data from this study does not address this issue directly, it is worth noting that racial differences on the MMPI-2 in general populations have not been noted between African-Americans and Caucasians [Graham, 1993]. One advantage of using a multi-method approach is that it allows us to look for a convergence of data from multiple sources. The fact that clinician ratings and standardized tests both showed modest effects on some variables adds support to our findings.

Second, we also should consider what it means for a veteran with PTSD to endorse "psychotic" symptoms on standardized psychometric instruments. Although research with the MMPI [Fairbank et al., 1996] shows consistent elevations on scales *8* ("schizophrenia") and *6* ("paranoia"), these results are subject to many interpretations. Past interpretations of trauma researchers have focused on descriptions of "bizarre sensory experiences" (e.g., flashbacks), "social alienation," and "hypervigilance," all classic features of the PTSD syndrome. Alternative explanations could include the presence of hallucinations, delusions, and persecutory ideation, classic features of psychotic disorders. Because of the alternative interpretations inherently possible in standardized psychometric instruments, and because of the mixed results found in previous studies on such instruments, we used a clinician administered rating scale as our primary variable of interest in this study. We chose the SCID Psychotic screen because it is considered to be a more "pure" measure of psychotic symptoms than psychometric instruments. Thus, the results reported in this study add to our understanding of the issue by presenting information obtained via a method that has not been used in previous studies.

A third, and related, issue is whether "psychotic" symptoms in this population are really dissociative symptoms related to the re-experiencing of traumatic combat events, or whether they represent separate and distinct psychotic processes. Although this issue is unresolved in the study of trauma, there is the potential for dissociative symptoms or classic PTSD symptoms of re-experiencing to be misinterpreted as psychotic features. This possibility is suggested by the racial effect found on a measure of dissociation in the present study, where African-Americans endorsed higher levels of dissociation than Caucasians. Alternatively, our own data from this and related projects [Hamner et al., 1999] show that veterans with psychotic features

endorse a wide range of non-trauma-related hallucinations and paranoid ideation. Further research is needed to examine the distinction between psychotic and dissociative symptoms in veterans with PTSD, and should include examination of the negative symptoms of psychosis. This research could include examination of differences in family prevalence rates of psychosis [Sautter et al., 1998] and biological markers, such as dopamine beta-hydroxylase [Hamner and Gold, 1998], found to differentiate combat veterans with PTSD and psychotic features from those with only PTSD. Biological variables also offer a more objective way to assess for differences in that they are not as susceptible to the bias sources discussed above.

Due to the exploratory nature of the present study, several methodological limitations should be acknowledged. First, as noted, both clinical raters were Caucasians, which may have introduced some source of bias into their ratings. Second, a comprehensive assessment of psychosis and associated behavioral correlates was not attempted, leaving the overall symptom picture incomplete. Future work would benefit from the use of more comprehensive clinician ratings for the spectrum of psychosis, including evaluation of disturbed thinking and the negative symptoms of psychosis. Third, although some relevant demographic variables were examined, future work would benefit from reliable evaluation of combat exposure and socioeconomic status as potential mediating factors, because these were found in the NVVRS study to mediate rates of PTSD diagnoses across racial groups [Kulka et al., 1990]. Finally, future studies would benefit from the inclusion of a larger sample and strong inter-rater reliability procedures.

The practical significance of this work is that although it suggests African-American and Caucasian combat veterans with PTSD generally do not differ with regard to their experience of psychiatric symptoms, there does appear to be a tendency for African-Americans to present with a slightly different clinical symptom picture. This could potentially lead to inappropriate diagnoses and treatment, and may explain why African-American veterans are more likely to receive antipsychotic medications [White and Faustman, 1989] and to use less professional mental health services than Caucasian veterans [Rosenheck and Fontana, 1994]. To enhance accurate differential diagnosis of minority veterans clinicians should be sensitive to the possibility that African-Americans' presentation of PTSD may include more positive symptoms of psychosis, but they likely do not have higher rates of primary psychosis, depression, or anxiety than Caucasians. Clinicians should also be aware that combat veterans with PTSD, regardless of their race, are likely to exhibit features of psychosis. Additional research is needed to reliably replicate the above findings and extend this work to include community samples of veterans and examination of variables related to biological factors and service use patterns.

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REFERENCES

Beck AT, Steer RA. 1987. Beck depression inventory. San Antonio: Harcourt Brace Jovanovic.

Blake DD, Weathers FW, Nagy LN, Kaloupek DG, Klauminzer G, Charney DS, Keane TM. 1990. A clinician rating scale for assessing current and lifetime PTSD: the CAPS-1. Behav Ther 18:187–188.

