

BRIEF REPORTS

Perpetration-Induced Traumatic Stress in Combat Veterans

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The hypothesis that posttraumatic stress disorder (PTSD) associated with killing is more severe than that associated with other traumas causing PTSD was tested on U.S. government data from Vietnam war veterans. This large stratified random sample, the National Vietnam Veterans Readjustment Study (NVVRS), allows for generalizable findings. Results showed that PTSD scores were higher for those who said they killed compared to those who did not. Scores were even higher for those who said they were directly involved in atrocities compared to those who only saw them. PTSD scores also remained high for those who said they had killed, but in traditional combat form. The data did not support the alternative explanations that higher battle intensity or a predisposition to over-reporting of symptoms might account for these findings.

Research in Posttraumatic Stress Disorder (PTSD) has focused almost entirely on people who have in one way or another been victims of trauma. The concept of PTSD began with soldiers and has been applied to victims such as refugees, concentration camp survivors, and crime victims. However, even in the case of the soldiers, the idea that the act of killing could be a form of trauma that could cause PTSD has received very little attention.

There are at least three major reasons for this neglect. One is sympathy for the military veteran and denial that he has anything to feel guilty for. A second is a desire to blame the enemy for any harm to the veterans, not the country responsible for sending them into war. Finally, there are those for whom people have no sympathy at all, such as Nazis, slave-catchers, or torturers. Acknowledging such people as having pain does not occur to many.

On the few occasions when the variable of killing has been examined, the conclusion is that resulting PTSD is more severe than PTSD from other causes. For example, as early as 1975 Strayer and Ellenhorn found that in comparison with other combat veterans, participation in atrocities by Vietnam veterans brought more symptoms in terms of withdrawal, hostility, and life-outcome maladjustment. Breslau and Davis (1987) commented that participation in atrocities and the cumulative exposure to combat stressors, each independently of the other, conferred a significant risk for PTSD. Green (1990) sets forth a set of eight categories for stressors that can cause PTSD, and the final one is “causing death or severe harm to another.” She notes, without references, that “causing death has been shown to predict worse psychological outcome” (p. 1638). Hendin and Haas (1984) look at the association of killing and severity of PTSD symptoms from the opposite direction, saying “we will discuss our study of combat veterans who have not developed posttraumatic stress. It is significant that none of the veterans in that group was involved in non-military violence” (p. 28).

An army officer, Lieutenant Colonel Grossman (1995), wrote an entire book on PTSD as a result of committing violence, entitled *On Killing: The Psychological Cost of Learning to Kill in War and Society*. This book is the only major source to consider at length the subject of killing as ordinarily required in combat, not just atrocity, as a source of PTSD. It is a qualitative description of Grossman’s conclusions from counseling combat veterans.

Grossman points out that many studies have shown that throughout history only a small portion, perhaps 15 to 25%, of soldiers have actually killed in combat. The military added operant conditioning training to bring this rate up, and succeeded. The rate went up to around 55% in the American war in Korea and 90% in Vietnam. It was the veterans of Vietnam who occasioned the definition and diagnosis of PTSD. Grossman argues that the operant conditioning provided little if any protection against development of PTSD, and the higher rate of killing may help to account for why PTSD appeared so much more prevalent among veterans of this war. This could be the case if PTSD associated with the act of killing is in fact more severe than other traumas causing PTSD.

Only a few of the previous studies using the U.S. government data set (described following) have considered the concept that “atrocities” might be one of the independent variables predicting PTSD scores. Those that have (Beckham, Feldman, & Kirby, 1998; Fontana & Rosenheck, 1995; King, King, Gudanowski, & Vreven, 1995) did not distinguish between witnessing atrocities and participating in them. Only Fontana and Rosenheck considered killing in traditional combat as opposed to atrocities. In all cases, “exposure to atrocities” was one of many possible independent variables. None made a direct comparison of those who killed in general with those who did not, separate from the question of atrocities.

Other studies have used the variable of killing on treatment-seeking veterans (Hendin & Haas, 1984; Laufer, Gallops, & Frey-Wouters, 1984; Yager, Laufer, & Gallops, 1984). These studies are on relatively small and skewed samples, and therefore are limited in generalizability.

