Journal of Traumatic Stress, Vol. 15, No. 2, April 2002, pp. 89–97 (© 2002)

The Prevalence of Posttraumatic Stress Disorder Among American Indian Vietnam Veterans: Disparities and Context

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This study employed data from two Congressionally mandated efforts (the American Indian Vietnam Veterans Project and the National Vietnam Veterans Readjustment Study) to examine differential prevalence of posttraumatic stress disorder (PTSD) among 5 ethnically defined samples of male Vietnam theater veterans. Lay interviews assessed individual experiences before, during, and after the war from 1,798 male Vietnam theater veterans. Clinical reinterviews using the SCID were conducted with subsamples ($N = 487$). The prevalence of both 1-month and lifetime PTSD was higher for the 2 American Indian samples than for Whites. Once logistic regressions controlled for differential exposure to war-zone stress, ethnicity was no longer a significant predictor of PTSD.

KEY WORDS: posttraumatic stress disorder; Vietnam veterans; American Indians.

Much of the earliest work on posttraumatic stress disorder (PTSD) is derived from Vietnam veteran samples (Centers for Disease Control Vietnam Experience Study, 1988; Kulka et al., 1990; MacDonald, Chamberlain, & Long, 1995; O'Toole et al., 1996; Robins, Helzer, Ratcliff, & Seyfried, 1982; Schlenger et al., 1992). This paper returns to that work and supplements the largest study of American Vietnam veterans, the Congressionally mandated National Vietnam Veterans Readjustment Study (NVVRS), with those of another Congressionally mandated effort—the American Indian Vietnam Veterans Project (AIVVP; National Center for Post-Traumatic Stress Disorder and the National Center for American Indian and Alaska Native Mental Health Research, 1996).

Conducted in the late 1980s, the NVVRS found that PTSD continued to haunt many Vietnam theater veterans, with 6-month rates of 15.2% for males and 8.5% for females (Schlenger et al., 1992). Lifetime rates were reported to be 30.9% for males and 26.9% for females (Weiss et al., 1992). NVVRS was designed to examine the possibility of differential rates of PTSD by ethnicity. Across the multiple measures of this disorder, the investigators found that both Hispanic and African-American male theater veterans tended to have higher rates of PTSD than Whites did (Kulka et al., 1990; National Center for Post-Traumatic Stress Disorder and the National Center for American Indian and Alaska Native Mental Health Research, 1996).

Unfortunately, the NVVRS was not able to include other ethnic minority veterans in sufficient numbers to allow statistical comparisons. The AIVVP was designed to determine the prevalence of PTSD in two samples of American Indian Vietnam veterans. Furthermore, if ethnic differences did exist, we were to develop and test hypotheses about why such differences might be present. Partially to aid in hypothesis generation, an ethnographic

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component was integrated into the AIVVP study design. We hypothesized that the prevalence of PTSD among American Indian veterans would be at least comparable to that reported by the African-American and Hispanic NVVRS participants and higher than that of Whites. Furthermore, we predicted that these ethnic differences would be largely explained by differential levels of exposure to war-zone stress during the Vietnam War.

Method

Design

The AIVVP was mandated in 1990 under Public Law 101–507. Specifically, Congress directed the National Center for PTSD of the Veterans Administration to extend the NVVRS findings by collecting prevalence data for other minority groups. The National Center for American Indian and Alaska Native Mental Health Research (NCAIANMHR) was asked to conduct the American Indian portion of the study, which we refer to as the AIVVP. The original NVVRS study team served as consultants, with a commission to render the AIVVP data as comparable to that earlier effort as possible.

The designs of the two efforts were similar. Both used a two-stage design (Dohrenwend, 1995): a lay-administered interview of a population-based sample and a clinical reinterview of a subsample that collected supplementary information to improve the accuracy of PTSD prevalence estimates. Much of the AIVVP instrumentation was identical to that of NVVRS. Perhaps the most significant dissimilarity was the elapsed time between the two efforts: NVVRS data collection took place in 1988–89; AIVVP, between 1993 and 1994. NVVRS methods are described elsewhere (Kulka et al., 1988) and only explained as necessary to contextualize our design decisions and results.

