

**Table D.82 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale — Poor Morale Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					
							5th	10th	50th	90th	95th	Max
All Races ^a												
30-48 yrs	Vietnam	2490	7.4	5.39	0.11	0	1	1	6	15	18	23
30-48 yrs	Non-Vietnam	1972	6.4	5.02	0.11	0	0	1	5	14	16	23
White												
30-39 yrs	Vietnam	1638	7.2	5.32	0.13	0	1	1	6	15	18	22
30-39 yrs	Non-Vietnam	1153	6.5	5.13	0.15	0	0	1	5	15	16	23
40-48 yrs	Vietnam	416	7.1	5.38	0.26	0	1	1	6	15	18	22
40-48 yrs	Non-Vietnam	447	5.8	4.75	0.22	0	0	1	5	13	15	23
Black												
30-39 yrs	Vietnam	211	8.4	5.40	0.37	0	1	2	7	16	18	23
30-39 yrs	Non-Vietnam	181	7.2	4.71	0.35	0	1	2	6	14	16	23
40-48 yrs	Vietnam	75	7.0	5.16	0.60	0	1	1	6	14	16	23
40-48 yrs	Non-Vietnam	58	6.6	4.66	0.61	1	1	1	6	13	15	21

^a All races include white, black, and other.

**Table D.83 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale — Religious Fundamentalism Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races^a													
30-48 yrs	Vietnam	2490	6.1	3.09	0.06	0	1	2	6	10	11	12	12
30-48 yrs	Non-Vietnam	1972	6.3	3.17	0.07	0	1	2	6	11	12	12	12
White													
30-39 yrs	Vietnam	1638	5.9	3.14	0.08	0	1	1	6	10	11	12	12
30-39 yrs	Non-Vietnam	1153	6.1	3.24	0.10	0	1	2	6	11	12	12	12
40-48 yrs	Vietnam	416	6.1	3.13	0.15	0	1	1	6	10	11	12	12
40-48 yrs	Non-Vietnam	447	6.0	3.26	0.15	0	1	1	6	11	12	12	12
Black													
30-39 yrs	Vietnam	211	6.9	2.79	0.19	0	2	3	7	10	12	12	12
30-39 yrs	Non-Vietnam	181	7.4	2.47	0.18	1	3	4	7	11	11	12	12
40-48 yrs	Vietnam	75	7.3	2.35	0.27	2	3	4	7	11	11	12	12
40-48 yrs	Non-Vietnam	58	7.5	2.45	0.32	2	3	5	8	11	12	12	12

^a All races include white, black, and other.

Table D.84 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale – Authority Conflicts Raw Score

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	10.5	4.23	0.08	0	3	5	11	16	17	20	
30-48 yrs	Non-Vietnam	1972	9.9	4.31	0.10	0	3	4	10	16	17	20	
White													
30-39 yrs	Vietnam	1638	10.2	4.24	0.10	0	3	5	10	16	17	20	
30-39 yrs	Non-Vietnam	1153	9.8	4.23	0.12	0	3	4	10	15	17	20	
40-48 yrs	Vietnam	416	9.7	4.22	0.21	0	2	4	10	15	17	19	
40-48 yrs	Non-Vietnam	447	8.6	4.07	0.19	0	2	3	8	14	15	19	
Black													
30-39 yrs	Vietnam	211	12.5	3.53	0.24	3	6	7	13	17	17	19	
30-39 yrs	Non-Vietnam	181	12.5	3.99	0.30	1	4	7	13	17	19	20	
40-48 yrs	Vietnam	75	12.1	4.00	0.46	3	5	7	12	17	18	19	
40-48 yrs	Non-Vietnam	58	11.7	3.92	0.52	3	4	7	12	17	18	20	

^a All races include white, black, and other.

**Table D.85 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale — Psychoticism Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile							Max
							5th	10th	50th	90th	95th			
All Races ^a														
30-48 yrs	Vietnam	2490	8.9	6.11	0.12	0	2	3	7	17	21	41		
30-48 yrs	Non-Vietnam	1972	8.0	5.73	0.13	0	2	3	7	15	20	44		
White														
30-39 yrs	Vietnam	1638	8.4	5.74	0.14	0	2	3	7	16	20	40		
30-39 yrs	Non-Vietnam	1153	7.6	5.51	0.16	0	2	3	6	14	18	44		
40-48 yrs	Vietnam	416	7.8	5.27	0.26	0	2	3	7	14	18	32		
40-48 yrs	Non-Vietnam	447	6.7	4.32	0.20	0	2	3	6	12	16	29		
Black														
30-39 yrs	Vietnam	211	11.8	6.57	0.45	1	3	4	11	21	25	32		
30-39 yrs	Non-Vietnam	181	11.0	6.45	0.48	1	3	4	10	19	23	38		
40-48 yrs	Vietnam	75	11.3	7.54	0.87	2	3	4	9	23	27	38		
40-48 yrs	Non-Vietnam	58	9.7	6.39	0.84	1	2	4	8	20	21	34		

^a All races include white, black, and other.

**Table D.86 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale – Organic Symptoms Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	7.0	5.85	0.12	0	1	1	5	15	19	33	
30-48 yrs	Non-Vietnam	1972	5.4	4.66	0.10	0	0	1	4	11	15	30	
White													
30-39 yrs	Vietnam	1638	6.7	5.55	0.14	0	0	1	5	15	18	33	
30-39 yrs	Non-Vietnam	1153	5.3	4.66	0.14	0	0	1	4	11	15	30	
40-48 yrs	Vietnam	416	6.5	5.40	0.26	0	1	1	5	14	17	31	
40-48 yrs	Non-Vietnam	447	4.7	4.22	0.20	0	0	1	4	10	13	27	
Black													
30-39 yrs	Vietnam	211	8.4	6.53	0.45	0	1	2	6	18	22	32	
30-39 yrs	Non-Vietnam	181	6.1	5.01	0.37	0	1	1	5	12	18	27	
40-48 yrs	Vietnam	75	8.5	7.39	0.85	0	1	2	6	18	27	30	
40-48 yrs	Non-Vietnam	58	6.3	4.88	0.64	0	1	2	6	11	15	30	

^a All races include white, black, and other.

**Table D.87 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale – Family Problems Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	4.4	2.78	0.06	0	1	1	4	8	10	14
30-48 yrs	Non-Vietnam	1972	4.2	2.72	0.06	0	0	1	4	8	9	15
White												
30-39 yrs	Vietnam	1638	4.3	2.74	0.07	0	1	1	4	8	10	14
30-39 yrs	Non-Vietnam	1153	4.3	2.72	0.08	0	1	1	4	8	10	15
40-48 yrs	Vietnam	416	4.0	2.71	0.13	0	0	1	3	7	9	13
40-48 yrs	Non-Vietnam	447	3.6	2.58	0.12	0	0	1	3	7	9	13
Black												
30-39 yrs	Vietnam	211	5.1	2.82	0.19	0	1	2	5	9	10	13
30-39 yrs	Non-Vietnam	181	4.8	2.63	0.20	0	1	2	4	9	10	13
40-48 yrs	Vietnam	75	4.9	3.01	0.35	0	1	1	5	9	11	14
40-48 yrs	Non-Vietnam	58	4.7	2.31	0.30	0	1	2	4	7	10	11

^a All races include white, black, and other.

**Table D.88 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale – Manifest Hostility Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile															
							5th	10th	50th	90th	95th	Max										
All Races ^a																						
30-48 yrs	Vietnam	2490	9.3	4.80	0.10	0	2	3	9	16	18	24										
30-48 yrs	Non-Vietnam	1972	8.4	4.70	0.11	0	2	3	8	15	17	25										
White																						
30-39 yrs	Vietnam	1638	9.3	4.79	0.12	0	2	3	9	16	18	24										
30-39 yrs	Non-Vietnam	1153	8.5	4.76	0.14	0	2	3	8	15	17	25										
40-48 yrs	Vietnam	416	8.6	4.61	0.23	0	2	3	9	15	18	22										
40-48 yrs	Non-Vietnam	447	7.5	4.21	0.20	0	1	3	7	13	16	24										
Black																						
30-39 yrs	Vietnam	211	9.6	4.56	0.31	1	2	4	9	16	17	21										
30-39 yrs	Non-Vietnam	181	9.1	4.40	0.33	0	2	3	9	16	17	20										
40-48 yrs	Vietnam	75	9.1	5.17	0.60	1	1	2	8	17	17	22										
40-48 yrs	Non-Vietnam	58	9.2	5.00	0.66	0	2	3	8	17	18	21										

^a All races include white, black, and other.

**Table D.89 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale — Phobias Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races^a													
30-48 yrs	Vietnam	2490	7.3	4.10	0.08	0	2	2	7	13	15	23	
30-48 yrs	Non-Vietnam	1972	6.6	3.92	0.09	0	1	2	6	12	14	23	
White													
30-39 yrs	Vietnam	1638	7.1	4.06	0.10	0	1	2	7	13	14	21	
30-39 yrs	Non-Vietnam	1153	6.4	3.91	0.12	0	1	2	6	12	14	22	
40-48 yrs	Vietnam	416	7.1	4.05	0.20	0	2	3	7	13	14	23	
40-48 yrs	Non-Vietnam	447	6.2	3.87	0.18	0	1	1	5	11	14	21	
Black													
30-39 yrs	Vietnam	211	8.5	3.62	0.25	0	3	4	8	13	15	20	
30-39 yrs	Non-Vietnam	181	8.1	3.62	0.27	0	2	4	8	13	14	19	
40-48 yrs	Vietnam	75	8.3	4.08	0.47	1	2	3	8	13	14	22	
40-48 yrs	Non-Vietnam	58	7.8	3.35	0.44	2	3	4	8	13	14	18	

^a All races include white, black, and other.

**Table D.90 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale — Hypomania Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile							Max
							5th	10th	50th	90th	95th			
All Races ^a														
30-48 yrs	Vietnam	2490	12.8	4.02	0.08	1	6	8	13	18	20	25		
30-48 yrs	Non-Vietnam	1972	12.5	4.08	0.09	2	6	7	12	18	20	25		
White														
30-39 yrs	Vietnam	1638	12.8	3.98	0.10	2	6	8	13	18	19	25		
30-39 yrs	Non-Vietnam	1153	12.4	3.99	0.12	2	6	8	12	18	19	25		
40-48 yrs	Vietnam	416	12.3	3.98	0.20	2	6	7	12	17	19	24		
40-48 yrs	Non-Vietnam	447	11.6	3.93	0.19	3	6	7	11	17	19	23		
Black														
30-39 yrs	Vietnam	211	13.9	3.84	0.26	1	8	9	14	19	20	24		
30-39 yrs	Non-Vietnam	181	13.9	4.15	0.31	4	7	8	14	20	21	22		
40-48 yrs	Vietnam	75	13.5	3.91	0.45	2	8	9	13	20	21	22		
40-48 yrs	Non-Vietnam	58	13.1	4.05	0.53	5	6	7	13	19	20	23		

^a All races include white, black, and other.

Table D.91 Summary Statistics for Minnesota Multiphasic Personality Inventory:
Wiggins Content Scale – Poor Health Raw Score

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	5.8	4.23	0.08	0	1	1	5	12	14	24	
30-48 yrs	Non-Vietnam	1972	4.7	3.61	0.08	0	0	1	4	10	12	21	
White													
30-39 yrs	Vietnam	1638	5.6	4.07	0.10	0	1	1	5	12	14	22	
30-39 yrs	Non-Vietnam	1153	4.7	3.67	0.11	0	0	1	4	10	12	20	
40-48 yrs	Vietnam	416	5.2	4.13	0.20	0	0	1	4	11	14	22	
40-48 yrs	Non-Vietnam	447	4.2	3.20	0.15	0	0	1	3	9	11	21	
Black													
30-39 yrs	Vietnam	211	6.8	4.42	0.30	0	1	2	6	13	16	24	
30-39 yrs	Non-Vietnam	181	5.4	3.69	0.27	0	1	2	4	11	13	19	
40-48 yrs	Vietnam	75	6.2	4.14	0.48	0	1	1	5	12	13	21	
40-48 yrs	Non-Vietnam	58	5.3	2.83	0.37	1	2	2	5	9	11	16	

^a All races include white, black, and other.

APPENDIX E

Description of Neuropsychological Test Scores

NEUROPSYCHOLOGICAL TESTING

Because of the multifactorial nature of the various neuropsychological tests used in this study, we performed a series of correlational analyses to assess score redundancy within a test. We also performed an exploratory factor analysis of scores across tests. In the following review, we describe the scores obtained from each test, and their intercorrelations. Following this analysis, we performed factor analysis on the least redundant and theoretically meaningful test scores.

General Technical (GT) Score From the Army Classification Battery (ACB)

The general technical (GT) score is the average of the standard scores from the verbal reasoning and arithmetic reasoning subtests. It is considered to be a crude estimate of general abilities, or intelligence quotient (IQ), and has been correlated with results of more standard intelligence tests. The Army Classification Battery (ACB) was given to the veterans in this study when they were inducted into the Army. The GT score from this initial testing, pre-Vietnam service, was available from Army records. In this study, we used the same test forms to provide a current estimate of the veterans' general abilities. GT score at induction and GT score at examination were the primary variables of interest. Each of these scores has a theoretical mean of 100 and a standard deviation of 15. To assess the change in these scores between induction and interview, we created a percent change score: $(\text{GT induction} - \text{GT interview}) / \text{GT induction} \times 100\%$. Therefore, three scores resulted from this test:

1. GT score at induction (GTId)
2. GT score at interview (GTIt)
3. Percent change in GT score between induction and interview.

The correlation matrix (N = 4462) for these three scores is as follows:

	GTId	% Change
GTId	.92	.25
GTIt	—	.13

Wechsler Adult Intelligence Scale – Revised (WAIS-R) Information and Block Design Subtests

The information subtest (Wechsler, 1981) is a measure of general information and correlates highly with measures of educational and socioeconomic background. The subtest is also considered to be a measure of long-term verbal memory because most of the questions require the subject to recall information typically learned in school. The block design subtest is a measure of visual-perceptual-motor, visual-spatial, and nonverbal reasoning abilities. This is a timed test, and, therefore, mental and motor speeds are components in a subject's performance. Both the information and block design subtests correlate highly with general IQ.

For each scale, we developed two scores: the raw score and the age-corrected scaled score (mean = 10, standard deviation = 3):

1. Information raw score (InfR)
2. Information scaled score (InfSS)

3. Block design raw score (BDR)
4. Block design scaled score (BDSS)

The intercorrelations (N = 4462) for these variables are as follows:

	BDSS	InfR	BDR
InfSS	.45	.98	.44
InfR	.45	—	.45
BDR	.98	.45	—

California Verbal Learning Test (CVLT)

This new test (Delis *et al.*, 1987) assesses active verbal learning and memory functioning by requiring the subject to recall a list of 16 words over 5 repeated learning trials. It provides numerous memory-related scores, including scores for total learning, short-delay and long-delay recall, and recognition. The following 22 scores were derived from this test:

1. Total correct trial 1 (CVLT1)
2. Total correct trial 5 (CVLT2)
3. Total correct trials 1-5 (CVLT3)
4. Total correct Tuesday list (CVLT4)
5. Total correct short-delay free recall (CVLT5)
6. Total correct short-delay cued recall (CVLT6)
7. Total correct long-delay free recall (CVLT7)
8. Total correct long-delay cued recall (CVLT8)
9. Total correct long-delay recognition (CVLT9)
10. Total perseverations - responses repeated (CVLT10)
11. Total intrusions - nontarget items reported (CVLT11)
12. Least-squares regression line - slope over trials 1-5 (CVLT12)
13. Primacy recall - percentage recall from primacy region (1st four words) (CVLT13)
14. Recency recall - percentage recall from recency region (last four words) (CVLT14)
15. Percent change, Monday trial 1 to Tuesday - reflects vulnerability to proactive interference (CVLT15)
16. Percent change, Monday trial 5 to short-delay free recall - reflects vulnerability to retroactive interference (CVLT16)
17. Percent change, short-delay cued to short-delay free recall (CVLT17)
18. Percent change, short-delay free recall to long-delay free recall (CVLT18)
19. Percent enhancement of semantic clustering (CVLT19)
20. Percent change, long-delay cued recall to long-delay free recall (CVLT20)
21. Percent change, long-delay recognition to long-delay free recall (CVLT21)
22. Percent change, long-delay recognition to long-delay cued recall (CVLT22)

See correlation matrix in Table E.1.

