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ABSTRACT

The Former Prisoners of War Act (1981) mandated complete health examinations for all interested prisoners of war (POWs). This paper reports on examinations of more than two-thirds of the POWs in the Minneapolis Veterans Administration Medical Center catchment area under the established POW protocol and special psychiatric examinations. The prevalence of common conditions such as hypertension, diabetes, cerebrovascular accident, heart attack, or intermittent claudication was no greater for POWs than for the general population. However, anxiety disorders, post-traumatic stress disorders, and depressive disorders had a high prevalence. The etiologies of these disorders are generally agreed to include traumatic experience. Disorders with etiologies thought to be less related to traumatic experience such as alcohol abuse/dependency, schizophrenia, and bipolar disorders did not occur with increased frequency. Those POWs who had experienced more than a 29 percent loss of body weight were at higher risk of developing depressive disorders, post-traumatic stress disorders, and, to a lesser extent, anxiety disorders. Results highlight the strong association between captivity trauma and later psychiatric disability. The psychological problems experienced by former POWs are real, persistent, and in the large majority of cases, directly attributable to the trauma they experienced in captivity. Care needs to be provided to them and their families based on understanding of their difficulties. (Eight data tables and one figure are included.) (ABL)

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PSYCHOLOGICAL CONSEQUENCES OF THE WORLD WAR II PRISONER OF WAR EXPERIENCE: IMPLICATIONS FOR TREATMENT

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American Psychological Association at
New York City, August 31, 1987

We wish to gratefully acknowledge the support of our work by the American Contract Bridge League Charitable Foundation

An overview of the longitudinal studies of former prisoners of war (POWs) conducted by the National Academy of Sciences' National Research Council provides the backdrop for our presentation.

NAS's Medical Follow-Up Agency has provided the best morbidity and mortality data for our nation's population of 76,000 surviving POWs. Cohen & Cooper (1954) found excess deaths among WWII Pacific POWs during the first 6 years after release due to tuberculosis and trauma (accidents). They were treated more often for conditions related to malnutrition. Both Pacific and European POWs required more treatment for health and psychological problems than control groups of non-POW combat veterans. A clear correlation between weight loss during imprisonment and VA disability rating 7 to 8 years after liberation was found.

Beebe (1975) found WWII Pacific POWs to be most disabled, both psychiatrically and physically. Psychiatric disorders were common among both WWII groups and Korean POWs, particularly anxiety reactions with somatization. He proposed an explanatory model involving two types of injury: one somatic and essentially short-term, and caused by malnutrition, infection, and physical injury; the other, a psychological injury, essentially permanent. A loss of ego strength leads to lowered thresholds for both physical and psychological distress.

Keehn (1980) found trauma-related deaths to be elevated among Korean POWs. All three POW groups experienced an excess of deaths due to cirrhosis of the liver probably traceable to starvation, increased alcohol use and/or disease. He did not find evidence to support the "premature aging hypothesis": that the stresses of captivity had accelerated degenerative changes in POWs.

Page (personal communication) is directing the final phases of the NAS POW work examining health and psychiatric status of these groups. Preliminary results confirm the elevated prevalence of depression and other psychiatric problems.

Australian former POWs of the Japanese have been studied extensively (Gill & Bell,1981; Tennant, Goulston & Dent,1986) often with the benefit of random sample and case control designs. They have revealed increased incidence of ulcers, liver disease, and anxiety and depressive 'neuroses'.

The Former Prisoners of War Act (1981) mandated complete health examinations for all interested POWs. Many clinicians and researchers throughout the country took an increased interest in their status. Smaller samples of American POWs (Hong,1987; Carnahan & Morris,1987) have recently revealed high rates of peripheral neuropathy, psychosomatic and stress disorders among those most severely treated in captivity.

The Minneapolis VAMC POW sample:

More than two-thirds of the POWs in our catchment area have been thoroughly examined under the established POW protocol and via special psychiatric exam. We believe they are representative of POWs residing in the upper midwest. They are comparable to those POWs in our catchment area who have not reported for examination on the variables of age, length of POW captivity, marital and dependent status, and VA disability ratings.

The diagnoses derived from these exams were coded according to the coding system prescribed under U.S. Title 38-Pensions, Bonuses, and Veterans' Relief. This system did not always allow comparisons between illness categories observed in our sample and more generally recognized diagnostic groupings. Major categories we believe are comparable to those indexed in the National Institute on Aging's Epidemiologic Catchment Area Resource Data Book (1986) are presented in Table 1. As you will note, there appear to be no great differences in rates of common conditions such as hypertension, diabetes, cerebrovascular accident, heart attack, or intermittent claudication. That is, the prevalence, or risk to the survivors of the POW experience, is no greater in our sample than in the general population. That is not to say that the other physical health problems specific to the POWs' experiences do not occur at increased rates. Residuals of malnutrition, fevers, infections, and traumatic war and captivity injuries are all too frequent and apparent among POWs.

