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**THE PSYCHOLOGIC
RISKS OF VIETNAM FOR U.S. VETERANS:
A REVISIT WITH NEW DATA AND METHODS**

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SUPPORTING ONLINE MATERIAL

Materials and Methods

The full NVVRS sample of male Theater veterans. The main NVVRS sample consists of 1,200 U.S. “Theater” veterans, that is, men who served in Vietnam, in surrounding waters, or on U.S. bases in Thailand and elsewhere (e.g., Guam), usually for a year, at some time between August 1964 and May 1975. This sample was drawn on a full probability basis from military records. In the complex sampling design, all sample veterans had known but not equal probabilities of being drawn; for example, black and Hispanic veterans were over-sampled to provide adequate numbers for analyses of these subgroups. With appropriate sampling weights, the results can be generalized to the population of about 3.14 million male Theater veterans, excluding only those (under 10%) still on active duty when the study was conducted 11 – 12 years after the war (*S1*, Appendix B).

The diagnosed subsample. A subsample of 260 respondents in 28 Standard Metropolitan Regions (SMRs) received diagnostic examinations by experienced, doctoral level clinicians (*S1*, Appendix D). As with the full sample, the completion rate was well over 80%. Suitably weighted, the subsample results can be generalized to the population of male Theater veterans from the 28 SMRs. The relevant full sample or subsample weights are used in all analyses.

The diagnoses of PTSD. By design, the experienced doctoral level clinicians conducting the examinations were not employees of the Veterans Administration. They used the DSM-III-R (*S2*) version of the Structured Clinical Interview for Diagnosis (SCID) (*S3*). An independent reliability check of 30 taped clinical interviews found inter-examiner reliabilities (kappas) for the diagnoses of current and lifetime PTSD of .87 and .94, respectively (*S4*).

The diagnostic examiners recorded the times of occurrence of traumatic events and onsets of symptoms (*S5*). From this information, we estimated that 1.3% of the veterans had first onsets of PTSD prior to Vietnam service and 0.1% first onsets that could be attributed to a post-Vietnam traumatic event in the absence of prior Vietnam-related PTSD. There are too few veterans (four) with pre-Vietnam first onsets to analyze

as a separate group. With these removed, the rate of war-related first onsets of PTSD is 22.5% (s.e. 3.4%) and the rate of still current war-related onsets 12.2% (s.e. 2.3%).

The SCID included Global Assessment of Functioning Scale (GAF) to measure impairment of functioning. The GAF ranged from 9 (good functioning in all areas) to 1 (persistent danger of severely hurting self or others), with anchoring examples of poor functioning or distress symptoms at each level.

To get an idea of the types of criterion traumatic events involved in these diagnoses, we extracted descriptions of the events from the tape-recorded clinical interviews and responses to open-ended questions in the survey interviews from all subsample veterans (*S1, S6*), and we rated these accounts blind to diagnostic outcomes. At least one personally life-threatening event was reported by 86.6% of the 90 Theater veterans in the subsample with war-related onsets. The remainder reported other traumatic events, most usually witnessing deaths or serious injuries of other U.S. military personnel or of Vietnamese prisoners or civilians.

The NVVRS algorithm for current PTSD. The NVVRS measure of PTSD in the full Theater sample is the predicted probability of being a current case according to a complex calibration of self-report symptom scales against SCID diagnoses in the subsample (*S1*, Appendix E). The resulting 15.2% current prevalence for Theater veterans is much higher than the 2.5% rate for other veterans who served at the same time but not in the Vietnam theater (Era veterans) (*S6, page xxvii*). For Theater veterans in the 28 SMRs, the rate of current PTSD according to the algorithm is 15.4%, almost identical to the rate in the Theater sample as a whole. This suggests that the subsample is similar, with regard to PTSD, to the sample as a whole.

SOM Text

Further fuel for skepticism. Anecdotes about fraudulent claims of military prowess in Vietnam by some individuals in the public eye (*S7*), possible falsification of war-zone experiences by Vietnam veterans seeking compensation for psychiatric disability (*S8*), and evidence of recall biases in reports of combat experiences (e.g., *S9*) have further fueled skepticism. Critics have called for verification of veterans' retrospective reports using military personnel files (201 files) (*S10-S12*). Some have suggested that the integrity of the PTSD data base may be at stake (e.g., *S8, S11*).

Further information from military histories about this “war without fronts.” Dean (*S13*) has been cited (e.g. in *S11*) as the source of the figure of 15% in combat, which probably includes 10.5% who were infantrymen (see ref *S14*, p. 238) and their combat counterparts in the Marines, Navy, and Air Force. However, the 15% clearly does not include 14% who were regularly exposed to combat hazards while serving in support roles, such as combat engineers and artillery personnel (see ref *S14*, p. 238). Our estimate from data in the 201 files of the NVVRS Theater veterans is that 23.1% served in high combat exposure MOSs, such as infantrymen, medics, combat engineers, cannon crewmen, and cannon-fire direction specialists (*S15*).