Brown D, Ahmed F, Gary L, Milburn N. 1995. Major depression in a community sample of African Americans. Am J Psychiatry 152:373–378.

Butler RW, Mueser KT, Sprock J, Braff DL. 1996. Positive symptoms of psychosis in posttraumatic stress disorder. Biol Psychiatry 39:839–844.

David D, Kutcher GS, Jackson EI, Mellman TA. 1999. Psychotic symptoms in combat related posttraumatic stress disorder. J Clin Psychiatry 60:29–32.

Fairbank JA, Keane TM, Malloy PF. 1983. Some preliminary data on the psychological characteristics of Vietnam veterans with posttraumatic stress disorder. J Consult Clin Psychol 51:912–919.

Friedman S, Paradis CM, Hatch M. 1994. Characteristics of African-American and white patients with panic disorder and agoraphobia. Hosp Community Psychiatry 45:798–803.

Frueh BC, Brady KL, de Arellano MA. 1998. Racial differences in combat-related PTSD: Empirical findings and conceptual issues. Clin Psychol Rev 18:287–305.

Frueh BC, Gold PB, de Arellano MA, Brady KL. 1997. A racial comparison of combat veterans evaluated for PTSD. J Pers Assess 68:692–702.

Frueh BC, Johnson DE, Smith DW, Williams MA. 1996. A potential problem with the response format of the dissociative experiences scale: a significant correlation with intelligence among combat veterans with PTSD. J Traumatic Stress 9:651–656.

Frueh BC, Smith DW, Libet JM. 1996. Racial differences on psychological measures in combat veterans seeking treatment for PTSD. J Pers Assess 66:41–53.

Graham JR. 1993. The MMPI-2: assessing personality and psychopathology. 2nd Ed. New York: Oxford University Press.

Hamner MB. 1997. Psychotic features and combat-associated PTSD. Depress Anxiety 5:34–38.

Hamner MB, Frueh BC, Ulmer HG, Arana GW. 1999. Psychotic features and illness severity in combat veterans with chronic posttraumatic stress disorder. Biol Psychiatry 45:846–852.

Hamner MB, Gold PB. 1998. Plasma dopamine beta-hydroxylase in psychotic and nonpsychotic posttraumatic stress disorder. Psychiatry Res 77:175–181.

Keane TM, Caddell JM, Taylor KL. 1988. Mississippi scale for combat-related posttraumatic stress disorder: three studies in reliability and validity. J Consult Clin Psychol 56:85–90.

Kulka RA, Schlenger WE, Fairbank JA, Hough RL, Jordan BK, Marmar CR, Weiss DS. 1990. Trauma and the Vietnam war

generation: report of findings from the National Vietnam Veterans Readjustment Study. New York: Brunner/Mazel.

Monnier J, Elhai JD, Frueh BC, Sauvageot JA, Magruder KM. 2002. Replication and expansion of findings related to racial differences in veterans with combat-related PTSD. Depress Anxiety 16:64–70.

Neal A, Turner S. 1991. Anxiety disorders research with African Americans: current status. Psychol Bull 109:400–410.

Paradis CM, Friedman S, Lazar RM, Grubea J, Kesselman M. 1992. Use of a structured interview to diagnose anxiety disorders in a minority population. Hosp Community Psychiatry 43:61–64.

Rosenheck R, Fontana A. 1994. Utilization of mental health services by minority veterans of the Vietnam era. J Nerv Ment Dis 182:685–691.

Rosenheck RA, Fontana A, Cottrol C. 1995. Effect of clinician-veteran racial pairing in the treatment of posttraumatic stress disorder. Am J Psychol 152:555–563.

Sautter FJ, Brailey K, Uddo M, Hamilton MF, Beard M, Borges A. 1999. PTSD and comorbid psychotic disorder: comparison with veterans diagnosed with PTSD or psychotic disorder. J Trauma Stress 12:73–88.

Sautter F, Johnson J, Uddo M, Koenig C, McMahon B. Clinical and family studies of PTSD. Paper presented at the Annual Meeting of the International Society for Traumatic Stress Studies, Washington DC, November 1998.

Spitzer RL, Williams JB, Gibbon M, First MB. 1990. Structured clinical interview for DSM-III-R. Washington, DC: American Psychiatric Press.

Trent CR, Rushlau MG, Munley PH, Bloem W, Driesenga S. 2000. An ethnocultural study of posttraumatic stress disorder in African-American and white American Vietnam War veterans. Psychol Rep 87:585–592.

White PA, Faustman WO. 1989. PTSD in minorities. Hosp Community Psychiatry 40:86–87.