Delis *et al.* (1987) have identified six factors on the CVLT: general verbal learning, a response discrimination, learning strategy, proactive effects, serial position effects and acquisition rate.

Table E.1 Correlation Matrix of California Verbal Learning Test Variables

	CVLT1	CVLT2	CVLT3	CVLT4	CVLT5	CVLT6	CVLT7	CVLT8	CVLT9	CVLT10	CVLT11	CVLT12
CVLT1												
CVLT2	.42											
CVLT3	.67	.38										
CVLT4	.83	.37	.46									
CVLT5				.31								
CVLT6				.82	.41	.43	.44	.43	.24	.16	.11	.30
CVLT7					.73	.68	.71	.70	.37	.20	.11	.67
CVLT8					.75	.73	.75	.73	.40	.26	.13	.32
CVLT9					.31	.31	.34	.33	.15	.15	.06	.09
CVLT10						.82	.83	.81	.43	.13	.12	.44
CVLT11							.88	.88	.48	.11	.16	.37
CVLT12								.88	.47	.14	.12	.39
CVLT13									.50	.13	.01	.38
CVLT14										.10	.14	.20
CVLT15											.14	.08
CVLT16												.08
CVLT17												
CVLT18												
CVLT19												
CVLT20												
CVLT1												
CVLT2												
CVLT3												
CVLT4												
CVLT5												
CVLT6												
CVLT7												
CVLT8												
CVLT9												
CVLT10												
CVLT11												
CVLT12												
CVLT13												
CVLT14												
CVLT15												
CVLT16												
CVLT17												
CVLT18												
CVLT19												
CVLT20												

Rey-Osterrieth Complex Figure Drawing

This drawing test requires the veteran to reproduce a complex spatial figure. It assesses visual-perceptual-motor, visual-spatial, planning, organizational, and graphomotor functioning (Lezak, 1983). After the veteran had copied the design for the first time, he was required to recall and draw the design from immediate memory. After a 20-minute filled-delay, the veteran was again required to recall and draw the design from delayed memory. Five scores were derived from this test:

1. Direct copy score (Copy)
2. Immediate recall score (ImmR)
3. Delayed recall score (DeIR)
4. Percent immediate decay ((ImmR-Copy)/Copy) (% ImD)
5. Percent delayed decay ((DeIR-ImmR)/ImmR) (% DD)

The intercorrelation (N=4462) for these variables is as follows:

	Copy	ImmR	DeIR	% ImD	% DD
Copy	—	.47	.48	.19	-.10
ImmR		—	.92	.94	-.34
DeIR			—	.85	-.12
% ImD				—	-.36
% DD					—

Word List Generation Test

This test assesses language system functioning, speed of word retrieval from memory, and general vocabulary (Lezak, 1983). A subject had to generate for 60 seconds as many words as possible that began with a specific set of letters (F, A, S), or names of animals. Seven different scores were derived:

1. Recall letter F (F)
2. Recall letter A (A)
3. Recall letter S (S)
4. Total recall, F+A+S (FAS)
5. Recall animal names (Anim)
6. Total errors, F+A+S (FASE)
7. Total errors, animal names (AnimE)

	Anim	AnimE	FAS	FASE	F	A	S	Anim
Anim	—	-.07	.42	-.02	F	—	.59	.61
AnimE		—	.00	.22	A	—	.61	.38
FAS			—	-.01	S		—	.40

Wisconsin Card Sort (WCS) Test

This test assesses concept-formation, problem-solving, and set-switching abilities and the use of feedback in decision making (Lezak, 1983). It is considered to be a measure of frontal/executive functions. The subject is required to sort a number of cards containing

various numbered and colored shapes into a set of categories based on the examiner's feedback. Responses were scored with a computer. Eight scores were developed from this test:

1. Mean number of trials per sort (WCS1)
2. Perseverations to countables (countables are trials completed) (WCS2)
3. Perseverations within category to countables (WCS3)
4. Correct responses to countables (WCS4)
5. Shifts on feedback to countables (WCS5)
6. Correct shifts on feedback to countables (WCS6)
7. Times lost set to countables (WCS7)
8. Compounds to countables (WCS8)

See Table E.2 for correlation matrix.

Table E.2 Correlation Matrix of Wisconsin Card Sort Variables

	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8
WCS1								
WCS2	.64							
WCS3	.78	.89						
WCS4	-.86	-.87	-.91					
WCS5	.76	.69	.65	-.90				
WCS6	.77	.61	.59	-.77	-.77			
WCS7	.71	.56	.51	-.66	.63	.82		
WCS8	-.48	-.38	-.42	.56	-.61	-.37	-.29	

Paced Auditory Serial Addition Test (PASAT)

This test is a measure of mental control, mental speed, and computational and attentional abilities (Lezak, 1983). The subject is required to mentally add a sequence of numbers in rapid succession. Each set of numbers is presented at an increasingly rapid rate. In the pilot test, this test caused stress among some veterans; therefore, if a veteran's performance fell below 50% correct on any series, the test was discontinued. Five scores were derived from this test:

1. Total number of correct responses (TotNC)
2. Percentage of correct responses (% C)
3. Ranking of performance, number of lists completed (1-7) (RANK)
4. Total number of correct responses for list 1 (0-50) (% C1)
5. Total number of correct responses for list 4 (0-50) (% C4)

The correlation matrix (N = 4462) for the first three scores is as follows:

	TotNC	% C	Rank
TotNC	—	.92	.97
% C		—	.88

Grooved Pegboard Test

This test assesses manual dexterity and fine motor speed in each hand (Lezak, 1983). Each hand is required to place a set of pegs into a grooved hole as quickly as possible. Time to completion is the score of interest. Six scores were derived from this test:

1. Number of seconds, right hand (Right)
2. Number of seconds, left hand (Left)
3. Number of seconds, dominant hand (DOM)

4. Number of seconds, nondominant hand (NDOM)
5. Percent difference between right/left hands (% DH)
6. Percent difference between dominant/nondominant hands (% DDom)

The correlation matrix (N = 4462) for these variables is as follows:

	Dom	NDom	% DDom	Right	Left	% DH
Dom	—	.65	.28	.95	.66	.26
NDom		—	-.54	.60	.92	-.50
% DDom			—	.28	-.55	.86
Right				—	.62	.25
Left					—	-.68

Two additional tests were given as part of the psychiatric, psychological, and neuropsychological evaluation: the reading subtest of the Wide Range Achievement Test-Revised and the Edinburgh Handedness Inventory.

Wide Range Achievement Test — Revised (WRAT-R) Reading Subtest

This subtest, which consists of reading single words, is highly correlated with educational background. A person taking the Minnesota Multiphasic Personality Inventory (MMPI) must read at least at a sixth-grade level; therefore, before the veterans began the MMPI, we used the WRAT-R subtest to screen them for reading ability. Veterans who did not meet the sixth-grade reading level were given all materials on audiotape. Two scores were derived:

1. Raw reading score (Raw)
2. Grade equivalent score (Grade)

The correlation between these two variables is .93.

Edinburgh Handedness Inventory Laterality Ratio

This scale assesses a subject's hand use in a variety of typical instances (writing, throwing, etc.). A score of 1.00 represents a "pure" right-hander, and score of 0.00 represents a "pure" left-hander. Any veteran whose score fell below .70 on this scale (11.8% of total sample) was classified as a nonright-hander. We used these handedness classifications as covariates in analyzing neuropsychological data because, in some samples, nonright-handers can exhibit diverse patterns of neuropsychological function that are different from the more common patterns seen in right-handers.

Factor Analysis

On the basis of our analysis of the redundancy of the various scores within each test, a review of the underlying score distributions, and theoretical considerations, we included the following 15 scores in a factor analysis:

Theoretical Construct	Actual Score Used
Fine Motor	Grooved Pegboard Dominant Hand Grooved Pegboard Percent Hand Difference
Spatial	Rey Copy WAIS Block Design Scaled Score
Verbal	WAIS Information Scaled Score Verbal Fluency Total (FAS) GT at Interview
Verbal Memory	CVLT Total Recall CVLT % Change, Short Delay Free Recall to Long Delay Free Recall CVLT % Change, Long Delay cued Recall to Long Delay Free Recall
Spatial Memory	Rey % Change, Imm to Copy Rey % Change, Delay to Imm
Mental Control	PASAT Total Correct Responses
Conceptual	WCS Average Number Trials Per Sort
Executive	WCS Ratio Number Times Loss Set/Counts

Principal Component Factor Patterns (loadings above .30 presented):

	Fact1	Fact2	Fact3	Fact4	Fact5	Fact6
GPeg Dominant Hand	-.36		-.43		.56	
GPeg Hand Diff			-.48		.62	
Rey Copy	.50					
WAIS BD SS	.69					
WAIS Inf SS	.71					
VerbFI(FAS)	.51	.31				
GT	.82					
CVLT Tot Recall	.54					.45
CVLTCng SDFR/LDFR			.56	.38	.39	
CVLTCng LDCR/LDFR			.67		.32	
Rey Imm to Copy	.49			.52		
Rey Delay to Imm				-.70		
PASAT TotC	.59					
WCS AvgNT Sort	.55	.69				
WCS Loss Set/Counts	.57	.64				
Eigen values	4.21	1.63	1.35	1.25	1.22	1.08

Varimax Rotated Factor Pattern:

	Fact1	Fact2	Fact3	Fact4	Fact5	Fact6
GPeg Dominant Hand					.76	
GPeg Hand Diff					.82	
Rey Copy	.36					-.33
WAIS BD SS	.58		-.30			
WAIS Inf SS	.75					
VerbFI(FAS)	.70					
GT	.83					
CVLT Tot Recall	.57					
CVLTCng SDFR/LDFR				.80		
CVLTCng LDCR/LDFR				.80		
Rey Imm to Copy	.31		-.73			
Rey Delay to Imm			.83			
PASAT TotC	.64					
WCS AvgNT Sort		.87				
WCS Loss Set/Counts		.82				
Eigenvalues	3.29	2.19	1.42	1.31	1.30	1.14

Preliminary results from these exploratory factor analyses suggest that six basic factors underlie the tests that were given to all veterans. Factor 1 can be best described as a general abilities factor, which is best represented by the general technical score and results of the information and block design subtests of the Wechsler Adult Intelligence Scale-Revised. Factor 2 represents a set switching/set maintenance factor that is related to frontal/executive functions; it is best represented by results of components of the Wisconsin Card Sort Test. Factor 3 is a nonverbal memory factor, and it is best represented by the change scores on the Rey-Osterrieth Complex Figure Drawing Test. Factor 4 is a verbal memory factor, and it is best represented by the change scores on the California Verbal Learning Test. Factor 5, a manual dexterity factor, is represented by the Grooved Pegboard Test. Factor 6 appears to be a visual-perceptual-motor factor, and it is represented by the Rey-Osterrieth copy score. Because the battery was designed to quickly screen a large range of abilities in a short period of time, few actual scores represent each factor. This raises the issue of the reliability of the factors and of any factor scores derived via these analyses. Therefore, we used individual tests scores for all analyses.

APPENDIX F

Additional Results of Neuropsychological Tests

Table F.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Neuropsychological Deficits (>2 Standard Deviations Below GT) and Odds Ratios

Condition	Vietnam		Non-Vietnam		Crude Results			Multivariate Results		
	%	No.	%	No.	OR	95% CI	OR	95% CI	OR	95% CI
					Model 1 ^a		Model 2 ^b			
GT Score at Interview ^c	4.7	118	4.5	88	1.1	0.8-1.4	1.1	0.8-1.5	1.0 ^d	0.7-1.4
Wechsler Adult Intelligence Scale Information subtest	0.1	3	0.2	4	0.6	0.1-2.7	—	—	—	—
Block design subtest	1.1	27	1.5	30	0.7	0.4-1.2	0.7	0.4-1.2	0.7	0.4-1.2
Rey-Osterrieth Figure Copy	3.5	86	3.6	71	1.0	0.7-1.3	0.9	0.7-1.3	0.9	0.7-1.3
Immediate recall	3.5	88	3.2	63	1.1	0.8-1.5	1.1	0.8-1.6	1.1	0.8-1.6
Delayed recall	3.7	91	3.5	70	1.0	0.8-1.4	1.1	0.8-1.5	1.1	0.8-1.6
% change, copy to immediate recall	4.0	100	3.9	77	1.0	0.8-1.4	1.1	0.8-1.5	1.1	0.8-1.5
% change, immediate recall to delayed recall	7.2	179	7.3	143	1.0	0.8-1.2	1.0	0.8-1.3	1.0	0.7-1.2
Wisconsin Card Sort										
Perseverations to countables	14.4	359	12.7	251	1.2	1.0-1.4	1.1	0.9-1.3	1.0	0.8-1.3
Shifts on feedback to countables	14.3	356	12.6	248	1.2	1.0-1.4	1.1	0.9-1.3	1.1	0.9-1.3
Times lost set to countables	14.7	367	13.0	256	1.2	1.0-1.4	1.1	0.9-1.4	1.1	0.9-1.3
Average number of trials per sort	13.0	321	11.7	231	1.1	0.9-1.3	1.0	0.9-1.3	1.0	0.8-1.3
Paced Auditory Serial Addition Test Ranking										
First trial total correct	2.1	51	1.8	36	1.1	0.7-1.7	1.2	0.8-1.9	1.3	0.8-2.1
Total correct across all trials	3.2	80	3.0	59	1.1	0.8-1.5	1.0	0.7-1.4	1.0	0.7-1.4
Percent correct across all trials	2.3	58	2.2	44	1.0	0.7-1.6	1.1	0.7-1.6	1.1	0.7-1.7
Word List Generation										
Total verbal fluency	2.5	62	2.3	46	1.1	0.7-1.6	1.0	0.7-1.5	1.0	0.7-1.5
California Verbal Learning Test										
Total correct trial 1	1.7	43	1.7	33	1.0	0.7-1.6	1.2	0.7-1.9	1.1	0.7-1.8
Total correct trial 5	3.5	88	3.0	60	1.2	0.8-1.6	1.4	1.0-2.0	1.4	1.0-2.1
Total correct trials 1-5	3.7	91	3.8	75	1.0	0.7-1.3	1.1	0.8-1.5	1.1	0.8-1.6
Total correct trials 1-5	3.1	78	2.7	54	1.1	0.8-1.6	1.2	0.9-1.8	1.3	0.9-1.9

Table F.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Neuropsychological Deficits (>2 Standard Deviations Below GT) and Odds Ratios — Continued