Most striking is the high prevalence (Table 2) of anxiety disorders, post-traumatic stress disorders, and depressive disorders, especially when compared to to the National Institute of Mental Health's Epidemiologic Catchment Area figures (Robins, et al, 1984). The etiologies of these disorders are generally agreed to include traumatic experience. Those with etiologies thought to be less related to traumatic experience--alcohol abuse/dependency, schizophrenia, and bipolar disorders--do not occur with increased frequency in our sample.

Because research indicates weight loss experienced during captivity is a moderately strong predictor of subsequent disability, we split our sample on this variable, seeking its possible relationship to later health status. Tables 3 and 4 indicate that those experiencing more than a 29% loss of body weight are at higher risk to develop depressive disorders, post-traumatic stress disorders, and, to a lesser extent, anxiety disorders.

We (Engdahl & Eberly, unpublished) were faced with a large set of variables describing the POW experience collected via a POW History Questionnaire. We used a k-means clustering method to develop the groups presented in Table 5. The traumatic experiences of starvation, solitary confinement, and exposure to injury, torture, mental suffering and forced relocations clearly and logically discriminate among the three groups. Table 6 indicates that in the years following release, PTSD and Generalized Anxiety Disorder were significantly more frequent for

those experiencing greater levels of trauma. There was a parallel trend for depressive disorders. Other psychiatric disorders were not systematically related to captivity severity.

Tables 7 and 8 summarize an intensive study by Speed, Engdahl, Schwartz, and Eberly (unpublished) of 62 WWII POWs randomly selected from our sample. The clearest predictors of persistent PTSD were weight loss and the experience of torture and/or beatings. Family history of mental illness, pre-service adjustment problems, and severe childhood trauma were not predictive of PTSD development.

What generalizations can be drawn from these research results?

The direct results of wartime injuries and the various residuals of diseases contracted in combat and during captivity have been clearly recognized by POWs and their care providers. The connection of other health and psychological problems to the POW experience has been more controversial and difficult to establish. Our work clearly highlights the strong association between captivity trauma and later psychiatric disability.

We must keep in mind that the dichotomy suggested by much theory and research between physical and psychological phenomena is often an arbitrary one. This distinction may not carry much practical relevance for care providers. Both the stresses endured and the resulting symptoms and behavior may be best viewed as comprising one dimension in which somatic and psychological factors are intertwined. Treatment should be geared accordingly. It is particularly important that the medical coverage provided to clinics in which POWs and their families are treated is as comprehensive and as thorough as possible, including regular reexaminations and consultation of specialists when indicated.

Many POWs have a predilection for conceptualizing their illness in physiologic terms even when emotional factors are clearly present. Those familiar with the MMPI will recognize this in patterns displayed in Figure 1. The most elevated profile--those with a current diagnosis of PTSD--suggests prominent traits of anxiety with somatization; or, if you prefer, a psychophysiological reaction. Patients with these clinical presentations require empathic caregivers with the willingness to fully pursue their patients' range of concerns.

A final point bears emphasis: the psychological problems experienced by former prisoners of war are real, persistent, and in the large majority of cases directly attributable to the trauma they experienced in the hands of their captors. We owe much to these men. We need to continue providing care to them and their families based on understanding of their difficulties.

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Table 1

Prevalence Rates of Selected Diagnoses

National Institute on Aging

Diagnosis	POWs Minneapolis VAMC (N = 424)	Males Ages 65-69 NIA (N = 2452-2605)
Hypertension	39%	40%
Diabetes	9%	13%
Cerebrovascular accident	1%	5%
Heart attack	7%	16%
Intermittent claudication	2%	2%

NIH/NIA figures based on 3 sites: Boston, New Haven, and Iowa.

Table 2

Prevalence Rates of Selected Diagnoses

NIMH ECA 3 Site Study
(Ages 18-65+)

Diagnosis	POWs Minneapolis VAMC (N=424)	NIMH/ ECA (N=*)
Anxiety disorder	49%	16%
PTSD	35%	(not assessed)
Major depression/dysthymia	24%	3%
Alcohol abuse/dependency	21%	24%
Schizophrenia	2%	1%
Bipolar disorder	1%	1%

*NIMH/ECA (Epidemiologic Catchment Area) includes New Haven, Baltimore & St. Louis; figures are for males (N=3816) except for anxiety disorder with a combined sex sample (N=9543).