If it were confirmed that PTSD symptoms are more severe for those who killed than for those who did not, there are alternative explanations for the results. One possibility is that killing may be nothing more than a marker for how intense the battle activity was. Battle intensity has long been known to be dose-responsive with level of PTSD (Kulka, et al., 1990). That is, the greater the dose of trauma, the greater the response in frequency, number, and severity of symptoms. This is logically required if PTSD is caused in large part by an etiological trauma. If the perpetration variable is nothing more than a marker for battle intensity, then the higher levels of PTSD symptomatology are sufficiently explained. Another alternative is that those who kill may not be suffering more symptoms so much as inclined to report more symptoms. That is, there may be an association with negative affectivity, or perhaps a negative response bias.

RESEARCH QUESTIONS AND HYPOTHESES

The primary research question is: do those who kill have greater severity of PTSD than those who do not? Many studies have drawn the conclusion that this is likely (Green, 1990; Grossman, 1995; Hendin & Haas, 1984; Laufer, Gallops, & Frey-Wouters, 1984; Strayer & Ellenhorn, 1975; Yager, Laufer, & Gallops, 1984). To test this question, the primary hypothesis is that the perpetration groups (defined following) will have a significantly higher mean on the overall PTSD score than the nonperpetration groups.

Additionally, the difference between those who killed in atrocities and those who killed under traditional military justification needs attention. If committing atrocities is the actual etiological mechanism, then the PTSD scores for a group that engaged in killing could be higher only because those who commit atrocities are in that group. They would raise the mean average, distorting the effect for those who killed in circumstances traditionally regarded as militarily justified.

The alternative explanations, battle intensity and negative response bias, also need to be investigated. Addressing these possibilities will be discussed following.

METHOD

The National Vietnam Veterans Readjustment Study (NVVRS) was a study mandated by the United States Congress. It was conducted in the mid-1980s on a large

stratified random sample of Vietnam-era veterans. Participants in the NVVRS were drawn from Vietnam theater veterans and other veterans of the same era who never went to combat in Vietnam. For the purpose of this study, only the combat veterans ($n = 1,638$) are selected.

The PTSD measure is the Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988) with an additional four items added by the NVVRS researchers. This is the most commonly used scale in veteran populations (Briere, 1997, p. 133). It uses a 5-point Likert scale by which veterans rate their symptoms.

To divide the entire sample into those who said they had killed and those who said they had not, one item from the NVVRS was used. The question was asked “Did you ever kill or think you killed someone in Vietnam?” The 639 veterans who answered *yes* were considered the target group, and the 963 combat veterans who answered *no* were considered to be the control group.

In order to compare over-all killing with the sub-category of involvement in atrocities, a sub-set was selected using the following items:

1. There was a question about being in a situation where women, children, or old people were killed. Only those who answered *yes* were selected. Of those, 306 veterans said they only saw it happen, whereas 226 said they were directly involved.
2. There was a question about being in a situation where a prisoner was injured or killed. Again, only those who answered *yes* were selected. Of those, 224 said they only saw it happen whereas 94 said they were directly involved.
3. There was a question about being in a situation where civilians were injured or killed. Of those who answered *yes*, 279 said they only saw it happen and 135 said they were directly involved.

This sub-set of people exposed to atrocities is a combination of these three items, in which those who answered “directly involved” on any one of the three items were placed in the “perpetration” group ($n = 270$). The comparison group consists of those who answered “only saw” to at least one, but never answered directly involved, and also answered *no* on the question on having killed anyone ($n = 154$). Those who “only saw” on one of the items but had also answered *yes* to killing are not selected for this comparison. By answering *yes* to killing, they were in a perpetration group that could not appropriately be mixed with the nonperpetration group, but which also did not fit into the perpetration group when atrocities alone are being considered.

There are two purposes to using this sub-set. One is to compare “atrocities” as opposed to traditional combat killing. The other is to ensure that everyone had been exposed to a traumatic situation. Many of those who answered “no” in the overall group may not have been so exposed, making their lack of

symptomatology unremarkable. Those who “only saw” the previously mentioned forms of killing will have been exposed to what most people would perceive as a trauma, making a comparison between those who did kill and those who did not more clear-cut.

Finally, another sub-set was created to further understand the difference between atrocities and traditional combat killing. The perpetrators of “abusive violence” may simply raise the PTSD scores, as a sub-category of the group who answer *yes* to having killed. As a check on this, all who answered *yes* to killing civilians, prisoners, old people and children were deleted from those who answered *yes* to killing. This presumably would leave a sample of people whose killing was somewhat under a “traditional combat” scenario. This is not a rigorous measurement, but it is the one available with the given data set.