Condition	Vietnam		Non-Vietnam		Crude Results			Multivariate Results				
	%	No.	%	No.	OR	95% CI	Model 1 ^a		Model 2 ^b			
							OR	95% CI	OR	95% CI		
California Verbal Learning Test — continued												
Total correct short-delay free recall	3.5	88	3.7	73	1.0	0.7-1.3	1.2	0.8-1.6	1.2	0.8-1.6	1.2	0.9-1.7
Total correct long-delay free recall	3.7	91	3.2	63	1.1	0.8-1.6	1.4	1.0-2.0	1.5	1.0-2.0	1.5	1.0-2.1
Total perseverations	8.8	218	9.4	185	0.9	0.8-1.1	0.9	0.7-1.1	0.9	0.7-1.1	0.9	0.7-1.1
Total intrusions	9.6	240	9.6	189	1.0	0.8-1.2	0.9	0.8-1.2	0.9	0.8-1.2	0.9	0.7-1.2
Least squares regression line	7.3	181	7.0	138	1.0	0.8-1.3	1.0	0.8-1.3	1.0	0.8-1.3	1.0	0.8-1.3
Primacy recall	5.7	143	5.6	111	1.0	0.8-1.3	1.1	0.9-1.3	1.3 ^e	0.9-1.3	1.3 ^e	1.0-1.8
Recency recall	5.5	137	6.9	136	0.8	0.6-1.0	1.0	0.8-1.3	1.1	0.8-1.3	1.1	0.8-1.4
% change trial 5 to short-delay free recall	8.3	206	7.8	153	1.1	0.9-1.3	1.0	0.8-1.3	1.0	0.8-1.3	1.0	0.8-1.3
% change short-delay free recall to long-delay free recall	8.5	211	7.6	150	1.1	0.9-1.4	1.1	0.8-1.3	1.1	0.8-1.3	1.1	0.8-1.4
% enhancement semantic clustering	7.9	183	9.0	170	0.9	0.7-1.1	0.8	0.6-1.0	0.8	0.6-1.0	0.8	0.6-1.0
WRAT Reading	0.2	5	0.5	9	0.4	0.1-1.3	--	--	--	--	--	--
Grooved Pegboard												
Dominant hand	11.6	288	9.0	178	1.3	1.1-1.6	1.3 ^f	1.0-1.6	1.3	1.0-1.6	1.3	1.0-1.6
Nondominant hand	10.9	271	8.9	174	1.3	1.0-1.5	1.2	0.9-1.5	1.2	0.9-1.5	1.2	0.9-1.5

^a Model 1 contains the six entry characteristics.

^b Model 2 contains the six entry characteristics and marital status, education, current alcohol use, and current drug use.

^c Represents percentage of cohort two standard deviations below GT mean (combined cohorts).

^d Standardized for education.

^e Standardized for current GT score.

^f Standardized for MOS.

Table F.2 Percent and Number of Vietnam and Non-Vietnam Veterans With Neuropsychological Deficits (Cases Defined as Two Standard Deviations Away From Population Mean) and Odds Ratios

Condition	Vietnam		Non-Vietnam		Crude Results			Multivariate Results		
	%	No.	%	No.	OR	95% CI	Model 1 ^a		Model 2 ^b	
							OR	95% CI	OR	95% CI
GT Score at Interview	4.7	118	4.5	88	1.1	0.8-1.4	1.1	1.5-1.6	1.1	0.8-1.5
Weschler Adult Intelligence Scale Information Subtest	1.1	28	1.0	20	1.1	0.6-2.0	1.1	0.6-2.0	—	—
Block design subtest	1.6	40	1.0	20	1.6	0.9-2.7	1.6	0.9-2.9	1.6	0.9-2.8
Rey-Osterrieth Figure Copy	5.1	127	4.4	86	1.2	0.9-1.6	1.1	0.8-1.5	1.0	0.8-1.4
Immediate recall	3.5	88	3.1	62	1.1	0.8-1.6	1.0	0.7-1.4	1.0	0.7-1.4
Delayed recall	2.7	67	2.6	51	1.0	0.7-1.5	0.9	0.6-1.4	1.0	0.6-1.4
% change, copy to immediate recall	3.5	88	3.5	69	1.0	0.7-1.4	0.9 ^c	0.7-1.3	0.9	0.7-1.3
% change, immediate recall to delayed recall	1.8	44	1.7	33	1.1	0.7-1.7	0.9	0.6-1.5	0.8	0.5-1.3
Wisconsin Card Sort										
Perseverations to countables	5.2	129	4.9	97	1.1	0.8-1.4	1.0	0.7-1.3	1.0	0.7-1.3
Shifts of feedback to countables	5.3	133	4.6	91	1.2	0.9-1.5	1.2	0.9-1.5	1.1	0.9-1.5
Times lost set to countables	5.0	125	3.8	74	1.4	1.0-1.8	1.3	1.0-1.8	1.3	0.9-1.8
Average number of trials per sort	5.7	143	4.5	89	1.3	1.0-1.7	1.3	1.0-1.7	1.3	0.9-1.7
Paced Auditory Serial Addition Test										
Ranking	0.0	0	0.0	0	—	—	—	—	—	—
First trial total correct	6.4	158	5.8	115	1.1	0.9-1.4	1.0	0.8-1.3	0.9	0.7-1.2
Total correct across all trials	1.7	41	1.5	30	1.1	0.7-1.7	1.0	0.6-1.6	1.0	0.6-1.6
Percent correct across all trials	4.8	120	4.2	82	1.2	0.9-1.6	1.1	0.8-1.4	1.0	0.7-1.4
Word List Generation										
Total verbal fluency	1.4	36	1.5	29	1.0	0.6-1.6	1.0	0.6-1.6	0.9	0.5-1.5
California verbal Learning Test										
Total correct trial 1	1.0	26	0.7	14	1.5	0.8-2.8	1.3	0.7-2.6	—	—
Total correct trial 5	3.2	80	2.3	45	1.4	1.0-2.1	1.4 ^d	0.9-2.0	1.3	0.9-2.0

Table F.2 Percent and Number of Vietnam and Non-Vietnam Veterans With Neuropsychological Deficits (Cases Defined as Two Standard Deviations Away From Population Mean) and Odds Ratios – Continued

Condition	Vietnam		Non-Vietnam		Crude Results			Multivariate Results		
	%	No.	%	No.	OR	95% CI	Model 1 ^a	95% CI	Model 2 ^b	95% CI
							OR		OR	
California Verbal Learning Test – continued										
Total correct trials 1-5	3.3	82	2.5	49	1.3	0.9-1.9	1.3	0.9-1.9	1.3	0.9-2.0
Total correct short-delay free recall	3.0	74	2.1	42	1.4	1.0-2.1	1.5	1.0-2.2	1.4	0.9-2.1
Total correct long-delay free recall	3.1	77	2.0	40	1.5	1.0-2.3	1.5	1.0-2.3	1.5	1.0-2.3
Total perseverations	4.2	104	4.6	90	0.9	0.7-1.2	0.9	0.7-1.3	1.0	0.7-1.3
Total intrusions	3.8	95	4.1	80	0.9	0.7-1.3	0.9	0.6-1.2	0.9	0.6-1.2
Least squares regression line	1.9	48	2.0	39	1.0	0.6-1.5	1.1	0.7-1.7	1.1	0.7-1.7
Primary recall	2.3	58	2.2	43	1.1	0.7-1.6	1.0	0.7-1.6	1.0	0.7-1.5
Recency recall	2.0	51	1.5	29	1.4	0.9-2.2	1.4	0.9-2.3	1.4	0.9-2.3
% change, trials to short-delay free recall	0.6	16	0.8	16	0.8	0.4-1.6	0.8	0.4-1.7	–	–
% change, short-delay free recall to long-delay free recall	1.4	35	1.3	26	1.1	0.6-1.8	1.1	0.6-1.9	1.1	0.6-1.8
% enhancement semantic clustering	4.5	103	4.6	86	1.0	0.7-1.3	0.9	0.7-1.3	1.0	0.7-1.4
WRAT Reading	3.3	81	3.5	69	0.9	0.7-1.3	0.9	0.6-1.3	0.9	0.6-1.3
Grooved Pegboard										
Dominant hand	4.1	101	2.3	46	1.8	1.2-2.5	1.7	1.1-2.4	1.6	1.1-2.3
Nondominant hand	3.5	88	2.8	55	1.3	0.9-1.8	1.1	0.8-1.6	1.1	0.7-1.5

^a Model 1 contains the six entry characteristics.

^b Model 2 contains the six entry characteristics and marital status, education, current alcohol use, and current drug use.

^c Standardized for race

^d Standardized for age at entry.

**Table F.3 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Army Classification Battery — Verbal Reasoning Standard Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	115.3	22.8	0.46	50	70	82	117	145	145	150	150
30-48 yrs	Non-Vietnam	1972	118.1	23.3	0.52	50	72	87	123	145	150	150	150
White													
30-39 yrs	Vietnam	1638	118.6	20.2	0.50	50	80	90	121	145	145	150	150
30-39 yrs	Non-Vietnam	1153	121.5	20.5	0.60	50	80	94	125	145	150	150	150
40-48 yrs	Vietnam	416	117.7	24.5	1.20	50	65	81	123	145	150	150	150
40-48 yrs	Non-Vietnam	447	124.3	21.5	1.02	50	79	95	130	150	150	150	150
Black													
30-39 yrs	Vietnam	211	99.7	22.8	1.57	50	54	65	103	130	133	150	150
30-39 yrs	Non-Vietnam	181	97.8	24.1	1.79	50	50	58	100	129	136	150	150
40-48 yrs	Vietnam	75	93.9	26.4	3.04	50	50	54	90	133	133	145	145
40-48 yrs	Non-Vietnam	58	99.0	27.5	3.61	50	50	50	106	133	136	150	150

^a All races include white, black, and other.

**Table F.4 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Army Classification Battery – Arithmetic Reasoning Standard Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	103.6	23.9	0.48	50	50	71	107	131	138	160	
30-48 yrs	Non-Vietnam	1972	105.8	25.0	0.56	50	50	68	110	136	141	160	
White													
30-39 yrs	Vietnam	1638	107.4	21.9	0.54	50	64	79	110	131	141	160	
30-39 yrs	Non-Vietnam	1153	109.5	23.4	0.69	50	64	76	112	136	141	160	
40-48 yrs	Vietnam	416	106.5	25.0	1.23	50	50	71	110	136	141	160	
40-48 yrs	Non-Vietnam	447	112.1	22.6	1.07	50	68	79	116	136	141	160	
Black													
30-39 yrs	Vietnam	211	83.9	21.4	1.48	50	50	50	84	114	117	136	
30-39 yrs	Non-Vietnam	181	82.3	22.2	1.65	50	50	50	84	110	120	138	
40-48 yrs	Vietnam	75	78.9	23.3	2.68	50	50	50	71	114	118	125	
40-48 yrs	Non-Vietnam	58	85.9	22.2	2.91	50	50	50	86	118	120	122	

^a All races include white, black, and other.

**Table F.5 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Army Classification Battery – Current General Technical Standard Score**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races ^b												
30-48 yrs	Vietnam	2489	109.4	21.4	0.43	50	68	79	113	135	140	153
30-48 yrs	Non-Vietnam	1972	111.9	22.2	0.50	50	69	80	116	138	142	155
White												
30-39 yrs	Vietnam	1637	113.0	19.1	0.47	50	76	87	116	135	140	153
30-39 yrs	Non-Vietnam	1153	115.5	19.9	0.59	50	76	88	120	138	143	155
40-48 yrs	Vietnam	416	112.1	22.6	1.11	50	69	79	117	138	143	151
40-48 yrs	Non-Vietnam	447	118.2	20.3	0.96	50	79	89	123	140	143	155
Black												
30-39 yrs	Vietnam	211	91.8	19.8	1.37	50	58	63	93	117	125	136
30-39 yrs	Non-Vietnam	181	90.1	20.5	1.52	50	50	62	92	117	124	144
40-48 yrs	Vietnam	75	86.4	22.2	2.56	50	50	60	83	120	126	132
40-48 yrs	Non-Vietnam	58	92.4	22.8	2.99	50	50	56	94	120	124	135

^a Numbers do not add to 2,490 for Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.6 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wechsler Adult Intelligence Scale-Revised – Information Subtest Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	18.6	5.2	0.11	3	9	11	19	25	26	29
30-48 yrs	Non-Vietnam	1972	19.4	5.4	0.12	3	9	12	20	26	27	29
White												
30-39 yrs	Vietnam	1638	19.1	5.0	0.12	5	10	12	20	25	27	29
30-39 yrs	Non-Vietnam	1153	19.8	5.1	0.15	3	11	13	21	26	27	29
40-48 yrs	Vietnam	416	19.4	5.4	0.26	4	8	12	20	26	27	29
40-48 yrs	Non-Vietnam	447	20.8	5.1	0.24	4	12	14	22	27	28	29
Black												
30-39 yrs	Vietnam	211	15.7	5.2	0.36	5	8	9	16	23	25	28
30-39 yrs	Non-Vietnam	181	15.4	4.7	0.35	6	8	9	15	22	24	28
40-48 yrs	Vietnam	75	15.5	4.9	0.56	6	8	9	16	22	23	25
40-48 yrs	Non-Vietnam	58	16.9	4.8	0.63	8	9	9	18	24	25	28

^a All races include white, black, and other.

**Table F.7 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wechsler Adult Intelligence Scale-Revised — Information Subtest Scaled Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					
							5th	10th	50th	90th	95th	Max
All Races ^a												
30-48 yrs	Vietnam	2490	9.9	2.7	0.05	2	6	6	10	13	14	18
30-48 yrs	Non-Vietnam	1972	10.3	2.9	0.06	2	6	7	10	14	15	18
White												
30-39 yrs	Vietnam	1638	10.1	2.6	0.07	4	6	7	10	13	15	18
30-39 yrs	Non-Vietnam	1153	10.5	2.8	0.08	2	6	7	10	14	15	18
40-48 yrs	Vietnam	416	10.4	2.8	0.14	3	5	7	10	14	15	18
40-48 yrs	Non-Vietnam	447	11.2	2.9	0.14	3	7	8	12	15	16	18
Black												
30-39 yrs	Vietnam	211	8.5	2.5	0.17	4	5	6	8	12	13	16
30-39 yrs	Non-Vietnam	181	8.2	2.3	0.17	4	5	6	8	12	13	16
40-48 yrs	Vietnam	75	8.4	2.2	0.26	4	5	6	8	12	12	13
40-48 yrs	Non-Vietnam	58	9.0	2.3	0.30	5	6	6	9	13	13	16

^a All races include white, black, and other.

**Table F.8 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wechsler Adult Intelligence Scale-Revised — Block Design Subtest Raw Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	29.3	9.8	0.20	0	13	17	30	42	44	51	
30-48 yrs	Non-Vietnam	1972	30.8	9.8	0.22	0	14	18	31	43	46	51	
White													
30-39 yrs	Vietnam	1638	30.9	9.0	0.22	0	16	19	31	42	45	51	
30-39 yrs	Non-Vietnam	1153	32.3	9.3	0.27	4	16	20	33	44	47	51	
40-48 yrs	Vietnam	416	30.3	9.7	0.48	3	14	18	30	43	45	50	
40-48 yrs	Non-Vietnam	447	32.2	9.2	0.44	6	17	20	33	44	46	50	
Black													
30-39 yrs	Vietnam	211	20.8	9.1	0.62	1	7	9	21	33	35	45	
30-39 yrs	Non-Vietnam	181	21.9	8.5	0.63	0	7	10	21	33	37	43	
40-48 yrs	Vietnam	75	18.7	9.1	1.06	0	6	8	17	31	37	43	
40-48 yrs	Non-Vietnam	58	19.7	7.5	0.99	2	6	11	19	31	34	39	

^a All races include white, black, and other.