Table 3

Differential Effects of Weight Loss Upon Health Status Among Former POWs

Percent Body Weight Lost in Captivity
(N = 357)

	< 29% (N = 178)	> 29% (N = 179)
Diagnosis		
Cardiovascular disease	19%	21%
Hypertension	43%	37%
Diabetes	9%	8%
Cerebrovascular accident	1%	1%
Heart attack	10%	6%
Arthritis (osteo- & traumatic)	24%	27%
Intermittent claudication	2%	2%
Ulcers (gastric & duodenal)	17%	16%

Table 4

Differential Effects of Weight Loss Upon Health Status Among Former POWs

Percent Body Weight Lost in Captivity
(N = 357)

	<29% (N=178)	>29% (N=179)
Psychiatric Diagnosis		
Generalized anxiety disorder	46%	53%
PTSD	33%	43% *
Depressive Disorder	19%	31%**
Alcohol abuse/dependence	21%	21%
Schizophrenia	1%	3%
Bipolar disorder	1%	1%

*p < .05; **p < .01 via one-way ANOVA.

Table 5

Prisoners of War Clustered by Age and Rank at Capture and Experience During Captivity

Variable	Group 1 (n=116) Moderate Severity	Group 2 (n=179) High Severity	Group 3 (n=106) Extreme Severity	
Age at capture	24.2	24.0	23.2	n.s.
Rank (1=officer,2=enlisted)	1.71	1.70	1.76	n.s.
Percent body weight loss	26.8	27.2	34.5	***
Labored in captivity (1)	59.%	48.%	51.%	n.s.
Solitary confinement	28.%	37.%	55.%	***
Injured during captivity	1.%	93.%	98.%	***
Recalled mental suffering	69.%	84.%	89.%	***
Experienced delirium	43.%	65.%	77.%	***
Experienced torture	12.%	18.%	81.%	***
Witnessed torture	22.%	31.%	69.%	***
Mentally tortured	42.%	53.%	75.%	***
Forcibly relocated	61.%	58.%	73.%	***

Note: K-Means clustering method used.

(1): percentage reporting yes is shown for this and all following variables.
*** < p.001, via f test with df = 2, 398.
From Engdahl & Eberly (unpublished).

Table 6

Post-Repatriation Risk of Psychopathology Among Former POWs Grouped by Severity of Captivity Trauma

Diagnosis	Group 1 (n = 108) Moderate	Group 2 (n = 157) High	Group 3 (n = 103) Extreme	
Post-traumatic stress disorder	28%	37%	45%	**
Generalized anxiety disorder	41%	48%	58%	*
Depressive disorder	20%	24%	26%	ns
Alcohol abuse/dependency	18%	28%	22%	ns
Adjustment disorder	5%	8%	8%	ns
Organic mental disorder	6%	6%	2%	ns
Schizophrenic/spectrum disorder	5%	3%	9%	ns
Bipolar disorder	1%	0%	3%	ns

Chi-square with df = 2, * < p.05, **p < .01.
From Engdahl & Eberly (unpublished).

Table 7

Correlates of PTSD Symptom Severity at One Year and at Time of Examination for 62 WWII POWs

A. Demographic Variables	PTSD 1 year	PTSD at exam
Age at capture	-.26 *	-.29 *
Family alcoholism history	.33 **	.15
Family mental illness history	-.09	-.06
Pre-service psychiatric problem	-.13	-.13
Childhood trauma/impoverishment	.29 *	.16
B. POW Experience Variables		
POW theater (Europe = 1, Pacific = 2)	.18	.29 *
Weight loss (% of body weight)	.57 **	.52 **
Injured in captivity	.38 **	.33 **
Experienced torture/beatings	.38 **	.45 **
Had nightmares/delirium/confusion	.46 **	.35 **
Forcibly relocated	.26 *	.32 *
Length of captivity	.10	.22
Witnessed torture/beatings	.27 *	.37 **
Solitary confinement/isolation	.11	.15
Recall of mental suffering	.40 **	.34 **

Note: for all correlations, by 2-tailed t-test, df = 60, *p < .05; **p < .01.
From Speed, Engdahl, Schwartz, and Eberly (unpublished).