Estimates of the percentage exposed to combat dangers increases when Vietnam is recognized as a “war without fronts” rather than a conventional war (*S16*). For U.S. forces, 30.4% of combat engagements were “organized enemy attacks against U.S. static defense perimeter[s]” (ref *S17*, pp. 461-462). U. S. bases were regularly at risk of such “standoff attacks” by mortars, rockets, and recoilless rifles (*S16*). From 1967-1972, North Vietnamese and Vietcong troops launched an average of about 14,000 standoff attacks per year (see ref *S16*, pp. 46-47). Against this background, Kolko estimates that, in all, 50% of soldiers were considered “combat forces” (ref. *S18*, p. 361), and Baskir and Strauss conclude that about 1.6 million of the 2.15 million men they estimate were assigned to tours in Vietnam itself “served in combat” (ref *S19*, p. 53). The latter estimate is close to Kolko’s when we add supporting troops on ships and land bases in Thailand and elsewhere (e.g., Guam), increasing the denominator to about 3.14 million. Karnow has suggested that some degree of appreciable risk was near universal, noting that, “While infantrymen obviously faced greater risks, headquarters typists were also vulnerable” (ref *S20*, p. 479).

Further description of the record-based military/historical measure (MHM) of probable severity of exposure to war-zone stressors. The resulting composite MHM consists of four categories ranging from probable very high to low severity of exposure. Veterans in the high and very high categories (11.7%) typically had high exposure MOSs, were in large military units with high KIA rates, and served at times of high U.S. KIA rates; men in the very high category (3.2%) were further distinguished by having been in small units (e.g., companies) that suffered 10 or more KIAs during the veteran’s service. By contrast, veterans in the low exposure category (19.8%) typically had low exposure MOSs, served in large units with low KIA rates, served at times of low KIA rates, and were in small units with no KIAs during the veteran’s service. The remaining veterans in the moderate exposure category (68.4%) differed from those in the low mainly in that most served in Vietnam when KIA rates were moderate or high rather than low.

Impairment of functioning in veterans with past war-related PTSD. Of those with past war-related PTSD (“past group”), only 7.2% were rated mild when the disorder was at its worst; 73.6% were rated moderate, and 19.2% severe. This suggests that the past group had disorders that were at least as severe at their peak as the disorders in the group with current PTSD at the time of diagnosis (“current group”). It follows that, like the current group (see Table 1 in main Report), at least 85% in the past group had significantly impairing PTSD. The data on seriousness of past disorder are, however, retrospective. There is a strong need to check and extend this evidence of recovery with a longitudinal follow-up of the NVVRS sample.

Question of falsification or exaggeration of veterans’ PTSD symptom reports. Although interview and questionnaire methods for detecting dissembling are far from ideal (*S21*), data were available for subsample veterans from which we were able to construct three MMPI “fake bad” and “dissembling” validity scales (*S22-S26*). Mean

scores on each scale and percents above the usual cut-offs on all three scales were not elevated in the discordant exposure groups.

The one indication of possible exaggeration emerged in our analysis of current PTSD measured by the NVVRS algorithm in the full Theater sample ($n=1,200$). The rate among veterans reporting high war-zone stress was 46.9% in the context of low MHM exposure (sample $n=22$) compared with 26.7% in the context of high MHM exposure (sample $n=96$) and 37.4% in the context of very high MHM exposure (sample $n=73$). However, these differences are not statistically significant with the small sample size in the most discordant exposure group. More important, they do not replicate with SCID diagnoses in the subsample.

Additional detail on the results of checks with data from the 201 files. Two of the record-based indicators, service during the Tet offensive and attachment to a high casualty division, arguably represent less likelihood of severe exposure than the others. Ten of these 47 subsample veterans had only these indicators. We examined descriptions of their war-zone experiences to see if they reported less severe events, such as witnessing rather than personally experiencing life-threatening events. As in the onset group as a whole, the large majority, 86.7% described experiencing personal life threats.

The eight subsample veterans whose accounts of combat exposure could not be confirmed by any of the independent sources. Record information was contradictory for only two of these veterans: one reported several combat medals, with no supporting evidence in his 201 file; the other's account of his exploits seemed out of proportion, and the diagnosing clinician noted that he may have been somewhat delusional.

Effect on dose/response relationship of removing subsample veterans with diagnoses of war-related PTSD but with unconfirmed traumatic exposure and no more than slight impairment. With these veterans removed, current war-related PTSD in the very high exposure group was reduced to 23.4% and in the low exposure group, it was reduced to zero. These results compare favorably with the previous dose/response findings using the algorithm for current PTSD and the NVVRS self-report war-zone stress measure ($S1$, $S6$).

Limitations of the record-based MHM measure of probable severity of exposure to war-zone stressors. It should be noted that, while not susceptible to recall bias, the MHM provides a less than complete account of the war-zone stress experiences of Vietnam veterans. Comprehensive as well as firm measurement of exposure requires data from both military records and detailed accounts of individual experiences obtained as soon as possible after the exposures take place.

References and Notes

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Table S1. Relation of company rates of killed in action (KIA) during veteran’s tour to previous composite military/historical measure (MHM) of probable severity of exposure to war-zone stressors in male theater sample as a whole

Previous Composite MHM	Company Rates of KIA				Total
	None	One	2 - 9	10 or more	
Low Combat Exposure (n=151)	71.4%	9.8%	16.0%	2.9%	100.0%
Moderate Combat Exposure (n=641)	53.5%	14.3%	24.9 %	7.3%	100.0%
High Combat Exposure (n=212)	17.3%	15.4%	37.2%	30.1%	100.0%
Total (n=1004)*	52.4%	13.5%	24.7%	9.4%	100.0%

*Number of KIA in the companies of 196 of the veterans could not be ascertained. These veterans were assigned to low, medium or high probable severity of exposure on the basis of the other three MHMs.