**Table F.9 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wechsler Adult Intelligence Scale-Revised -- Block Design Subtest Scaled Score**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile					Max	
						Min	5th	10th	50th	90th		95th
All Races ^a												
30-48 yrs	Vietnam	2490	10.4	2.6	0.05	2	6	7	10	14	15	19
30-48 yrs	Non-Vietnam	1972	10.7	2.7	0.06	2	7	7	11	14	15	19
White												
30-39 yrs	Vietnam	1638	10.7	2.5	0.06	2	7	8	11	14	15	19
30-39 yrs	Non-Vietnam	1153	11.1	2.6	0.08	4	7	8	11	15	15	19
40-48 yrs	Vietnam	416	10.7	2.6	0.13	4	7	8	10	14	15	18
40-48 yrs	Non-Vietnam	447	11.2	2.5	0.12	5	7	8	11	15	15	18
Black												
30-39 yrs	Vietnam	211	8.3	2.2	0.15	3	5	6	8	11	12	15
30-39 yrs	Non-Vietnam	181	8.3	2.0	0.15	2	5	6	8	11	12	14
40-48 yrs	Vietnam	75	7.8	2.2	0.25	2	5	6	7	11	12	14
40-48 yrs	Non-Vietnam	58	8.0	1.8	0.23	4	5	6	8	11	12	13

^a All races include white, black, and other.

**Table F.10 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – "F" Verbal Fluency**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	11.9	4.14	0.08	1	6	7	12	17	19	31
30-48 yrs	Non-Vietnam	1972	12.2	4.22	0.10	0	6	7	12	18	20	27
White												
30-39 yrs	Vietnam	1638	12.0	4.14	0.10	1	6	7	12	17	20	31
30-39 yrs	Non-Vietnam	1153	12.2	4.17	0.12	0	6	7	12	18	20	26
40-48 yrs	Vietnam	416	11.7	4.30	0.21	2	5	6	11	17	19	26
40-48 yrs	Non-Vietnam	447	12.4	4.45	0.21	1	6	7	12	18	21	26
Black												
30-39 yrs	Vietnam	211	12.0	3.99	0.27	1	6	7	12	17	18	26
30-39 yrs	Non-Vietnam	181	12.1	4.21	0.31	1	5	7	12	17	20	27
40-48 yrs	Vietnam	75	12.4	4.05	0.47	4	6	6	13	17	20	23
40-48 yrs	Non-Vietnam	58	11.2	4.73	0.62	1	4	6	11	18	19	22

^a All races include white, black, and other.

**Table F.11 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – "A" Verbal Fluency**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	10.3	3.99	0.08	0	4	5	10	15	17	27
30-48 yrs	Non-Vietnam	1972	10.7	4.12	0.09	1	4	5	10	16	18	26
White												
30-39 yrs	Vietnam	1638	10.5	4.00	0.10	0	4	5	10	16	17	27
30-39 yrs	Non-Vietnam	1153	11.0	4.07	0.12	1	4	6	11	16	18	26
40-48 yrs	Vietnam	416	10.4	3.97	0.19	0	4	6	10	16	17	24
40-48 yrs	Non-Vietnam	447	11.0	4.35	0.21	2	4	5	11	17	19	25
Black												
30-39 yrs	Vietnam	211	9.5	3.90	0.27	0	4	5	9	15	17	22
30-39 yrs	Non-Vietnam	181	9.6	3.71	0.28	2	4	5	9	15	17	21
40-48 yrs	Vietnam	75	9.6	4.25	0.49	2	3	4	9	15	16	25
40-48 yrs	Non-Vietnam	58	9.2	4.63	0.61	1	4	5	8	17	18	20

^a All races include white, black, and other.

**Table F.12 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – "S": Verbal Fluency**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						Max
							5th	10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	12.5	4.43	0.09	0	5	7	12	18	20	34	
30-48 yrs	Non-Vietnam	1972	12.8	4.57	0.10	0	6	7	12	19	20	32	
White													
30-39 yrs	Vietnam	1638	12.7	4.33	0.11	1	6	7	13	18	20	34	
30-39 yrs	Non-Vietnam	1153	13.0	4.46	0.13	0	6	7	13	19	21	29	
40-48 yrs	Vietnam	416	12.4	4.54	0.22	0	5	7	12	18	20	29	
40-48 yrs	Non-Vietnam	447	13.0	4.78	0.23	2	6	7	13	19	22	30	
Black													
30-39 yrs	Vietnam	211	12.1	4.73	0.33	1	5	7	12	18	20	30	
30-39 yrs	Non-Vietnam	181	12.0	4.75	0.35	0	5	7	12	18	20	32	
40-48 yrs	Vietnam	75	12.4	5.03	0.58	3	5	6	12	20	22	24	
40-48 yrs	Non-Vietnam	58	11.4	5.47	0.72	1	3	5	11	18	20	29	

^a All races include white, black, and other.

**Table F.13 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – Total Verbal Fluency (FAS)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	34.7	10.7	0.21	4	18	21	34	49	53	83
30-48 yrs	Non-Vietnam	1972	35.7	11.2	0.25	3	18	22	35	50	55	78
White												
30-39 yrs	Vietnam	1638	35.1	10.6	0.26	4	19	22	35	49	53	83
30-39 yrs	Non-Vietnam	1153	36.2	11.0	0.32	7	19	22	36	51	55	78
40-48 yrs	Vietnam	416	34.5	11.0	0.54	6	18	21	34	49	54	74
40-48 yrs	Non-Vietnam	447	36.4	11.8	0.56	8	18	22	36	52	58	75
Black												
30-39 yrs	Vietnam	211	33.6	10.6	0.73	5	17	20	34	48	54	63
30-39 yrs	Non-Vietnam	181	33.7	10.8	0.81	3	17	20	33	47	53	76
40-48 yrs	Vietnam	75	34.4	11.8	1.37	13	15	19	34	51	56	60
40-48 yrs	Non-Vietnam	58	31.8	13.6	1.78	4	11	17	30	53	58	63

^a All races include white, black, and other.

**Table F.14 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – Animal Verbal Fluency**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races ^b												
30-48 yrs	Vietnam	2489	20.5	5.14	0.10	0	13	14	20	27	30	42
30-48 yrs	Non-Vietnam	1972	20.9	5.30	0.12	6	13	15	21	28	30	53
White												
30-39 yrs	Vietnam	1638	20.9	5.07	0.13	0	13	15	21	27	30	40
30-39 yrs	Non-Vietnam	1153	21.5	5.17	0.15	7	14	15	21	28	31	43
40-48 yrs	Vietnam	416	20.7	4.88	0.24	7	13	15	20	27	29	42
40-48 yrs	Non-Vietnam	447	21.5	5.49	0.26	6	14	15	21	29	31	53
Black												
30-39 yrs	Vietnam	211	18.7	5.45	0.38	6	11	12	18	26	29	36
30-39 yrs	Non-Vietnam	181	18.6	4.82	0.36	6	11	13	18	25	30	35
40-48 yrs	Vietnam	74	18.2	4.38	0.51	9	11	12	18	23	26	29
40-48 yrs	Non-Vietnam	58	17.9	4.37	0.57	10	11	12	18	24	26	27

^a Numbers do not add to 2,490 for Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.15 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test – Total Verbal Fluency Errors**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	2.4	2.59	0.05	0	0	2	5	7	45	
30-48 yrs	Non-Vietnam	1972	2.2	2.26	0.05	0	0	2	5	6	18	
White												
30-39 yrs	Vietnam	1638	2.2	2.57	0.06	0	0	2	5	7	45	
30-39 yrs	Non-Vietnam	1153	2.0	2.14	0.06	0	0	1	5	6	18	
40-48 yrs	Vietnam	416	2.4	2.32	0.11	0	0	2	5	7	17	
40-48 yrs	Non-Vietnam	447	2.2	2.09	0.10	0	0	2	5	6	15	
Black												
30-39 yrs	Vietnam	211	3.2	3.00	0.21	0	0	2	8	9	13	
30-39 yrs	Non-Vietnam	181	2.9	2.92	0.22	0	0	2	7	9	18	
40-48 yrs	Vietnam	75	3.4	3.01	0.35	0	0	3	6	9	19	
40-48 yrs	Non-Vietnam	58	3.2	2.65	0.35	0	0	3	6	9	14	

^a All races include white, black, and other.

**Table F.16 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wordlist Generation Test — Animal Verbal Fluency Errors**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2489	0.6	0.94	0.02	0	0	0	0	2	2	11
30-48 yrs	Non-Vietnam	1972	0.6	0.93	0.02	0	0	0	0	2	2	8
White												
30-39 yrs	Vietnam	1638	0.5	0.83	0.02	0	0	0	0	1	2	8
30-39 yrs	Non-Vietnam	1153	0.5	0.83	0.02	0	0	0	0	2	2	8
40-48 yrs	Vietnam	416	0.6	0.91	0.04	0	0	0	0	2	2	5
40-48 yrs	Non-Vietnam	447	0.5	0.93	0.04	0	0	0	0	2	2	6
Black												
30-39 yrs	Vietnam	211	1.0	1.41	0.10	0	0	0	1	3	3	11
30-39 yrs	Non-Vietnam	181	0.8	1.31	0.10	0	0	0	0	2	4	7
40-48 yrs	Vietnam	74	0.9	1.18	0.14	0	0	0	1	3	4	5
40-48 yrs	Non-Vietnam	58	0.8	1.26	0.17	0	0	0	0	2	3	7

^a Numbers do not add to 2,490 for Vietnam veterans because of missing data.

^b All races include white, black, and other.

Table F.17 Summary Statistics for Psychological and Neuropsychological Battery Tests:
 Rey-Osterrieth Complex Figure Test – Copy Condition

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile					
									50th	90th	95th	Max		
All Races ^a														
30-48 yrs	Vietnam	2490	32.6	3.40	0.07	0	26	28	33	36	36	36		
30-48 yrs	Non-Vietnam	1972	32.9	3.18	0.07	2	27	29	34	36	36	36		
White														
30-39 yrs	Vietnam	1638	32.9	3.08	0.08	0	27	29	34	36	36	36		
30-39 yrs	Non-Vietnam	1153	33.2	2.99	0.09	8	27	29	34	36	36	36		
40-48 yrs	Vietnam	416	32.9	3.07	0.15	18	27	29	34	36	36	36		
40-48 yrs	Non-Vietnam	447	33.1	3.05	0.14	16	27	29	34	36	36	36		
Black														
30-39 yrs	Vietnam	211	30.7	4.60	0.32	9	23	25	32	35	36	36		
30-39 yrs	Non-Vietnam	181	31.7	3.55	0.26	20	24	27	33	35	36	36		
40-48 yrs	Vietnam	75	29.5	5.00	0.58	18	20	21	31	35	36	36		
40-48 yrs	Non-Vietnam	58	31.9	3.38	0.44	22	25	26	33	35	36	36		

^a All races include white, black, and other.

**Table F.18 Summary Statistics for Psychological and Neuropsychological Battery Tests:
 Rey-Osterrieth Complex Figure Test – Immediate Recall Condition**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile						Max
								10th	50th	90th	95th			
All Races^a														
30-48 yrs	Vietnam	2490	19.9	6.79	0.14	0	8	11	21	28	30	36		
30-48 yrs	Non-Vietnam	1972	20.4	6.69	0.15	0	9	12	21	29	30	36		
White														
30-39 yrs	Vietnam	1638	20.5	6.62	0.16	0	9	12	21	29	31	36		
30-39 yrs	Non-Vietnam	1153	21.5	6.42	0.19	1	10	13	22	29	31	36		
40-48 yrs	Vietnam	416	19.7	6.86	0.34	0	8	11	20	28	29	34		
40-48 yrs	Non-Vietnam	447	20.3	6.25	0.30	2	9	12	22	28	29	34		
Black														
30-39 yrs	Vietnam	211	16.5	6.73	0.46	0	6	8	17	26	28	31		
30-39 yrs	Non-Vietnam	181	16.4	6.79	0.50	0	4	7	17	25	27	33		
40-48 yrs	Vietnam	75	16.1	7.00	0.81	4	6	7	17	25	26	30		
40-48 yrs	Non-Vietnam	58	17.3	7.77	1.02	2	3	5	18	27	32	34		

^a All races include white, black, and other.

Table F.19 Summary Statistics for Psychological and Neuropsychological Battery Tests:
 Rey-Osterrieth Complex Figure Test - Delayed Recall Condition

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	20.0	6.32	0.13	0	9	12	21	28	30	36
30-48 yrs	Non-Vietnam	1972	20.5	6.33	0.14	0	10	12	21	29	30	36
White												
30-39 yrs	Vietnam	1638	20.7	6.22	0.15	0	10	12	21	29	30	36
30-39 yrs	Non-Vietnam	1153	21.5	6.21	0.18	0	11	13	22	29	31	36
40-48 yrs	Vietnam	416	19.9	6.30	0.31	0	10	12	20	28	30	34
40-48 yrs	Non-Vietnam	447	20.6	5.83	0.28	0	11	13	22	28	29	33
Black												
30-39 yrs	Vietnam	211	17.0	6.09	0.42	0	7	9	17	25	28	30
30-39 yrs	Non-Vietnam	181	16.9	5.85	0.43	3	7	9	17	24	27	33
40-48 yrs	Vietnam	75	16.4	6.64	0.77	5	6	7	16	25	26	30
40-48 yrs	Non-Vietnam	58	17.5	7.33	0.96	4	5	7	18	27	31	34

^a All races include white, black, and other.

**Table F.20 Summary Statistics for Psychological and Neuropsychological Battery Tests:
 Rey-Osterrieth Complex Figure Test – Percent Change From Copy to Immediate Recall Conditions**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^b													
30-48 yrs	Vietnam	2489	-39.5	19.2	0.38	-100	-73	-65	-38	-17	-12	117	
30-48 yrs	Non-Vietnam	1972	-38.2	18.8	0.42	-100	-72	-63	-36	-16	-11	69	
White													
30-39 yrs	Vietnam	1637	-37.9	19.0	0.47	-100	-71	-63	-36	-15	-11	117	
30-39 yrs	Non-Vietnam	1153	-35.6	17.7	0.52	-99	-67	-59	-33	-14	-9	6	
40-48 yrs	Vietnam	416	-40.4	19.2	0.94	-100	-73	-66	-38	-18	-14	4	
40-48 yrs	Non-Vietnam	447	-38.5	18.5	0.88	-96	-70	-64	-36	-17	-13	69	
Black													
30-39 yrs	Vietnam	211	-46.8	19.1	1.31	-100	-78	-73	-47	-23	-16	-4	
30-39 yrs	Non-Vietnam	181	-48.6	19.7	1.47	-100	-84	-80	-47	-27	-18	5	
40-48 yrs	Vietnam	75	-46.4	19.2	2.22	-88	-78	-74	-41	-25	-19	-14	
40-48 yrs	Non-Vietnam	58	-45.9	23.2	3.05	-94	-89	-83	-43	-20	-7	3	

^a Numbers do not add to 2,490 for Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.21 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Rey-Osterrieth Complex Figure Test — Percent Change From Immediate Recall to Delayed Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2483	6.3	46.0	0.92	-100	-19	-15	0	24	42	933	
30-48 yrs	Non-Vietnam	1968	4.4	36.4	0.82	-100	-21	-15	0	23	35	1000	
White													
30-39 yrs	Vietnam	1636	5.3	41.6	1.03	-86	-19	-15	0	21	39	933	
30-39 yrs	Non-Vietnam	1152	2.1	21.5	0.63	-100	-21	-15	0	19	31	300	
40-48 yrs	Vietnam	413	7.0	60.6	2.98	-100	-20	-15	0	22	36	900	
40-48 yrs	Non-Vietnam	447	4.6	32.5	1.54	-100	-21	-14	0	22	33	500	
Black													
30-39 yrs	Vietnam	209	12.0	55.7	3.85	-42	-25	-17	3	44	68	550	
30-39 yrs	Non-Vietnam	179	16.4	84.1	6.28	-52	-23	-19	0	56	91	1000	
40-48 yrs	Vietnam	75	6.2	25.6	2.95	-37	-25	-16	0	32	54	142	
40-48 yrs	Non-Vietnam	58	13.3	64.1	8.41	-47	-27	-17	0	30	107	400	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans. If calculation involved division by zero or if maximum value was greater than 1,000, then participant data were excluded.