Study Groups

The two American Indian samples consisted of male Vietnam theater veterans from a Northern Plains tribe and from a Southwest tribe. We should note that in our work with American Indian groups, maintenance of community confidentiality is as important as that of individual confidentiality (Norton & Manson, 1996). Therefore, in this paper, general cultural descriptors are used rather than specific tribal names. The sampling frame used by the NVVRS was based on discharge records maintained at the National Personnel Records Center and active duty records from the Defense Manpower Data Center (Kulka et al., 1988). Replication of the NVVRS sample selection strategy was judged inappropriate for AIVVP for several reasons. Because ethnicity is not specified in the military records of that era, drawing a records-based sample of American Indian Vietnam veterans would require the selection, location, and contact of over 75,000 veterans in order to identify a sample of 300 American Indian veterans (the minimum necessary for adequate statistical power). Such a sample would not only be prohibitively expensive, but also generate an extremely diverse sample of American Indians and would ignore potentially important cultural differences among them.

A practical alternative sampling strategy using tribal rolls was developed for AIVVP that avoided this within-group cultural diversity. These rolls define the universe of all recognized members of a given tribe. AIVVP reached agreements with two culturally distinct tribes in the United States to access their tribal rolls for this project. From the rolls, men born between 1930 and 1958 were selected; this age range provided coverage of over 95% of men age-eligible for service during the Vietnam era (Kulka et al., 1988). Although some state and tribal records provided information about veteran status, inclusion in the sample required a copy of the veteran's discharge papers (DD214).

Of the American Indian males identified as Vietnam veterans, only those who were currently living on or near their reservation were eligible for interview. A total of 621 lay interviews were completed with location rates exceeding 90% in both tribes. Once located, more than 90% of the eligible veterans agreed to participate. After a complete description of the project to participants, written informed consent was obtained.

Approximately one third of the American Indian lay samples were selected for clinical reinterview (compared to about 22% for NVVRS). Selection into the AIVVP reinterview was based solely on the veterans' Mississippi-PTSD scale score (Keane, Caddell, & Taylor, 1988) and used three strata for selection: 60% of those with M-PTSD scores above 103 (probable cases), 40% of those scoring between 85 and 103 (possible cases), and 20% of those scoring below 85 (probable noncases). Selection into the NVVRS clinical subsample was more complicated (Kulka et al., 1988). Although also based largely on M-PTSD scores, for practical reasons that effort restricted the sample to veterans who lived within reasonable commuting distance to one of the trained NVVRS clinical interviewers. Unlike NVVRS, the AIVVP clinicians traveled to the veterans' communities to perform interviews; therefore, there was no need to restrict the clinical reinterviews to those who could travel to the clinicians' offices. As a result, the AIVVP clinical sample was simply a stratified random sample of the lay-interview sample. For both efforts,

however, sample weights were developed that allowed results from the clinical data to be extrapolated to the lay samples and populations from which they derived.

Measurement and Evaluation

A critical component of the AIVVP study design was the cultural review and adaptation of the NVVRS instruments for use with American Indian samples (Manson et al., 1996). Although a thorough discussion of these tasks is beyond the current manuscript, the analyses reported here were restricted to measures found to be culturally appropriate and requiring few, if any, changes.

Both AIVVP and NVVRS used multiple measures of PTSD. The NVVRS researchers developed a complex and sophisticated composite diagnosis of PTSD based on these assessments and then extrapolated the results to the lay samples and their underlying populations. Although AIVVP replicated these analyses, the disparities in the clinical sampling methods necessitated differences in the extrapolation procedures that made ethnic comparisons difficult. Therefore, the decision was made to present only the Structured Clinical Interview for *DSM-III-R*, Version NP (Spitzer, Williams, & Gibbon, 1987) results here.