As a check on the alternative explanation of PTSD severity being due to the greater battle intensity associated with killing, two processes were done. One is a simple univariate chart comparing mean scores at each of the four levels of battle intensity for those who said *yes* on killing and those who said *no*. The second is a multiple regression to partial out the relative influences of the two variables on the PTSD score. Battle intensity and group assignment (to either *no* on killing, with a score of 1, or *yes* on killing, with a score of 2) were the two independent variables. The score on the Mississippi scale plus four items was the dependent variable.

Finally, an alternative explanation if there are higher scores is that there is a negative response bias. To test for this, there are two possibilities. One is the L subscale for the sub-set of those who took the MMPI ($n = 294$), which is designed to test for negative response bias. The other test comes from a more detailed symptom list answered by a sub-set of 340 combat veterans. It has three symptoms that have nothing to do with PTSD. There is no theoretical reason to believe that there would be differences between perpetration and nonperpetration groups on these items. These are: retarded pace of actions, tremors or tics, and clumsiness or carelessness. *T* tests on these three could serve as a check on a negative response bias.

RESULTS

The primary question was whether PTSD scores would indeed be higher for perpetration groups than for the comparison groups. The mean score on the Mississippi scale (plus four items) for those who answered *yes* to killing was 93.4 ($SD = 25.2$), whereas the mean for those who answered *no* was only 71.9 ($SD = 17.3$). The *t* test for equality of means shows the difference is significant ($p < .001$). There is very large effect size—Cohen’s *d* is .97, meaning that they differ by almost an entire standard deviation.

For the sub-set involved in atrocities, the mean score for the directly involved was 105.6 ($SD = 30.6$), whereas that for the group that answered that they only saw, and also answered *no* on the question of killing, was 79.4 ($SD = 30.3$). The *t* test difference is significant, $p < .001$, with a Cohen's *d* for effect size still quite large, at .86.

For those who answered *yes* to killing, but did not answer *yes* to killing civilians, prisoners, old people and children, the mean PTSD score went down to 86.5. In other words, those who were directly involved in atrocities did raise the mean average PTSD score of all those who killed, but they are not entirely responsible for the higher scores. Comparing this to the mean of 71.9 for those who said *no* on killing, the Cohen's *d* to measure the effect size of the difference went down to .74. This means that although killing outside military standards is associated with higher PTSD scores compared to killing within such standards, killing alone is nevertheless associated with higher levels of PTSD.

For the primary question, confirmation of the hypotheses is clear. The PTSD pattern of symptoms is more severe for those who kill than for those who do not.

Alternative Explanations

Battle intensity was measured on a self-rated scale: almost none, light, moderate, and heavy. This was according to the veterans' own assessment many years later. Killing is measured on a dichotomous *yes/no* scale. Number of incidents of killing is not included, because this was never asked.

Table 1 shows the mean PTSD scores in the main set according to level of battle intensity. The mean scores are charted for battle intensity (practically none, light, moderate, and heavy) for each of the two answers, *yes* and *no* on killing. The mean scores rise steady in each cell of the table, starting with the nonkilling group with no combat and going up to the killing group in heavy combat. The only exception is for the cell of those who killed but had almost no combat, and this is easily ac-

TABLE 1
PTSD^a Scores by Battle Intensity

| | <i>Answer on Killing</i> | | <i>p</i> | <i>Cohen's d</i> |
|-------------------------|--------------------------|---------------|----------|------------------|
| | <i>Yes (n)</i> | <i>No (n)</i> | | |
| Self-rated battle level | | | | |
| Almost none | 66.47 (175) | 73.67 (6) | .250 | .48 |
| Light | 70.62 (507) | 85.53 (118) | .000 | .82 |
| Moderate | 77.87 (191) | 91.04 (284) | .000 | .57 |
| Heavy | 80.25 (59) | 101.35 (212) | .000 | .75 |

Note. ^aPTDS = post traumatic stress disorder.

counted for by the group size of only 6. Particularly noteworthy is that not killing in heavy combat entails a lower mean PTSD score than killing in light combat does.

A regression was run using the PTSD score as the dependent variable and killing and battle intensity as the independent variables. Those who said *yes* to killing had a score of two and those who said *no* had a score of one, and this was treated as if it were an ordinal scale measuring killing. The results show that when battle intensity is held constant, killing still contributes considerable predictive power to the PTSD scores. Beta for battle intensity was .24, for killing was .30, $F = 225.27$, $R^2 = .225$, $p < .001$.

Another alternative explanation is that of a personality predisposition toward over-reporting of symptoms. One of the ways to test this was the L-scale in the MMPI, which is designed to measure this predisposition. For the sub-set of 294 combat veterans who took the MMPI, the difference between those who said *yes* on killing and those who said *no* is not significant, with mean scores both rounding off to 51.4, $p = .94$.