^b All races include white, black, and other.

Table F.22 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test – Total Time in Seconds With Dominant Hand

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2487	73.7	12.0	0.24	49	58	61	72	88	95	180
30-48 yrs	Non-Vietnam	1971	73.0	11.4	0.26	48	58	61	72	86	91	180
White												
30-39 yrs	Vietnam	1635	73.0	10.9	0.27	49	58	61	72	87	93	154
30-39 yrs	Non-Vietnam	1152	72.2	10.6	0.31	48	58	61	71	85	89	180
40-48 yrs	Vietnam	416	73.6	13.1	0.64	51	59	61	72	87	94	180
40-48 yrs	Non-Vietnam	447	73.1	12.1	0.57	51	58	61	72	86	94	163
Black												
30-39 yrs	Vietnam	211	78.1	13.7	0.94	57	60	63	75	95	102	159
30-39 yrs	Non-Vietnam	181	76.7	11.4	0.85	54	61	62	75	93	97	117
40-48 yrs	Vietnam	75	80.5	17.2	1.98	56	58	63	78	97	113	155
40-48 yrs	Non-Vietnam	58	79.6	17.7	2.32	60	62	65	76	97	101	180

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.23 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test – Total Time in Seconds With Nondominant Hand**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					
							5th	10th	50th	90th	95th	Max
All Races ^b												
30-48 yrs	Vietnam	2484	78.2	14.0	0.28	52	60	64	76	94	102	180
30-48 yrs	Non-Vietnam	1958	77.0	13.4	0.30	48	60	63	75	93	100	180
White												
30-39 yrs	Vietnam	1634	77.1	12.5	0.31	52	60	63	76	93	98	180
30-39 yrs	Non-Vietnam	1143	75.9	11.8	0.35	52	60	63	74	91	96	180
40-48 yrs	Vietnam	415	78.9	15.4	0.76	53	62	64	76	95	104	180
40-48 yrs	Non-Vietnam	445	77.0	13.5	0.64	48	59	63	75	93	101	153
Black												
30-39 yrs	Vietnam	210	83.3	16.8	1.16	59	64	65	80	103	109	166
30-39 yrs	Non-Vietnam	180	82.5	17.2	1.28	51	65	66	79	102	116	180
40-48 yrs	Vietnam	75	90.5	21.4	2.48	59	66	69	84	120	135	162
40-48 yrs	Non-Vietnam	57	83.8	17.4	2.30	61	64	65	81	107	126	135

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.24 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test — Total Time in Seconds With Right Hand**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	5th	Percentile				Max
								10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2486	74.0	12.1	0.24	49	58	61	72	88	95	180
30-48 yrs	Non-Vietnam	1964	73.2	11.4	0.26	48	58	61	72	87	92	180
White												
30-39 yrs	Vietnam	1635	73.3	11.2	0.28	49	58	61	72	87	94	154
30-39 yrs	Non-Vietnam	1147	72.4	10.7	0.32	48	58	61	71	85	89	180
40-48 yrs	Vietnam	416	74.3	13.4	0.66	51	59	61	72	88	95	180
40-48 yrs	Non-Vietnam	447	73.4	12.2	0.58	48	58	61	72	87	94	163
Black												
30-39 yrs	Vietnam	210	78.5	13.8	0.95	57	61	63	76	97	103	159
30-39 yrs	Non-Vietnam	180	76.7	11.6	0.87	51	60	62	75	93	97	117
40-48 yrs	Vietnam	75	80.0	16.3	1.88	56	58	63	79	96	104	155
40-48 yrs	Non-Vietnam	57	78.9	13.8	1.83	60	62	65	76	97	102	135

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.25 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test – Total Time in Seconds With Left Hand**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2483	77.9	14.0	0.28	50	60	64	76	94	101	180
30-48 yrs	Non-Vietnam	1965	76.8	13.4	0.30	50	60	63	75	92	99	180
White												
30-39 yrs	Vietnam	1632	76.7	12.4	0.31	50	60	63	75	92	98	180
30-39 yrs	Non-Vietnam	1148	75.7	11.8	0.35	50	60	63	74	90	95	180
40-48 yrs	Vietnam	415	78.2	15.3	0.75	53	61	64	75	94	102	180
40-48 yrs	Non-Vietnam	445	76.7	13.5	0.64	53	59	63	74	93	100	153
Black												
30-39 yrs	Vietnam	211	82.8	16.8	1.16	58	64	65	80	102	108	166
30-39 yrs	Non-Vietnam	181	82.5	17.0	1.27	58	65	66	79	102	116	180
40-48 yrs	Vietnam	75	91.0	21.9	2.53	59	65	69	86	123	135	162
40-48 yrs	Non-Vietnam	58	84.4	20.4	2.68	61	64	65	80	107	126	180

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.26 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test — Ratio of Dominant Hand Minus Nondominant Hand to Dominant Hand in Seconds**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	5th	Percentile							Max
								10th	50th	90th	95th				
All Races ^b															
30-48 yrs	Vietnam	2482	-0.07	0.142	0.003	-1.47	-0.30	-0.24	-0.06	0.09	0.13	0.40			
30-48 yrs	Non-Vietnam	1958	-0.06	0.145	0.003	-1.54	-0.29	-0.24	-0.05	0.10	0.15	0.44			
White															
30-39 yrs	Vietnam	1632	-0.06	0.132	0.003	-0.79	-0.30	-0.23	-0.05	0.09	0.12	0.40			
30-39 yrs	Non-Vietnam	1143	-0.06	0.142	0.004	-1.54	-0.29	-0.23	-0.05	0.10	0.15	0.44			
40-48 yrs	Vietnam	415	-0.08	0.163	0.008	-1.47	-0.30	-0.24	-0.07	0.09	0.13	0.29			
40-48 yrs	Non-Vietnam	445	-0.06	0.132	0.006	-0.56	-0.28	-0.24	-0.05	0.10	0.15	0.29			
Black															
30-39 yrs	Vietnam	210	-0.07	0.167	0.012	-0.78	-0.37	-0.29	-0.05	0.11	0.15	0.40			
30-39 yrs	Non-Vietnam	180	-0.08	0.189	0.014	-1.12	-0.41	-0.27	-0.05	0.12	0.15	0.24			
40-48 yrs	Vietnam	75	-0.13	0.161	0.019	-0.69	-0.50	-0.31	-0.12	0.04	0.07	0.33			
40-48 yrs	Non-Vietnam	57	-0.08	0.139	0.018	-0.48	-0.37	-0.24	-0.06	0.10	0.12	0.22			

^a Numbers do not add to 2,490 for Vietnam veterans or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.27 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Grooved Pegboard Test — Ratio of Right Hand Minus Left Hand to Right Hand in Seconds**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2482	-0.06	0.144	0.003	-1.47	-0.30	-0.24	-0.05	0.10	0.15	0.40	
30-48 yrs	Non-Vietnam	1958	-0.05	0.146	0.003	-1.54	-0.28	-0.23	-0.04	0.11	0.15	0.44	
White													
30-39 yrs	Vietnam	1632	-0.05	0.133	0.003	-0.79	-0.29	-0.22	-0.04	0.10	0.14	0.40	
30-39 yrs	Non-Vietnam	1143	-0.05	0.143	0.004	-1.54	-0.28	-0.23	-0.04	0.11	0.15	0.44	
40-48 yrs	Vietnam	415	-0.06	0.166	0.008	-1.47	-0.28	-0.23	-0.05	0.12	0.17	0.38	
40-48 yrs	Non-Vietnam	445	-0.05	0.134	0.006	-0.56	-0.28	-0.22	-0.04	0.11	0.16	0.29	
Black													
30-39 yrs	Vietnam	210	-0.06	0.170	0.012	-0.78	-0.37	-0.29	-0.04	0.12	0.16	0.40	
30-39 yrs	Non-Vietnam	180	-0.08	0.188	0.014	-1.12	-0.41	-0.27	-0.05	0.12	0.16	0.24	
40-48 yrs	Vietnam	75	-0.14	0.159	0.018	-0.69	-0.50	-0.34	-0.12	0.04	0.06	0.13	
40-48 yrs	Non-Vietnam	57	-0.05	0.141	0.019	-0.45	-0.30	-0.23	-0.05	0.11	0.15	0.33	

^a Numbers do not add to 2,490 for Vietnam veterans or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.28 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test — Number of Sorts Achieved**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	5.2	1.44	0.03	1	2	3	6	6	6	6
30-48 yrs	Non-Vietnam	1972	5.3	1.35	0.03	1	2	3	6	6	6	6
White												
30-39 yrs	Vietnam	1638	5.4	1.36	0.03	1	2	3	6	6	6	6
30-39 yrs	Non-Vietnam	1153	5.4	1.29	0.04	1	2	3	6	6	6	6
40-48 yrs	Vietnam	416	5.2	1.48	0.07	1	1	3	6	6	6	6
40-48 yrs	Non-Vietnam	447	5.4	1.32	0.06	1	2	3	6	6	6	6
Black												
30-39 yrs	Vietnam	211	4.7	1.63	0.11	1	2	2	6	6	6	6
30-39 yrs	Non-Vietnam	181	5.0	1.53	0.11	1	2	2	6	6	6	6
40-48 yrs	Vietnam	75	4.8	1.70	0.20	1	1	2	6	6	6	6
40-48 yrs	Non-Vietnam	58	4.6	1.76	0.23	1	1	2	6	6	6	6

^a All races include white, black, and other.

**Table F.29 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test — Average Number of Trials Per Sort**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	21.4	13.3	0.27	11	12	12	16	39	54	128	
30-48 yrs	Non-Vietnam	1972	20.2	12.2	0.28	11	12	15	32	43	126		
White													
30-39 yrs	Vietnam	1638	20.3	12.5	0.31	11	12	15	33	46	127		
30-39 yrs	Non-Vietnam	1153	19.4	11.8	0.35	11	12	15	32	43	126		
40-48 yrs	Vietnam	416	21.5	13.4	0.66	12	12	16	39	64	68		
40-48 yrs	Non-Vietnam	447	19.4	12.2	0.58	11	12	15	33	43	98		
Black													
30-39 yrs	Vietnam	211	26.5	14.3	0.99	11	12	21	43	56	128		
30-39 yrs	Non-Vietnam	181	24.3	12.5	0.93	11	12	21	39	62	64		
40-48 yrs	Vietnam	75	27.1	17.9	2.07	12	13	21	64	64	112		
40-48 yrs	Non-Vietnam	58	27.1	15.6	2.05	12	13	21	64	64	75		

^a All races include white, black, and other.

**Table F.30 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test -- Ratio of Perseverative Responses to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	0.16	0.142	0.003	0.00	0.00	0.01	0.11	0.36	0.44	1.03
30-48 yrs	Non-Vietnam	1972	0.15	0.137	0.003	0.00	0.00	0.01	0.11	0.34	0.43	1.09
White												
30-39 yrs	Vietnam	1638	0.14	0.134	0.003	0.00	0.00	0.01	0.10	0.33	0.41	0.91
30-39 yrs	Non-Vietnam	1153	0.13	0.127	0.004	0.00	0.00	0.01	0.09	0.31	0.39	1.09
40-48 yrs	Vietnam	416	0.16	0.145	0.007	0.00	0.00	0.01	0.11	0.37	0.45	0.67
40-48 yrs	Non-Vietnam	447	0.13	0.134	0.006	0.00	0.00	0.01	0.09	0.32	0.44	0.73
Black												
30-39 yrs	Vietnam	211	0.23	0.158	0.011	0.00	0.03	0.05	0.20	0.45	0.50	1.03
30-39 yrs	Non-Vietnam	181	0.21	0.149	0.011	0.00	0.01	0.04	0.17	0.45	0.48	0.61
40-48 yrs	Vietnam	75	0.23	0.164	0.019	0.00	0.03	0.06	0.21	0.46	0.55	0.87
40-48 yrs	Non-Vietnam	58	0.25	0.160	0.021	0.00	0.03	0.05	0.26	0.48	0.55	0.59

^a All races include white, black, and other.

**Table F.31 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test – Ratio of Perseverative Responses Within One Category to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	0.08	0.087	0.002	0.00	0.00	0.00	0.05	0.19	0.24	0.55
30-48 yrs	Non-Vietnam	1972	0.07	0.083	0.002	0.00	0.00	0.04	0.18	0.23	0.56	
White												
30-39 yrs	Vietnam	1638	0.07	0.080	0.002	0.00	0.00	0.04	0.17	0.23	0.55	
30-39 yrs	Non-Vietnam	1153	0.07	0.076	0.002	0.00	0.00	0.04	0.17	0.22	0.56	
40-48 yrs	Vietnam	416	0.08	0.092	0.004	0.00	0.00	0.05	0.21	0.25	0.55	
40-48 yrs	Non-Vietnam	447	0.07	0.084	0.004	0.00	0.00	0.04	0.18	0.23	0.55	
Black												
30-39 yrs	Vietnam	211	0.11	0.093	0.006	0.00	0.01	0.02	0.09	0.23	0.25	0.55
30-39 yrs	Non-Vietnam	181	0.10	0.093	0.007	0.00	0.00	0.01	0.08	0.22	0.25	0.55
40-48 yrs	Vietnam	75	0.13	0.117	0.014	0.00	0.02	0.02	0.09	0.31	0.43	0.55
40-48 yrs	Non-Vietnam	58	0.14	0.122	0.016	0.00	0.03	0.12	0.27	0.27	0.53	0.55

^a All races include white, black, and other.

**Table F.32 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test – Ratio of Correct Responses to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	0.78	0.178	0.004	0.21	0.42	0.51	0.84	0.96	0.97	1.00
30-48 yrs	Non-Vietnam	1972	0.80	0.169	0.004	0.24	0.44	0.54	0.86	0.97	0.98	1.00
White												
30-39 yrs	Vietnam	1638	0.80	0.170	0.004	0.21	0.43	0.53	0.86	0.97	0.98	1.00
30-39 yrs	Non-Vietnam	1153	0.81	0.158	0.005	0.24	0.47	0.57	0.87	0.97	0.98	1.00
40-48 yrs	Vietnam	416	0.78	0.182	0.009	0.24	0.41	0.50	0.85	0.96	0.97	1.00
40-48 yrs	Non-Vietnam	447	0.82	0.169	0.008	0.24	0.43	0.56	0.87	0.97	0.98	1.00
Black												
30-39 yrs	Vietnam	211	0.69	0.176	0.012	0.22	0.38	0.46	0.71	0.91	0.94	0.98
30-39 yrs	Non-Vietnam	181	0.72	0.182	0.014	0.26	0.42	0.46	0.75	0.94	0.97	1.00
40-48 yrs	Vietnam	75	0.69	0.200	0.023	0.23	0.26	0.40	0.69	0.91	0.95	0.98
40-48 yrs	Non-Vietnam	58	0.68	0.199	0.026	0.26	0.26	0.37	0.70	0.92	0.94	0.98

^a All races include white, black, and other.