SCID Assessment of PTSD Prevalence

The same version of the SCID was administered to both NVVRS and AIVVP clinical reinterview samples. The AIVVP training and supervision of SCID administration was intensive. All clinical interviews were audiotaped and reviewed by at least one expert clinician for diagnostic accuracy. In order to ensure an adequate level of PTSD assessment expertise, before entering the field, AIVVP clinician interviewers were required to demonstrate adequate interrater reliability in diagnosing PTSD with an expert panel that included all of the NVVRS master clinicians. Specifically, AIVVP clinicians were required to demonstrate that their symptom-level judgments agreed ($\kappa = .80$) with the consensus judgments of the expert panel on four videotaped interviews.

It should be noted that generally the SCID yielded slightly lower prevalence rates than did the NVVRS composite projection models; however, the same pattern of results was found for the ethnic comparisons presented here.

War-Zone Stress Exposure

War-zone stress was measured in both studies with an extensive assessment of the veteran's wartime experiences. Factor analyses of this measure (Kulka et al., 1988) suggested the importance of four underlying constructs: *exposure to atrocities and violence* (e.g., "To what extent were you involved in terrorizing, wounding, or killing civilians?"); *combat exposure* (e.g., "How often did you receive small arms fire from the enemy?"); *deprivation* (e.g., "How often did you experience not having enough water?"); and *loss of meaning and control* (e.g., "How often did you feel a sense of purposelessness?"). Subsequent confirmatory analyses supported, in large part, these four dimensions (King, King, Gudanowski, & Vreven, 1995). For the analyses presented here, the four factors were recoded as indicator variables such that those in the upper quartile received a score of 1 and all others received a 0.

Ethnicity

In the NVVRS, race and ethnicity were derived from self-report, as is traditionally the case in such research. AIVVP, however, used tribal membership as its operational definition of ethnicity. It should be noted that in most publications emanating from the NVVRS, those veterans who were neither African-American nor Hispanic have been included in the "White/other" category. In the analyses presented here, these "others" were excluded from all analyses.

Data Analyses

The NVVRS SCID data were made available by that research team. Data management and variable construction were accomplished using SAS (SAS Institute Inc., 1990). The current and lifetime PTSD diagnoses were created directly from the SCID summary score sheet.

Because of the complex sampling design of the NVVRS, SUDAAN (Shah, Barnwell, & Bieler, 1997) was used to account properly for sample weights and design effects of both the NVVRS and AIVVP data. Current (1-month) and lifetime PTSD diagnoses served as the outcome variables. Age at time of interview and ethnicity were included in all models. The impact of wartime experiences was assessed using the measures derived from the war-zone stress measure. Comparisons of the five ethnically defined samples on select demographic variables, war-zone stress, and PTSD were accomplished using the PROC DESCRIPT procedure in SUDAAN; the logistic regressions used PROC LOGISTIC. Because of the large number of paired comparisons in Table 1, a probability of level of $p < .01$ value was used. With the exception of age, the logistic regressions in Table 2 were conducted as suggested by Hosmer and Lemeshow (Hosmer & Lemeshow,

Table 1. Demographic Comparisons Between Five Samples of American Vietnam Veterans