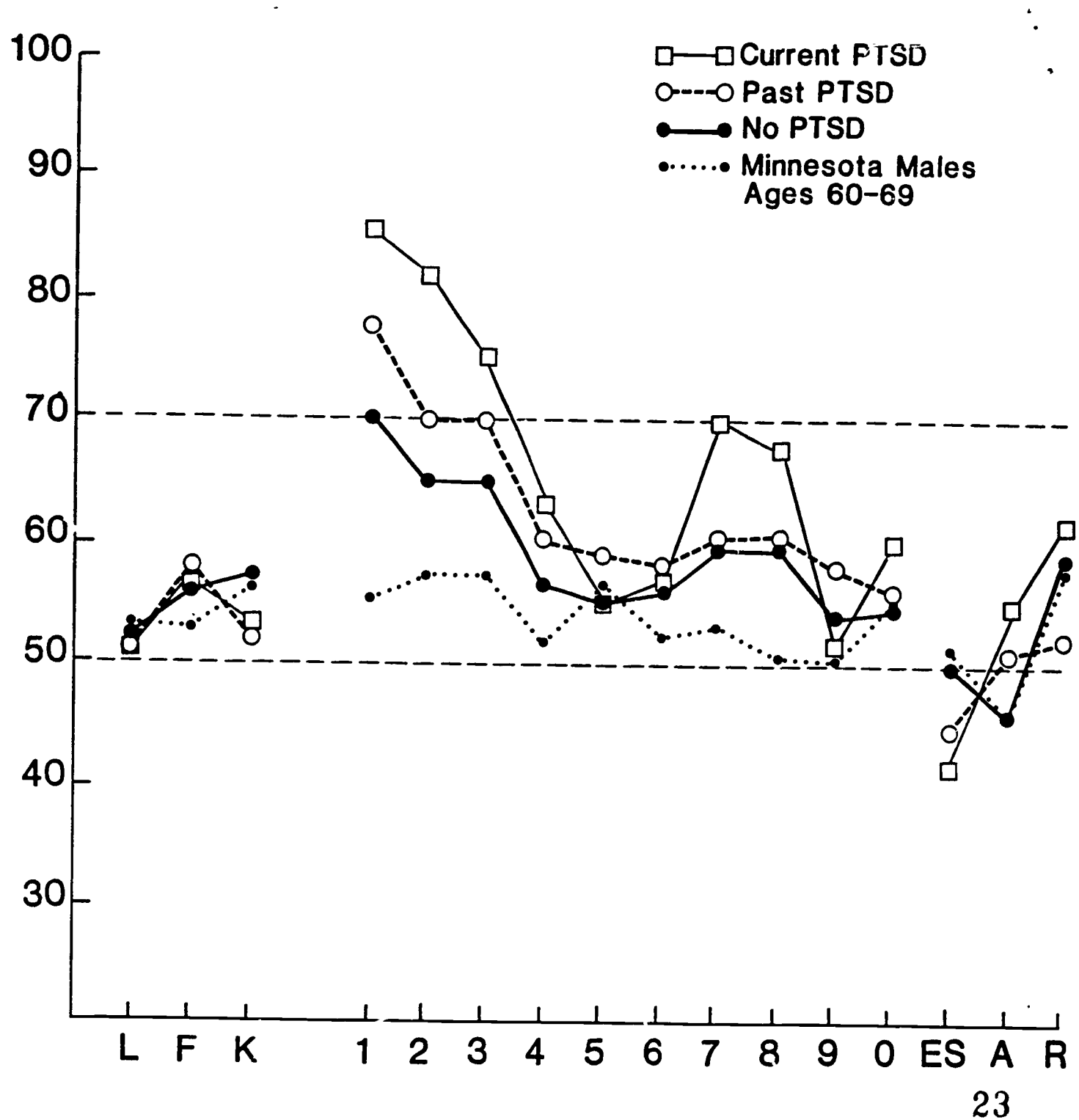
Table 8

Multiple Regression Prediction of PTSD Symptom Severity at One Year and at Time of Examination for 62 WWII POWs

Predictor Variable	Standardized Regression Coefficients: Symptoms At One Year	Symptoms At Exam
Age at capture	-.15	-.31 *
Family alcoholism history	.29 *	.05
Childhood trauma/impoverishment	.19	.10
POW category (1 = Europe; 2 = Pacific)	.32 *	.04
Weight loss (% of body weight)	.39 **	.34 *
Injured in captivity	.01	.03
Experienced torture/beatings	.27	.23
Experienced delirium	.11	.04
Forcibly relocated	.11	.08
Multiple R	.73	.64
Multiple R-Squared	.53	.41

Note: N = 62; two-tailed t, df = 53: *p < .05; **p < .01.
From Speed, Engdahl, Schwartz, & Eberly (unpublished).

Figure 1


COMPARATIVE MMPI PROFILES
Current PTSD
Past PTSD
No PTSD
Minnesota Males
Ages 60-69
100
90
80
70
60
50
40
30
L F K 1 2 3 4 5 6 7 8 9 0 ES A R