**Table F.33 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test – Ratio of Shifts on Feedback to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	0.20	0.080	0.002	0.07	0.11	0.12	0.18	0.32	0.36	0.58	
30-48 yrs	Non-Vietnam	1972	0.19	0.076	0.002	0.07	0.11	0.11	0.17	0.30	0.35	0.55	
White													
30-39 yrs	Vietnam	1638	0.19	0.079	0.002	0.07	0.11	0.11	0.17	0.31	0.35	0.58	
30-39 yrs	Non-Vietnam	1153	0.19	0.072	0.002	0.07	0.11	0.11	0.17	0.29	0.34	0.48	
40-48 yrs	Vietnam	416	0.20	0.079	0.004	0.08	0.11	0.12	0.17	0.30	0.35	0.55	
40-48 yrs	Non-Vietnam	447	0.19	0.074	0.003	0.08	0.10	0.11	0.17	0.29	0.34	0.48	
Black													
30-39 yrs	Vietnam	211	0.24	0.081	0.006	0.10	0.14	0.15	0.23	0.35	0.37	0.55	
30-39 yrs	Non-Vietnam	181	0.23	0.085	0.006	0.08	0.11	0.13	0.22	0.35	0.40	0.47	
40-48 yrs	Vietnam	75	0.24	0.080	0.009	0.10	0.13	0.14	0.23	0.35	0.39	0.41	
40-48 yrs	Non-Vietnam	58	0.23	0.088	0.012	0.10	0.12	0.14	0.21	0.36	0.42	0.51	

^a All races include white, black, and other.

**Table F.34 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test -- Ratio of Correct Shifts on Feedback to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	0.14	0.035	0.001	0.06	0.10	0.10	0.13	0.19	0.21	0.32
30-48 yrs	Non-Vietnam	1972	0.13	0.035	0.001	0.06	0.10	0.10	0.12	0.19	0.20	0.27
White												
30-39 yrs	Vietnam	1638	0.13	0.035	0.001	0.06	0.10	0.10	0.12	0.18	0.20	0.32
30-39 yrs	Non-Vietnam	1153	0.13	0.034	0.001	0.06	0.10	0.10	0.12	0.18	0.20	0.26
40-48 yrs	Vietnam	416	0.13	0.034	0.002	0.08	0.10	0.10	0.13	0.18	0.20	0.26
40-48 yrs	Non-Vietnam	447	0.13	0.034	0.002	0.08	0.10	0.10	0.12	0.18	0.20	0.27
Black												
30-39 yrs	Vietnam	211	0.15	0.038	0.003	0.08	0.10	0.11	0.15	0.21	0.22	0.27
30-39 yrs	Non-Vietnam	181	0.15	0.036	0.003	0.08	0.10	0.10	0.14	0.19	0.21	0.27
40-48 yrs	Vietnam	75	0.15	0.034	0.004	0.10	0.10	0.10	0.14	0.20	0.21	0.24
40-48 yrs	Non-Vietnam	58	0.15	0.034	0.005	0.08	0.10	0.10	0.14	0.19	0.20	0.23

^a All races include white, black, and other.

**Table F.35 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test – Ratio of Number Times Loss Set to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	0.04	0.033	0.001	0.00	0.00	0.03	0.09	0.11	0.19		
30-48 yrs	Non-Vietnam	1972	0.04	0.032	0.001	0.00	0.00	0.03	0.08	0.10	0.22		
White													
30-39 yrs	Vietnam	1638	0.04	0.032	0.001	0.00	0.00	0.03	0.08	0.10	0.19		
30-39 yrs	Non-Vietnam	1153	0.04	0.032	0.001	0.00	0.00	0.03	0.08	0.10	0.16		
40-48 yrs	Vietnam	416	0.04	0.033	0.002	0.00	0.00	0.03	0.09	0.11	0.16		
40-48 yrs	Non-Vietnam	447	0.03	0.031	0.001	0.00	0.00	0.03	0.08	0.10	0.15		
Black													
30-39 yrs	Vietnam	211	0.06	0.034	0.002	0.00	0.01	0.05	0.11	0.12	0.16		
30-39 yrs	Non-Vietnam	181	0.05	0.033	0.002	0.00	0.01	0.05	0.10	0.11	0.22		
40-48 yrs	Vietnam	75	0.05	0.031	0.004	0.00	0.01	0.05	0.09	0.11	0.11		
40-48 yrs	Non-Vietnam	58	0.05	0.033	0.004	0.00	0.01	0.05	0.10	0.11	0.14		

^a All races include white, black, and other.

**Table F.36 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wisconsin Card Sort Test – Ratio of Compounds to Countables**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	0.48	0.060	0.001	0.13	0.37	0.41	0.49	0.55	0.56	0.62	
30-48 yrs	Non-Vietnam	1972	0.48	0.058	0.001	0.11	0.39	0.41	0.49	0.55	0.56	0.67	
White													
30-39 yrs	Vietnam	1638	0.48	0.059	0.001	0.13	0.38	0.42	0.49	0.55	0.56	0.62	
30-39 yrs	Non-Vietnam	1153	0.48	0.055	0.002	0.15	0.39	0.42	0.49	0.55	0.56	0.67	
40-48 yrs	Vietnam	416	0.48	0.059	0.003	0.15	0.37	0.41	0.48	0.54	0.56	0.60	
40-48 yrs	Non-Vietnam	447	0.48	0.055	0.003	0.22	0.39	0.42	0.49	0.55	0.56	0.63	
Black													
30-39 yrs	Vietnam	211	0.45	0.066	0.005	0.21	0.32	0.36	0.47	0.53	0.54	0.56	
30-39 yrs	Non-Vietnam	181	0.46	0.067	0.005	0.11	0.35	0.39	0.48	0.53	0.55	0.57	
40-48 yrs	Vietnam	75	0.47	0.052	0.006	0.26	0.36	0.42	0.47	0.53	0.54	0.56	
40-48 yrs	Non-Vietnam	58	0.46	0.067	0.009	0.14	0.33	0.41	0.47	0.52	0.53	0.54	

^a All races include white, black, and other.

**Table F.37 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Paced Auditory Serial Addition Test – Sum of Correct Responses Across All Trials**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2484	108.3	50.2	1.01	1	15	22	121	166	174	195	
30-48 yrs	Non-Vietnam	1966	109.5	51.4	1.16	1	16	22	125	168	176	196	
White													
30-39 yrs	Vietnam	1636	113.4	47.7	1.18	1	19	45	127	168	175	195	
30-39 yrs	Non-Vietnam	1150	115.2	49.4	1.46	1	18	42	130	169	179	196	
40-48 yrs	Vietnam	415	112.3	50.7	2.49	1	14	22	126	168	175	195	
40-48 yrs	Non-Vietnam	447	115.7	50.0	2.37	2	19	40	131	170	177	195	
Black													
30-39 yrs	Vietnam	208	81.6	50.4	3.50	2	10	14	86	147	161	181	
30-39 yrs	Non-Vietnam	181	76.8	48.9	3.64	2	11	16	74	143	152	172	
40-48 yrs	Vietnam	75	68.5	54.1	6.25	1	3	7	53	152	159	178	
40-48 yrs	Non-Vietnam	57	72.5	53.4	7.07	3	5	10	56	147	161	176	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.38 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Paced Auditory Serial Addition Test -- Percent of Items Given Which Were Correct Responses**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2484	0.63	0.168	0.003	0.02	0.30	0.42	0.65	0.83	0.87	0.97
30-48 yrs	Non-Vietnam	1966	0.64	0.169	0.004	0.02	0.32	0.42	0.65	0.84	0.88	0.98
White												
30-39 yrs	Vietnam	1636	0.65	0.155	0.004	0.02	0.36	0.46	0.66	0.84	0.88	0.97
30-39 yrs	Non-Vietnam	1150	0.66	0.163	0.005	0.02	0.36	0.45	0.67	0.84	0.89	0.98
40-48 yrs	Vietnam	415	0.64	0.174	0.009	0.02	0.28	0.42	0.66	0.84	0.88	0.97
40-48 yrs	Non-Vietnam	447	0.66	0.162	0.008	0.04	0.38	0.46	0.67	0.85	0.88	0.97
Black												
30-39 yrs	Vietnam	208	0.54	0.174	0.012	0.04	0.20	0.28	0.57	0.74	0.81	0.90
30-39 yrs	Non-Vietnam	181	0.53	0.160	0.012	0.04	0.22	0.32	0.56	0.72	0.76	0.86
40-48 yrs	Vietnam	75	0.49	0.220	0.025	0.02	0.06	0.13	0.52	0.77	0.80	0.89
40-48 yrs	Non-Vietnam	57	0.51	0.199	0.026	0.06	0.10	0.20	0.54	0.76	0.81	0.88

^a Numbers do not add to 2,490 for Vietnam veterans or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.39 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Paced Auditory Serial Addition Test -- Ranking of PASAT Performance -- From 1(LO) to 7 (HI)**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2484	4.0	1.88	0.04	1	1	1	4	7	7	7	
30-48 yrs	Non-Vietnam	1966	4.0	1.93	0.04	1	1	1	4	7	7	7	
White													
30-39 yrs	Vietnam	1636	4.1	1.83	0.05	1	1	2	4	7	7	7	
30-39 yrs	Non-Vietnam	1150	4.2	1.89	0.06	1	1	2	4	7	7	7	
40-48 yrs	Vietnam	415	4.1	1.93	0.09	1	1	1	4	7	7	7	
40-48 yrs	Non-Vietnam	447	4.3	1.95	0.09	1	1	2	4	7	7	7	
Black													
30-39 yrs	Vietnam	208	3.0	1.68	0.12	1	1	1	3	5	6	7	
30-39 yrs	Non-Vietnam	181	2.8	1.57	0.12	1	1	1	3	5	6	7	
40-48 yrs	Vietnam	75	2.6	1.75	0.20	1	1	1	2	6	6	7	
40-48 yrs	Non-Vietnam	57	2.8	1.77	0.23	1	1	1	2	5	6	7	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.40 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Paced Auditory Serial Addition Test -- First Trial, Total Correct Out of 50**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^b													
30-48 yrs	Vietnam	2484	38.8	10.56	0.21	1	15	22	43	48	49	49	
30-48 yrs	Non-Vietnam	1966	39.1	10.54	0.24	1	16	22	43	49	49	49	
White													
30-39 yrs	Vietnam	1636	40.1	9.54	0.24	1	19	26	43	48	49	49	
30-39 yrs	Non-Vietnam	1150	40.3	9.94	0.29	1	18	25	44	49	49	49	
40-48 yrs	Vietnam	415	38.9	10.68	0.52	1	14	22	43	48	49	49	
40-48 yrs	Non-Vietnam	447	40.4	9.67	0.46	2	19	25	44	49	49	49	
Black													
30-39 yrs	Vietnam	208	33.2	12.30	0.85	2	10	14	37	47	48	49	
30-39 yrs	Non-Vietnam	181	32.7	11.49	0.85	2	11	16	36	46	47	49	
40-48 yrs	Vietnam	75	29.7	14.58	1.68	1	3	7	32	47	49	49	
40-48 yrs	Non-Vietnam	57	30.2	13.19	1.75	3	5	10	33	45	47	49	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.41 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Paced Auditory Serial Addition Test – Fourth Trial, Total Correct Out of 50**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	1429	27.1	7.82	0.21	0	15	17	26	38	40	49	
30-48 yrs	Non-Vietnam	1146	27.7	8.08	0.24	0	16	18	27	39	42	49	
White													
30-39 yrs	Vietnam	996	27.3	7.87	0.25	0	15	17	26	38	41	49	
30-39 yrs	Non-Vietnam	715	28.0	8.22	0.31	0	15	18	27	40	42	49	
40-48 yrs	Vietnam	260	27.6	7.92	0.49	6	16	18	27	39	42	48	
40-48 yrs	Non-Vietnam	281	28.4	7.86	0.47	6	17	18	28	39	42	49	
Black													
30-39 yrs	Vietnam	75	23.9	6.45	0.75	11	14	16	23	32	35	39	
30-39 yrs	Non-Vietnam	65	23.1	6.01	0.75	11	13	16	23	31	34	38	
40-48 yrs	Vietnam	20	27.1	6.74	1.51	15	15	16	28	37	42	42	
40-48 yrs	Non-Vietnam	19	24.6	6.50	1.49	13	13	17	23	36	37	37	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans. A participant must have met a 50% correct criterion requirement for continuation to fourth trial.

^b All races include white, black, and other.

**Table F.42 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct Trial 1**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	6.2	1.72	0.03	1	4	4	6	8	9	13
30-48 yrs	Non-Vietnam	1972	6.4	1.68	0.04	1	4	4	6	8	9	13
White												
30-39 yrs	Vietnam	1638	6.3	1.68	0.04	1	4	4	6	8	9	12
30-39 yrs	Non-Vietnam	1153	6.6	1.64	0.05	2	4	5	7	9	9	13
40-48 yrs	Vietnam	416	6.3	1.76	0.09	1	4	4	6	9	9	13
40-48 yrs	Non-Vietnam	447	6.4	1.53	0.07	2	4	4	6	8	9	11
Black												
30-39 yrs	Vietnam	211	5.9	1.85	0.13	1	3	3	6	8	9	11
30-39 yrs	Non-Vietnam	181	5.9	1.70	0.13	2	3	4	6	8	9	12
40-48 yrs	Vietnam	75	5.7	1.53	0.18	2	3	4	6	8	9	9
40-48 yrs	Non-Vietnam	58	5.7	1.93	0.25	1	3	3	5	8	9	10

^a All races include white, black, and other.

**Table F.43 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Total Correct Trial 5**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	10.9	2.32	0.05	0	7	8	11	14	15	16	
30-48 yrs	Non-Vietnam	1972	11.2	2.34	0.05	1	7	8	11	14	15	16	
White													
30-39 yrs	Vietnam	1638	11.1	2.27	0.06	0	7	8	11	14	15	16	
30-39 yrs	Non-Vietnam	1153	11.5	2.22	0.07	2	8	9	12	14	15	16	
40-48 yrs	Vietnam	416	10.8	2.26	0.11	4	7	8	11	14	15	16	
40-48 yrs	Non-Vietnam	447	11.2	2.24	0.11	3	8	8	11	14	15	16	
Black													
30-39 yrs	Vietnam	211	10.4	2.57	0.18	2	6	7	10	14	14	16	
30-39 yrs	Non-Vietnam	181	10.6	2.50	0.19	2	7	7	11	14	14	16	
40-48 yrs	Vietnam	75	10.1	2.22	0.26	4	7	7	11	13	13	14	
40-48 yrs	Non-Vietnam	58	9.8	2.17	0.28	4	6	7	10	13	13	14	

^a All races include white, black, and other.