	American Indian Vietnam Veterans Project 1993–94				National Vietnam Veterans Readjustment Study 1988–89					
	Southwest (N = 316)		Northern Plains (N = 305)		Hispanic (N = 280)		African American (N = 312)		White (N = 585)	
	M (SE)	Post hoc test	M (SE)	Post hoc test	M (SE)	Post hoc test	M (SE)	Post hoc test	M (SE)	Post hoc test
Demographic variables										
Age at time of interview (years)	47.7 (.18)	w,h,a	47.0 (0.22)	w,h,a	40.3 (0.49)	s,p,a	42.0 (0.19)	s,p,h	41.5 (0.20)	s,p
% married	67% (3%)	p,w	47% (3%)	s,h,a,w	72% (4%)	p,a	59% (3%)	w,h,p	77% (2%)	p,h
% college graduates	11% (2%)	w	15% (2%)		13% (3%)		10% (2%)	w	18% (2%)	s,a
% working at least part-time	69% (3%)	w,h,a,p	59% (3%)	w,h,a,s	93% (2%)	s,p	83% (2%)	s,p,w,h	91% (1%)	s,p,a
Vietnam experience										
Age at entry of Vietnam (years)	21.6 (.13)	w,a	21.1 (0.17)	w,a	21.3 (0.53)	a	22.8 (0.18)	s,p,h	22.6 (0.19)	s,p,h
Months served in Vietnam	12.1 (.38)	p,a	13.8 (0.52)	s	12.9 (0.38)		13.8 (0.38)	s	12.9 (0.29)	
War-zone stress exposure										
Exposure to atrocities and violence[a]	25% (2%)	w	34% (3%)	w,h	22% (4%)	p	25% (3%)	w	17% (2%)	s,p,a
Combat exposure[a]	27% (2%)	w	36% (3%)	w,h,a	21% (4%)	p	22% (2%)	p	16% (2%)	s,p
Deprivation[a]	36% (3%)	w,h,a	36% (3%)	w,h,a	19% (3%)	s,p,w	24% (2%)	s,p,w	11% (1%)	s,p,h,a
Loss of meaning and control[a]	29% (3%)	w	27% (3%)	w,a	27% (4%)		36% (3%)	p,w	19% (2%)	s,p,a
PTSD diagnoses (SCID extrapolated back to lay samples)										
Number in clinical reinterview sample	118		100		73		86		95	
Past month PTSD diagnosis	22% (3%)	w	25% (3%)	w	23% (5%)		19% (4%)		10% (3%)	s,p
Lifetime PTSD diagnosis	45% (4%)	w	57% (5%)	w	39% (8%)		43% (7%)		24% (5%)	s,p

Note. N represents number of years for which the data was collected. Superscripted letters indicate the groups differing from the ethnic sample reported in the previous column (at $p < .01$); s = Southwest, p = Northern Plains, h = Hispanic, a = African American, w = White.
[a]The war-zone stress exposure measures were dichotomized at the 75th percentile.

Table 2. Age, Ethnicity, and War-Zone Stress Exposure as Demographic Correlates of Lifetime and 1 Month PTSD

	Past month PTSD diagnosis						Lifetime PTSD diagnosis					
	Univariate relationships			Multivariate relationships[a]			Univariate relationships			Multivariate relationships[a]		
	WALD *F*	Unadjusted *OR*	Confidence interval	WALD *F*	Adjusted *OR*	Confidence interval	WALD *F*	Unadjusted *OR*	Confidence interval	WALD *F*	Adjusted *OR*	Confidence interval
Age at time of interview	4.51*	0.9	0.89–1.00	0.38	0.98	0.91–1.05	0.61	0.97	0.90–1.05	0.27	1.03	0.93–1.1
Ethnicity[b]	2.94*			1.05			5.17***			1.61		
Southwest		2.7	1.4–5.3		1.88	0.62–5.9		2.66	1.5–4.8		1.09	0.32–3.7
Northern Plains		3.2	1.6–6.4		2.24	0.79–6.3		4.29	2.3–8.1		2.51	0.91–6.9
Hispanic		2.8	1.2–6.3		2.15	0.74–6.3		2.07	0.89–4.8		1.66	0.59–4.6
African American		2.3	1.0–5.1		1.03	0.37–2.9		2.42	1.1–5.3		0.88	0.25–3.1
War-zone stress exposure												
Exposure to atrocities and violence	39.24***	24.0	8.9–64.9	34.52***	22.84	8.0–65.1	40.46***	44.28	13.7–142.9	14.11***	17.41	3.9–77.6
Combat exposure	30.60***	12.8	5.2–31.6				34.74***	24.18	8.4–69.9	4.57*	3.88	1.1–13.5
Deprivation	15.24***	7.4	2.7–20.2				8.08**	6.88	1.8–26.1			
Loss of meaning and control	2.4	2.2	0.81–5.9				12.85***	7.92	2.6–24.6	4.97*	6.67	1.3–35.5

[a] With the exception of age and ethnicity, the multivariate models were restricted to those variables with bivariate relationships with PTSD significant at least $p < .25$. The trimmed models are presented here.
[b] An overall WALD test is reported for this multilevel variable.
*$p < .05$. **$p < .01$. ***$p < .001$.