The other test of this explanation is with the three items in an extensive list of symptoms that have nothing to do with PTSD—retarded pace of action, tremors or tics, and clumsiness. These items were not expected to differ between those who answered *yes* on the killing item and those who answered *no*, unless those who answered *yes* were by disposition inclined to endorse more symptoms whether they had them or not. The three items did, in fact, show no significant differences, with p values of .85, .18, and .68 respectively.

Neither test in the two sub-sets—the MMPI nor the three nonrelated items in the more extensive list of symptoms—is consistent with a case for symptom over-reporting as the explanation for higher PTSD scores in the *yes* on killing group.

DISCUSSION

This NVVRS data, unlike most studies of combat veterans, was gathered on a large sample size with a stratified random sample design of the entire population of veterans of that era. Accordingly, prevalence rates of PTSD symptoms for Vietnam veterans as a whole were inferred in the official report (Kulka, et al., 1990). Prevalence rates for sub-categories, such as those who killed and those who did not, can be inferred in the same way.

PTSD scores are higher for those who answer *yes* to killing than for those who answer *no*. This remains true after those who admitted to being directly involved in atrocities were removed. Those who said they were directly involved in the killing of civilians or prisoners also had higher scores than those who said they merely observed such actions. In all cases, effect sizes were large. The higher scores remained when controlling for battle intensity. Non-PTSD symp-

toms that were not expected to be higher for those who said they killed were in fact not higher, weakening an argument for a tendency to over-report symptoms in that group.

There are numerous limitations of this study, many of which deal with the fact that the collection of data was not initially designed to answer the questions asked here. The data are based on self-report, and no corroborating evidence was sought. Military records are not designed to confirm or disconfirm specific events. A self-rating of memory of combat exposure is very limited, especially compared to the more customary and more detailed combat exposure scales.

Many of the people who classified themselves as not having killed anyone may be in a state of denial because the memory is too painful. Many who classified themselves as having killed may be in a state of denial about how much they covered through the experience. They want to remember themselves as more brave and more participatory than they actually were. The Vietnam War had been over for about a decade at the time these data were gathered, so the answers were based on memories that were not recent. As is usual with Likert-type responses to short statements, a lot of nuances and ambiguities get lost in the answers. The same circumstances in Vietnam may have been evaluated differently by different respondents, so that they gave different answers to what objectively look like the same conditions.

Furthermore, killing or not killing was a dichotomous variable, making no allowances for amount of killing. Killing one person was no different from killing hundreds. There was very little allowance for the qualitative aspects of killing, and none for such complex variables as whether or not it was self-defense or rage, under orders or against them, seen directly or unseen, face-to-face or anonymous. Was it done by someone who eagerly enlisted, or someone who was very reluctantly drafted? Even in the question of "directly involved" versus "only saw" on killings of civilians and prisoners, it may be the quantity rather than qualitative aspects that led to higher scores. Yet the idea that it was the qualitative aspect is also plausible.

Another possible explanation is that it was not the action of killing that caused high PTSD, but the converse: Those with already-established higher levels of PTSD were more likely to kill. PTSD has been linked to violent crime among veterans (see for example, Hall & Hall, 1987; Wilson & Zigelbam, 1983). Symptoms includes emotional numbing as well as outbursts of rage, both of which can contribute to violent activity. Accordingly, it could be those with the strongest reactions to combat, or with PTSD resulting from heavier combat, that tend to be more likely to kill.

The NVVRS was not set up to answer these questions. The original report (Kulka, et al., 1990) did not mention anything about the perpetrator/nonperpetrator distinction. A more thorough answer would require extensive studies that are both prospective and which take data during soldiers' tours. Qualitative studies that can

more clearly assess the memory of events and nature of traumatic memories and related dreams can add needed information. Perhaps studies of perpetration situations other than combat, in which respondents have been expected to perpetrate but are not in danger themselves, may shed some light on the question. Accounting for the effect with any confidence will require a great deal of further study.

BIOGRAPHICAL NOTE

Rachel M. MacNair is currently Director of the Institute for Integrated Social Analysis in Kansas City, MO. She received her Bachelor's degree from Earlham College, with a major of Peace and Conflict Studies, and her Ph.D. in Psychology and Sociology from the University of Missouri at Kansas City. Her doctoral research, on PTSD as a result of killing activity, has led to a book entitled *Perpetration-Induced Traumatic Stress: The Psychological Consequences of Killing*, due to be published soon by Praeger Publishers.

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