**Table F.44 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Total Correct Trials 1-5**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	45.7	8.79	0.18	16	30	34	46	57	60	72
30-48 yrs	Non-Vietnam	1972	47.0	8.85	0.20	13	32	36	47	58	61	71
White												
30-39 yrs	Vietnam	1638	46.4	8.59	0.21	16	31	35	47	57	60	71
30-39 yrs	Non-Vietnam	1153	48.3	8.45	0.25	17	34	38	49	60	62	71
40-48 yrs	Vietnam	416	45.6	8.72	0.43	20	31	34	46	57	60	68
40-48 yrs	Non-Vietnam	447	47.0	8.02	0.38	25	33	36	47	57	60	69
Black												
30-39 yrs	Vietnam	211	43.2	9.29	0.64	20	26	31	44	55	58	66
30-39 yrs	Non-Vietnam	181	43.6	8.80	0.65	18	30	33	44	56	60	64
40-48 yrs	Vietnam	75	42.2	7.94	0.92	24	28	29	43	51	53	59
40-48 yrs	Non-Vietnam	58	40.6	9.58	1.26	18	24	27	42	53	57	60

^a All races include white, black, and other.

**Table F.45 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct Tuesday List**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	5.4	1.79	0.04	0	3	3	5	8	9	12	
30-48 yrs	Non-Vietnam	1972	5.7	1.80	0.04	1	3	3	6	8	9	13	
White													
30-39 yrs	Vietnam	1638	5.6	1.76	0.04	0	3	3	6	8	9	12	
30-39 yrs	Non-Vietnam	1153	5.8	1.73	0.05	1	3	4	6	8	9	11	
40-48 yrs	Vietnam	416	5.4	1.85	0.09	0	3	3	5	8	9	11	
40-48 yrs	Non-Vietnam	447	5.9	1.82	0.09	1	3	4	6	8	9	13	
Black													
30-39 yrs	Vietnam	211	4.7	1.68	0.12	1	2	3	5	7	8	10	
30-39 yrs	Non-Vietnam	181	4.9	1.69	0.13	1	2	3	5	7	8	11	
40-48 yrs	Vietnam	75	5.0	1.61	0.19	2	2	3	5	7	8	9	
40-48 yrs	Non-Vietnam	58	4.8	1.73	0.23	1	2	3	5	7	8	10	

^a All races include white, black, and other.

**Table F.46 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct for Short-Delay Free Recall**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	9.4	2.63	0.05	0	5	6	9	13	14	16	
30-48 yrs	Non-Vietnam	1972	9.7	2.65	0.06	2	5	6	10	13	14	16	
White													
30-39 yrs	Vietnam	1638	9.7	2.61	0.06	0	5	6	10	13	14	16	
30-39 yrs	Non-Vietnam	1153	10.1	2.56	0.08	2	6	7	10	13	14	16	
40-48 yrs	Vietnam	416	9.4	2.52	0.12	2	5	6	9	13	14	15	
40-48 yrs	Non-Vietnam	447	9.7	2.54	0.12	2	5	6	10	13	14	16	
Black													
30-39 yrs	Vietnam	211	8.6	2.59	0.18	2	4	5	9	12	13	16	
30-39 yrs	Non-Vietnam	181	8.8	2.74	0.20	2	5	5	8	12	14	15	
40-48 yrs	Vietnam	75	8.2	2.57	0.30	2	4	4	8	12	12	13	
40-48 yrs	Non-Vietnam	58	7.8	2.37	0.31	2	4	5	8	11	12	14	

^a All races include white, black, and other.

**Table F.47 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct for Short-Delay Cued Recall**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					
							5th	10th	50th	90th	95th	Max
All Races ^a												
30-48 yrs	Vietnam	2490	10.4	2.54	0.05	0	6	7	11	14	14	16
30-48 yrs	Non-Vietnam	1972	10.7	2.52	0.06	0	6	7	11	14	15	16
White												
30-39 yrs	Vietnam	1638	10.6	2.47	0.06	2	6	7	11	14	14	16
30-39 yrs	Non-Vietnam	1153	11.1	2.43	0.07	0	7	8	11	14	15	16
40-48 yrs	Vietnam	416	10.3	2.53	0.12	0	6	7	11	13	14	16
40-48 yrs	Non-Vietnam	447	10.6	2.32	0.11	3	7	7	11	13	14	16
Black												
30-39 yrs	Vietnam	211	9.7	2.55	0.18	3	5	6	10	13	14	16
30-39 yrs	Non-Vietnam	181	9.8	2.60	0.19	4	6	6	10	13	14	15
40-48 yrs	Vietnam	75	9.0	2.56	0.30	2	5	6	9	12	13	14
40-48 yrs	Non-Vietnam	58	9.1	2.50	0.33	2	5	6	9	12	14	15

^a All races include white, black, and other.

**Table F.48 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Total Correct for Long-Delay Free Recall**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					
							5th	10th	50th	90th	95th	Max
All Races ^a												
30-48 yrs	Vietnam	2490	9.7	2.71	0.05	0	5	6	10	13	14	16
30-48 yrs	Non-Vietnam	1972	10.1	2.72	0.06	1	6	6	10	14	14	16
White												
30-39 yrs	Vietnam	1638	10.0	2.68	0.07	0	5	6	10	13	14	16
30-39 yrs	Non-Vietnam	1153	10.5	2.61	0.08	2	6	7	11	14	15	16
40-48 yrs	Vietnam	416	9.5	2.68	0.13	0	5	6	10	13	14	15
40-48 yrs	Non-Vietnam	447	10.0	2.59	0.12	3	6	7	10	13	14	16
Black												
30-39 yrs	Vietnam	211	9.0	2.72	0.19	2	4	6	9	12	13	16
30-39 yrs	Non-Vietnam	181	9.1	2.82	0.21	1	5	6	9	13	14	16
40-48 yrs	Vietnam	75	8.7	2.67	0.31	3	4	5	9	12	13	15
40-48 yrs	Non-Vietnam	58	8.1	2.62	0.34	3	4	5	8	12	13	15

^a All races include white, black, and other.

**Table F.49 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct for Long-Delay Cued Recall**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	10.4	2.62	0.05	0	6	7	11	14	15	16	
30-48 yrs	Non-Vietnam	1972	10.8	2.59	0.06	1	6	7	11	14	15	16	
White													
30-39 yrs	Vietnam	1638	10.6	2.59	0.06	0	6	7	11	14	15	16	
30-39 yrs	Non-Vietnam	1153	11.2	2.48	0.07	1	7	8	11	14	15	16	
40-48 yrs	Vietnam	416	10.2	2.50	0.12	3	6	7	10	14	14	16	
40-48 yrs	Non-Vietnam	447	10.7	2.41	0.11	4	7	8	11	14	15	16	
Black													
30-39 yrs	Vietnam	211	9.7	2.66	0.18	3	5	6	10	13	14	16	
30-39 yrs	Non-Vietnam	181	9.8	2.77	0.21	3	5	6	10	13	15	16	
40-48 yrs	Vietnam	75	9.3	2.64	0.31	4	4	6	9	13	14	15	
40-48 yrs	Non-Vietnam	58	9.0	2.50	0.33	4	5	6	9	12	14	15	

^a All races include white, black, and other.

**Table F.50 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Correct for Long-Delay Recognition**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races ^a												
30-48 yrs	Vietnam	2490	13.8	1.96	0.04	0	10	11	14	16	16	16
30-48 yrs	Non-Vietnam	1972	13.9	1.81	0.04	0	11	12	14	16	16	16
White												
30-39 yrs	Vietnam	1638	13.8	1.98	0.05	0	10	11	14	16	16	16
30-39 yrs	Non-Vietnam	1153	14.1	1.69	0.05	5	11	12	14	16	16	16
40-48 yrs	Vietnam	416	13.7	1.79	0.09	5	10	11	14	16	16	16
40-48 yrs	Non-Vietnam	447	13.9	1.81	0.09	0	11	11	14	16	16	16
Black												
30-39 yrs	Vietnam	211	13.6	2.03	0.14	5	10	11	14	16	16	16
30-39 yrs	Non-Vietnam	181	13.5	2.15	0.16	4	10	11	14	16	16	16
40-48 yrs	Vietnam	75	13.7	2.23	0.26	6	9	10	14	16	16	16
40-48 yrs	Non-Vietnam	58	13.0	2.13	0.28	8	9	10	13	16	16	16

^a All races include white, black, and other.

**Table F.51 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Total Perseverations**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	5.6	4.79	0.10	0	0	1	4	12	15	36
30-48 yrs	Non-Vietnam	1972	5.7	4.95	0.11	0	0	1	5	12	15	54
White												
30-39 yrs	Vietnam	1638	5.4	4.37	0.11	0	0	1	4	11	14	28
30-39 yrs	Non-Vietnam	1153	5.4	4.42	0.13	0	0	1	4	11	14	27
40-48 yrs	Vietnam	416	5.3	4.60	0.23	0	0	1	4	11	15	35
40-48 yrs	Non-Vietnam	447	5.3	4.61	0.22	0	0	1	4	10	13	38
Black												
30-39 yrs	Vietnam	211	7.6	6.53	0.45	0	1	1	6	16	21	35
30-39 yrs	Non-Vietnam	181	7.3	6.21	0.46	0	1	1	6	16	20	32
40-48 yrs	Vietnam	75	6.7	5.32	0.61	0	0	1	5	14	19	22
40-48 yrs	Non-Vietnam	58	7.2	8.93	1.17	0	0	0	5	14	28	54

^a All races include white, black, and other.

**Table F.52 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Total Intrusions**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^a												
30-48 yrs	Vietnam	2490	1.6	2.34	0.05	0	0	1	4	6	23	
30-48 yrs	Non-Vietnam	1972	1.6	2.48	0.06	0	0	1	5	6	31	
White												
30-39 yrs	Vietnam	1638	1.4	2.06	0.05	0	0	1	4	6	20	
30-39 yrs	Non-Vietnam	1153	1.4	2.13	0.06	0	0	1	4	5	21	
40-48 yrs	Vietnam	416	1.5	2.36	0.12	0	0	1	4	6	15	
40-48 yrs	Non-Vietnam	447	1.4	2.26	0.11	0	0	1	4	6	18	
Black												
30-39 yrs	Vietnam	211	2.5	3.55	0.24	0	0	1	7	10	23	
30-39 yrs	Non-Vietnam	181	2.3	3.42	0.25	0	0	1	6	8	26	
40-48 yrs	Vietnam	75	2.5	3.07	0.35	0	0	2	7	10	15	
40-48 yrs	Non-Vietnam	58	2.4	4.36	0.57	0	0	1	6	7	31	

^a All races include white, black, and other.

**Table F.53 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Least-Squares Regression Line**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				
									50th	90th	95th	Max	
All Races ^a													
30-48 yrs	Vietnam	2490	11.4	5.47	0.11	-9	2	5	11	19	20	30	
30-48 yrs	Non-Vietnam	1972	11.6	5.56	0.13	-14	2	5	12	19	20	50	
White													
30-39 yrs	Vietnam	1638	11.5	5.40	0.13	-9	3	5	12	19	20	28	
30-39 yrs	Non-Vietnam	1153	11.8	5.36	0.16	-8	3	5	12	19	20	28	
40-48 yrs	Vietnam	416	10.9	5.42	0.27	-4	2	4	11	18	20	29	
40-48 yrs	Non-Vietnam	447	11.3	5.40	0.26	-11	2	5	11	18	20	26	
Black													
30-39 yrs	Vietnam	211	10.9	5.77	0.40	-7	1	4	11	18	20	24	
30-39 yrs	Non-Vietnam	181	11.3	5.93	0.44	-5	2	3	12	19	20	26	
40-48 yrs	Vietnam	75	10.6	5.77	0.67	-7	3	4	10	19	20	22	
40-48 yrs	Non-Vietnam	58	10.1	5.52	0.72	-2	-1	1	12	17	19	23	

^a All races include white, black, and other.

**Table F.54 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test -- Primacy Recall Over Total Recall**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	0.29	0.060	0.001	0.07	0.20	0.22	0.29	0.37	0.39	0.56	
30-48 yrs	Non-Vietnam	1972	0.29	0.059	0.001	0.07	0.20	0.22	0.29	0.37	0.39	0.57	
White													
30-39 yrs	Vietnam	1638	0.30	0.060	0.001	0.10	0.20	0.22	0.29	0.37	0.40	0.56	
30-39 yrs	Non-Vietnam	1153	0.29	0.055	0.002	0.08	0.21	0.23	0.29	0.37	0.38	0.52	
40-48 yrs	Vietnam	416	0.30	0.058	0.003	0.13	0.20	0.23	0.29	0.37	0.39	0.47	
40-48 yrs	Non-Vietnam	447	0.30	0.061	0.003	0.13	0.19	0.22	0.30	0.38	0.40	0.52	
Black													
30-39 yrs	Vietnam	211	0.29	0.063	0.004	0.07	0.19	0.22	0.29	0.37	0.38	0.48	
30-39 yrs	Non-Vietnam	181	0.29	0.066	0.005	0.07	0.19	0.21	0.28	0.36	0.41	0.57	
40-48 yrs	Vietnam	75	0.28	0.061	0.007	0.11	0.17	0.20	0.28	0.35	0.37	0.41	
40-48 yrs	Non-Vietnam	58	0.29	0.075	0.010	0.07	0.18	0.18	0.29	0.38	0.42	0.48	

^a All races include white, black, and other.

Table F.55 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test — Recency Recall Over Total Recall

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	0.29	0.068	0.001	0.06	0.19	0.21	0.29	0.38	0.41	0.61	
30-48 yrs	Non-Vietnam	1972	0.29	0.066	0.001	0.07	0.19	0.21	0.29	0.37	0.40	0.67	
White													
30-39 yrs	Vietnam	1638	0.29	0.067	0.002	0.06	0.19	0.21	0.29	0.38	0.41	0.61	
30-39 yrs	Non-Vietnam	1153	0.29	0.064	0.002	0.07	0.18	0.21	0.28	0.37	0.40	0.63	
40-48 yrs	Vietnam	416	0.30	0.067	0.003	0.10	0.19	0.22	0.29	0.39	0.41	0.50	
40-48 yrs	Non-Vietnam	447	0.29	0.066	0.003	0.09	0.19	0.22	0.29	0.37	0.40	0.67	
Black													
30-39 yrs	Vietnam	211	0.31	0.067	0.005	0.15	0.20	0.22	0.30	0.39	0.42	0.52	
30-39 yrs	Non-Vietnam	181	0.31	0.061	0.005	0.12	0.22	0.24	0.30	0.38	0.41	0.50	
40-48 yrs	Vietnam	75	0.31	0.072	0.008	0.20	0.23	0.23	0.30	0.40	0.49	0.52	
40-48 yrs	Non-Vietnam	58	0.33	0.065	0.009	0.14	0.23	0.24	0.33	0.42	0.44	0.48	

^a All races include white, black, and other.