1989) where only those demographic correlates demonstrating a bivariate relationship at $p < .25$ with PTSD were included in the multivariate models.

Results

As seen in Table 1, both American Indian samples were 5–7 years older at the time of interview—this was expected since AIVVP took place after NVVRS. The Northern Plains veterans were less likely than all other samples to be currently married. The Southwest American Indian sample and African Americans were less likely than Whites to have a college education. The Northern Plains veterans were least likely to be working at the time of interview, followed by the Southwest sample.

Looking at descriptions of the veterans' experiences in Vietnam, both American Indian samples tended to be younger than African Americans and Whites when they entered Vietnam. On average, the Northern Plains served more months in Vietnam than did the Southwest Indian veterans. In looking at the war-zone stress exposure, the Indian samples were consistently more likely to be in the upper quartile than were White veterans. Perhaps the greatest ethnic variability occurred on the Deprivation factor where Whites were least likely to score high on this measure, while Hispanics and African Americans were moderately likely; the American Indian samples differed from all others in the greater amounts of deprivation reported.

Finally, the two American Indian samples were more likely to qualify for a PTSD diagnosis—both lifetime and within the past month—than were the White samples. Although not presented in this table, the differences in PTSD prevalence between the White and both the Hispanic and African-American veterans were marginally significant ($p \leq .10$).

Table 2 presents the results on the degree to which age, ethnicity, and the factors of war-zone stress exposure explained differential PTSD prevalence. Current PTSD and lifetime PTSD were modeled separately. The first set of columns within the current and lifetime sections of the table presents the magnitude of the bivariate relationship between each of these variables and PTSD; the second set of columns presents the multivariate results. For current PTSD, we found that age at time of interview, ethnicity, exposure to atrocities and violence, combat exposure, and deprivation each had significant bivariate relationships with current PTSD, notably loss of meaning and control did not. When these variables were placed in a multivariate model, only exposure to atrocities and violence retained a significant relationship with current PTSD.

Considering the relationships of these variables lifetime diagnosis of PTSD, we found a similar pattern bivariate results. In this case, however, age at time of inte view was not related to lifetime PTSD while loss of mea ing and control did have a significant relationship. Tl multivariate results again indicated that exposure to atro ities and violence has the strongest relationship to lifetin PTSD. Furthermore, in this instance, combat exposure ar loss of meaning and control continued to be related to th outcome in the multivariate equation. Again, ethnicity r longer had a significant relationship with PTSD once tl indicators of war-zone stress exposure were included i the analyses.

Discussion

These results affirm that American Indian Vietnan veterans had higher rates of lifetime and current PTSI diagnoses than did the White veterans interviewed as par of the NVVRS and that these disparities appear largel because of differential Vietnam war-zone stress exposure

We reach this conclusion after considerable effor to investigate alternative hypotheses. The lapsed time between NVVRS and AIVVP was perhaps the most troubling difference between these companion efforts. Optimally, both would have been conducted at the same time; however, Congress mandated the latter effort only after the NVVRS results were made public. As a result, the AIVVP veterans were significantly older at time of interview. This presents several problems. Time since Vietnam was greater for the American Indian veterans; thus the AIVVP respondents have had longer time either to develop problems or to recover from them. This limitation was partially addressed by including age at time of interview in the logistic analyses and by attempting to include in these models only those variables that were not expected to vary greatly over time. The fact that war-zone stress exposure and, in particular, exposure to atrocities and violence had the strongest relationship with PTSD suggests that it was war experiences and not what occurred to these veterans after Vietnam that explained the differential rates.

Another alternative hypothesis for these results is that of response bias. One might find a similar pattern of results if the American Indian veterans were more likely to endorse PTSD symptoms and to magnify their war-zone experiences than were others. Prevalence rates based on the SCID should be less likely than others to be effected by response biases on the part of veterans, either individually or in aggregate, because it was left to clinicians to assess and probe the validity of diagnoses. Although the SCID

is susceptible to different biases (Grayson et al., 1996), AIVVP went to extraordinary efforts to assure that this measure was being administered as it was in NVVRS. Additionally, the basic pattern of PTSD results presented was found in all of the additional PTSD measures included in the two studies. Military indicators supported the self-reports of greater war-zone stress exposure by the American Indian veterans. For instance, we found that the American Indian veterans were also more likely to have been enlisted men, to have served in the Army or Marines, to have received combat medals, to have served in I-CORPS, and to have been wounded or injured in Vietnam. (National Center for Post-Traumatic Stress Disorder and the National Center for American Indian and Alaska Native Mental Health Research, 1996). Thus, considerable evidence suggests that both the PTSD prevalence data and the description of war-zone experiences given here have considerable internal validity.

Supporting evidence springs from another quarter—the ethnographic work that was an essential component of AIVVP. Over the past 10 years, our ethnographers have conducted and analyzed many interviews with American Indian Vietnam veterans, their family members, and local providers that shed light on these findings (Manson et al., 1996; O'Nell, 2000). For example, many veterans felt that being American Indian directly increased their exposure to combat. The following experience proved common among AIVVP participants.

> I came down to organizing for the patrol. They said, "We need a point man. We need volunteers." No sooner he said that and then he perked up and he looked directly at me and said, "We got any Indians around here?" I stood there like a dummy and he says, "If any Indians out here, take a step forward or raise your hand." Well, all the rest of the patrol took a step backward, and there I was.

Then, too, many American Indian Vietnam veterans reported a profoundly troubling identification with the enemy, in several senses:

> Some of our own troops shot at me! Thought I was a gook.... I remember screaming at them... Jesus, as if there weren't enough of the NVA (North Vietnamese Army) already shooting at me. Got so you could only trust the guys in your own unit.
>
> We entered this ville... destroyed by artillery, we had called in. It was horrible, bodies everywhere... children, women, old people. This mamasan staggered from a hut, hurt really bad. She looked at me, grabbed my hand, pointed at it, and said: "Same, Same." My skin, of course. Same shade as her, as all of them... Looking at the children and elders here, on our reservation, I see the faces of those who died there, then. That happened over and over...

Hence, being Native increased these men's exposure to violence and combat, but also may have compounded its assault on their psyches.

Limitations

The American Indian data were limited in several ways. First, because of fiscal constraints, the decision was made not to include their Vietnam era veteran or civilian counterparts as quasi-experimental control groups, as was done in NVVRS. Only male Vietnam theater veterans were included in this effort due to the small number of females. Further, AIVVP was limited to only those veterans currently living on or close to (within 50 miles of) their respective reservations. In these specific communities, we have been able to estimate that approximately 35% of the Vietnam theater veterans live elsewhere. Little is known about these American Indian Vietnam veterans and whether their levels of PTSD might be higher or lower when compared with those remaining near their home communities. It should be noted, however, that use of tribal rolls provides the best method of recruiting such men. In most urban areas, American Indians comprise only a small percentage of the population and are dispersed throughout the population (Eriksen, 1996; Sandefur & Lisper, 1996). In the case of AIVVP, with its focus on service utilization as well as epidemiology, the focus upon two reservation-based samples was considered an important first step toward understanding the experiences of American Indian Vietnam veterans.

Additionally, only two American Indian tribes were sampled. The selection of these specific groups was a deliberate attempt to maximize cultural diversity while preserving sufficient statistical power to permit comparisons. Generally, the results suggest that the similarities were greater than the dissimilarities, with the only differences found in the demographic variables. More specifically, the Southwest veterans were more likely to be married and to be working than were their Northern Plains counterparts. That no differences were found between tribes for the war-zone exposure and PTSD variables might suggest generalizability for the larger American Indian Vietnam veteran community; however, the special experiences and needs of other tribally defined subgroups were not addressed by these data. Additional analyses of these data suggest that service utilization patterns in these two samples of American Indian veterans are quite different in meaningful ways (Gurley et al., 2001).

As with all studies of this type, both the NVVRS and AIVVP studies relied upon retrospective measurement of lifetime PTSD prevalence. Furthermore, assessments of military traumas and other wartime experiences required

the veterans to remember events that took place as many as 25 years previously. Therefore, causal inferences should be made cautiously. Perhaps of greater concern, some discussion in the literature recently has focused on the impact on PTSD prevalence of biased recall of traumatic events (Southwick, Morgan, Nicolaou, & Charney, 1997). At this juncture, independent verification of the traumas reported by Vietnam veterans is impossible. The data presented here were collected using the same methods and safeguards as other seminal work in the PTSD field and no reason exists to believe that American Indian veterans are more or less prone to recall biases.

Another limitation of note was a consequence of the analytic strategy chosen. By basing the prevalence data on the SCID, we were limited to the clinical sample in the development of these rates. An alternative would have been to base the estimates on one of the two PTSD measures included in the lay interview: the M-PTSD or the lay diagnostic data. Partially because of the continued evolution of the DSM-based diagnoses and accompanying changes in measurement methods, different lay diagnostic instruments were used in AIVVP and NVVRS. Thus, a straightforward comparison based on such measures would have been problematic. The M-PTSD does not generate a diagnosis and is of unproven validity among American Indian veterans. Thus, neither option provided in the lay interview seemed appealing. Although use of the sample weights for the SCID allowed appropriate inferences to the lay samples, statistical power was necessarily curtailed in the comparison of prevalence rates and in the logistic regressions, because those analyses were based on these smaller subsamples.

Finally, the outcome of interest here was restricted to PTSD. Work with other populations has suggested important relationships between exposure to traumatic stress and other mental health or substance use disorders (Brown, Fulton, Wilkeson, & Petty, 2000) and even physical health problems (Eisen et al., 1998). Other research has pointed out the restrictiveness of looking at only negative outcomes (Wolfe, Keane, Kaloupek, Mora et al., 1993), whereas others have suggested that the concept of traumatic stress and its consequences are culturally limited (Bracken, Giller, & Summerfield, 1995).

Conclusion

This study demonstrated that the rates of PTSD varied among ethnically defined samples of Vietnam theater veterans; these differences were explained largely by wartime experiences and, in particular, exposure to atrocities and violence. Although others have reported similar findings (Green, Grace, Lindy, & Leonard, 1990; MacDonald, Chamberlain, & Long, 1997), never b have American Indian veterans been included in cient numbers to allow separate conclusions. Althoug presented preliminary data that the American Indiar erans were more exposed to atrocities and violence di Vietnam, we have only scratched the surface in tern understanding why this happened. For example, to extent is the differential exposure explained by mil and other demographic factors such as educational l before enlistment and rank in the military? Were Amer Indian personnel more likely to be placed in dangerous uations than others were? Race and ethnicity are, and remain, important indicator variables for furthering understanding of psychiatric disorder; this effort reaffi the importance of moving beyond a simple notation of ferences and the need to "unpack" the social constructi that race and ethnicity represent.

Acknowledgments

The National Center for American Indian a Alaska Native Mental Health Research is supported the National Institute of Mental Health (MH43175, Spe Manson, PI). Funding for the American Indian Vietna Veterans Project was provided by the Veterans Admin tration as a supplement to MH43175.

This effort would not have been possible witho the assistance of many researchers. Included among the are the original NVVRS research team: John Fairban Kathleen Jordan, Terence Keane, Richard Kulka, ar William Schlenger. Several members of the NVVRS Ac visory group also worked with AIVVP, including Evely Bromet, Bruce Dohrenwend, and Stanislav Kasl. Rudolp Moos, Lisa LaVange, and Richard Hough each contribute in specific ways. Special thanks to Tamara Holmes an Monica McNulty, who conducted earlier versions of th analyses presented here. Finally, appreciation also is exte nded to the American Indian Vietnam veterans, their fam ilies, and communities, to whom this work is dedicated.

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