**Table F.56 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change Trial 1 Monday List to Tuesday List**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	8.2	35.7	0.72	-300	-50	-33	14	50	57	100	
30-48 yrs	Non-Vietnam	1972	7.3	34.2	0.77	-300	-50	-33	13	44	52	86	
White													
30-39 yrs	Vietnam	1638	7.5	34.2	0.85	-250	-50	-33	14	43	56	100	
30-39 yrs	Non-Vietnam	1153	7.8	31.2	0.92	-167	-50	-29	13	43	50	83	
40-48 yrs	Vietnam	416	9.5	37.0	1.81	-200	-60	-33	17	50	57	100	
40-48 yrs	Non-Vietnam	447	5.8	31.2	1.48	-100	-50	-40	0	43	50	86	
Black													
30-39 yrs	Vietnam	211	13.4	39.1	2.69	-200	-57	-33	20	57	67	80	
30-39 yrs	Non-Vietnam	181	11.9	36.0	2.68	-125	-67	-33	17	50	66	86	
40-48 yrs	Vietnam	75	8.8	31.7	3.66	-100	-42	-25	14	50	56	60	
40-48 yrs	Non-Vietnam	58	3.4	57.9	7.60	-300	-100	-67	20	57	70	86	

^a All races include white, black, and other.

**Table F.57 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change Trial 5 Monday List to Short-Delay Free Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Percentile							
						Min	5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2489	13.0	22.1	0.44	-400	-13	-8	13	36	43	100	
30-48 yrs	Non-Vietnam	1972	12.1	27.0	0.61	-500	-14	-8	13	33	42	78	
White													
30-39 yrs	Vietnam	1637	12.8	19.8	0.49	-300	-13	-8	13	33	43	100	
30-39 yrs	Non-Vietnam	1153	11.7	22.5	0.66	-500	-13	-8	13	33	38	71	
40-48 yrs	Vietnam	416	13.2	17.3	0.85	-38	-17	-9	13	36	43	64	
40-48 yrs	Non-Vietnam	447	12.2	19.8	0.94	-200	-14	-9	13	33	38	78	
Black													
30-39 yrs	Vietnam	211	13.4	40.2	2.77	-400	-14	0	18	40	47	80	
30-39 yrs	Non-Vietnam	181	15.6	25.6	1.90	-200	-14	0	15	43	50	67	
40-48 yrs	Vietnam	75	16.8	29.0	3.35	-100	-33	-4	20	47	56	71	
40-48 yrs	Non-Vietnam	58	18.7	22.4	2.94	-75	-8	0	19	44	56	71	

^a Numbers do not add to 2,490 for Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.58 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change of Short-Delay Cued Recall to Short-Delay Free Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile							Max
							5th	10th	50th	90th	95th			
All Races ^b														
30-48 yrs	Vietnam	2489	13.3	22.5	0.45	-100	-14	-9	10	40	50	160		
30-48 yrs	Non-Vietnam	1972	13.0	23.6	0.53	-100	-14	-9	9	38	50	250		
White														
30-39 yrs	Vietnam	1637	13.1	21.1	0.52	-67	-13	-8	10	40	50	160		
30-39 yrs	Non-Vietnam	1153	12.6	21.1	0.62	-100	-11	-8	9	37	44	250		
40-48 yrs	Vietnam	416	13.0	21.7	1.06	-100	-13	-9	10	40	50	133		
40-48 yrs	Non-Vietnam	447	12.1	22.0	1.04	-30	-14	-9	9	38	50	150		
Black														
30-39 yrs	Vietnam	211	17.1	27.5	1.89	-38	-17	-10	11	50	64	150		
30-39 yrs	Non-Vietnam	181	16.3	31.4	2.34	-54	-15	-13	13	42	62	233		
40-48 yrs	Vietnam	75	15.8	32.8	3.79	-82	-31	-14	13	50	66	150		
40-48 yrs	Non-Vietnam	58	20.3	28.7	3.77	-71	-15	-1	14	60	76	100		

^a Numbers do not add to 2,490 for Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.59 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change of Short-Delay Free Recall to Long-Delay Free Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2488	-4.7	20.2	0.41	-150	-40	-27	0	17	22	100	
30-48 yrs	Non-Vietnam	1972	-5.6	21.1	0.48	-225	-38	-29	0	17	23	67	
White													
30-39 yrs	Vietnam	1637	-4.8	19.4	0.48	-100	-38	-25	0	15	22	100	
30-39 yrs	Non-Vietnam	1153	-6.0	18.9	0.56	-175	-33	-29	0	14	20	67	
40-48 yrs	Vietnam	416	-3.1	19.7	0.97	-100	-33	-22	0	17	25	100	
40-48 yrs	Non-Vietnam	447	-4.3	21.6	1.02	-225	-33	-25	0	18	25	50	
Black													
30-39 yrs	Vietnam	211	-6.3	22.7	1.57	-100	-50	-33	0	20	22	67	
30-39 yrs	Non-Vietnam	181	-6.3	27.5	2.04	-200	-50	-33	0	24	33	60	
40-48 yrs	Vietnam	75	-9.6	27.2	3.14	-83	-61	-50	0	21	31	42	
40-48 yrs	Non-Vietnam	58	-6.1	27.5	3.61	-100	-61	-40	0	25	34	43	

^a Numbers do not add to 2,490 for Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.60 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Enhancement of Semantic Clustering**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile							Max
							5th	10th	50th	90th	95th			
All Races ^b														
30-48 yrs	Vietnam	2315	21.3	68.0	1.41	-100	-59	-43	7	100	151	480		
30-48 yrs	Non-Vietnam	1881	24.6	69.2	1.60	-100	-51	-35	9	100	152	516		
White														
30-39 yrs	Vietnam	1542	21.4	65.7	1.67	-100	-58	-40	8	100	150	437		
30-39 yrs	Non-Vietnam	1125	20.7	64.6	1.93	-100	-48	-35	7	85	131	516		
40-48 yrs	Vietnam	385	17.2	65.7	3.35	-100	-63	-44	4	91	146	444		
40-48 yrs	Non-Vietnam	428	27.1	63.6	3.07	-100	-46	-32	12	108	157	348		
Black														
30-39 yrs	Vietnam	188	17.6	68.7	5.01	-100	-67	-46	1	101	160	312		
30-39 yrs	Non-Vietnam	158	35.5	95.9	7.63	-100	-83	-50	8	177	221	497		
40-48 yrs	Vietnam	63	44.8	101.3	12.77	-100	-58	-44	14	163	255	480		
40-48 yrs	Non-Vietnam	52	31.8	87.1	12.07	-100	-75	-53	16	125	233	422		

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.61 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change of Long-Delay Cued Recall to Long-Delay Free Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						Max
							5th	10th	50th	90th	95th		
All Races ^b													
30-48 yrs	Vietnam	2485	9.0	19.9	0.40	-100	-13	-9	7	30	40	300	
30-48 yrs	Non-Vietnam	1972	9.0	19.0	0.43	-50	-11	-8	7	29	40	300	
White													
30-39 yrs	Vietnam	1635	8.5	18.0	0.45	-100	-11	-8	7	29	40	300	
30-39 yrs	Non-Vietnam	1153	7.8	16.0	0.47	-50	-11	-8	7	25	33	150	
40-48 yrs	Vietnam	414	9.6	18.8	0.92	-25	-11	-9	0	33	43	150	
40-48 yrs	Non-Vietnam	447	10.4	18.8	0.89	-29	-11	-8	8	33	44	100	
Black													
30-39 yrs	Vietnam	211	12.1	31.4	2.16	-25	-14	-11	8	33	46	300	
30-39 yrs	Non-Vietnam	181	11.2	30.5	2.27	-38	-14	-11	0	33	56	300	
40-48 yrs	Vietnam	75	9.2	19.0	2.20	-22	-17	-13	0	33	50	75	
40-48 yrs	Non-Vietnam	58	15.0	23.6	3.10	-25	-13	-7	10	50	67	100	

^a Numbers do not add to 2,490 for Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.62 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change of Long-Delay Recognition to Long-Delay Free Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	5th	10th	Percentile				Max
									50th	90th	95th		
All Races ^b													
30-48 yrs	Vietnam	2486	52.6	54.2	1.09	-100	0	8	40	114	150	600	
30-48 yrs	Non-Vietnam	1971	48.5	51.6	1.16	-100	0	7	36	100	133	650	
White													
30-39 yrs	Vietnam	1636	48.8	52.6	1.30	-100	0	7	36	100	133	600	
30-39 yrs	Non-Vietnam	1153	43.1	48.1	1.42	-50	0	7	33	88	117	650	
40-48 yrs	Vietnam	414	54.9	52.4	2.57	-8	7	8	40	129	152	367	
40-48 yrs	Non-Vietnam	447	49.2	48.1	2.28	-100	0	7	38	100	133	367	
Black													
30-39 yrs	Vietnam	211	65.9	59.5	4.10	-10	0	8	50	133	177	450	
30-39 yrs	Non-Vietnam	180	61.4	63.7	4.75	-56	0	8	45	117	199	450	
40-48 yrs	Vietnam	75	72.6	65.0	7.50	0	14	16	50	160	230	333	
40-48 yrs	Non-Vietnam	58	76.0	61.1	8.02	-8	9	17	69	180	220	300	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.63 Summary Statistics for Psychological and Neuropsychological Battery Tests:
California Verbal Learning Test – Percent Change of Long-Delay Recognition to Long-Delay Cued Recall**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile							Max
							5th	10th	50th	90th	95th			
All Races ^b														
30-48 yrs	Vietnam	2485	39.6	40.5	0.81	-100	0	7	29	86	114	367		
30-48 yrs	Non-Vietnam	1971	36.3	38.0	0.86	-100	0	0	27	78	100	333		
White														
30-39 yrs	Vietnam	1633	36.0	36.9	0.91	-100	0	0	27	75	100	333		
30-39 yrs	Non-Vietnam	1152	31.9	32.7	0.96	-62	0	0	25	75	88	333		
40-48 yrs	Vietnam	416	41.8	42.9	2.10	-10	0	7	32	100	129	367		
40-48 yrs	Non-Vietnam	447	34.9	32.8	1.55	-100	0	7	27	75	100	225		
Black														
30-39 yrs	Vietnam	211	50.6	48.7	3.35	-38	0	7	36	114	144	267		
30-39 yrs	Non-Vietnam	181	50.1	56.3	4.18	-60	0	0	38	114	139	333		
40-48 yrs	Vietnam	75	57.7	48.3	5.58	0	9	14	44	120	160	250		
40-48 yrs	Non-Vietnam	58	54.6	48.4	6.36	-10	-0	6	43	130	151	225		

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans. If calculation involved division by zero, then participant data were excluded.

^b All races include white, black, and other.

**Table F.64 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wide Range Achievement Test — Raw Reading Score**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile					Max
							5th	10th	50th	90th	95th	
All Races ^b												
30-48 yrs	Vietnam	2489	60.2	14.4	0.29	1	34	41	61	79	82	89
30-48 yrs	Non-Vietnam	1971	62.4	15.1	0.34	1	35	42	64	81	84	89
White												
30-39 yrs	Vietnam	1637	61.6	13.8	0.34	1	37	43	62	80	83	89
30-39 yrs	Non-Vietnam	1153	63.9	14.2	0.42	1	39	45	65	82	84	89
40-48 yrs	Vietnam	416	60.5	14.9	0.73	17	33	40	62	79	83	88
40-48 yrs	Non-Vietnam	447	64.9	15.3	0.72	1	37	45	67	83	86	89
Black												
30-39 yrs	Vietnam	211	52.2	13.7	0.94	17	29	34	52	71	78	87
30-39 yrs	Non-Vietnam	181	51.0	14.1	1.05	15	29	32	51	69	73	88
40-48 yrs	Vietnam	75	51.5	15.3	1.76	18	24	31	51	72	78	88
40-48 yrs	Non-Vietnam	58	51.0	15.0	1.97	26	28	31	50	71	81	83

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.65 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Wide Range Achievement Test — Grade Equivalent**

Race and Age	Place of Service	N ^a	Mean	S.D.	S.E.	Min	Percentile						
							5th	10th	50th	90th	95th	Max	
All Races ^b													
30-48 yrs	Vietnam	2489	10.1	3.2	0.06	2	4	5	11	13	13	13	
30-48 yrs	Non-Vietnam	1971	10.5	3.2	0.07	2	4	6	12	13	13	13	
White													
30-39 yrs	Vietnam	1637	10.4	3.1	0.08	2	4	6	11	13	13	13	
30-39 yrs	Non-Vietnam	1153	10.8	2.9	0.09	2	5	6	13	13	13	13	
40-48 yrs	Vietnam	416	10.1	3.3	0.16	2	3	5	11	13	13	13	
40-48 yrs	Non-Vietnam	447	10.9	3.0	0.14	2	4	6	13	13	13	13	
Black													
30-39 yrs	Vietnam	211	8.1	3.3	0.23	2	2	3	8	13	13	13	
30-39 yrs	Non-Vietnam	181	8.0	3.5	0.26	2	2	3	8	13	13	13	
40-48 yrs	Vietnam	75	8.1	3.6	0.42	2	2	3	8	13	13	13	
40-48 yrs	Non-Vietnam	58	7.8	3.7	0.48	2	2	3	8	13	13	13	

^a Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

^b All races include white, black, and other.

**Table F.66 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Edinburgh Handedness Scale**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Min	5th	Percentile					Max
								10th	50th	90th	95th		
All Races ^a													
30-48 yrs	Vietnam	2490	0.87	0.201	0.004	0.20	0.28	0.60	0.94	1.00	1.00	1.00	1.00
30-48 yrs	Non-Vietnam	1972	0.86	0.213	0.005	0.20	0.28	0.48	0.94	1.00	1.00	1.00	1.00
White													
30-39 yrs	Vietnam	1638	0.87	0.195	0.005	0.20	0.32	0.62	0.94	1.00	1.00	1.00	1.00
30-39 yrs	Non-Vietnam	1153	0.85	0.217	0.006	0.20	0.28	0.44	0.94	1.00	1.00	1.00	1.00
Black													
30-39 yrs	Vietnam	416	0.86	0.217	0.011	0.20	0.24	0.45	0.94	1.00	1.00	1.00	1.00
40-48 yrs	Non-Vietnam	447	0.87	0.209	0.010	0.20	0.27	0.54	0.94	1.00	1.00	1.00	1.00
Black													
30-39 yrs	Vietnam	211	0.87	0.220	0.015	0.20	0.22	0.46	0.96	1.00	1.00	1.00	1.00
30-39 yrs	Non-Vietnam	181	0.88	0.183	0.014	0.20	0.37	0.70	0.96	1.00	1.00	1.00	1.00
Black													
40-48 yrs	Vietnam	75	0.89	0.172	0.020	0.26	0.40	0.72	0.98	1.00	1.00	1.00	1.00
40-48 yrs	Non-Vietnam	58	0.88	0.205	0.027	0.20	0.26	0.70	0.96	1.00	1.00	1.00	1.00

^a All races include white, black, and other.

APPENDIX G
*Indices of
Self-Reported Combat and Herbicide Exposure*

Table G.1 Average Score for Each Question in the Combat Exposure Questionnaire, by Quartile of the Summary Index

Question	Quartile			
	1 (N=579)	2 (N=542)	3 (N=710)	4 (N=650)
1. Part of unit that fired on the enemy ^a	0.21	0.89	1.51	2.16
2. Flew in aircraft over N. or S. Vietnam	0.81	1.35	1.92	2.44
3. Stationed at a forward observation post	0.14	0.50	1.29	2.37
4. Received incoming fire	1.09	1.99	2.43	3.13
5. Encountered mines or booby traps	0.10	0.58	1.40	2.66
6. Received sniper or sapper fire	0.53	1.33	2.00	2.92
7. Ever ambushed	0.02	0.22	0.85	1.98
8. Engaged Vietcong in firefight	0.04	0.42	1.40	2.73
9. Engaged NVA in a firefight	0.02	0.18	1.01	2.28
10. Saw Americans killed or injured	0.32	1.35	2.02	2.98
11. Saw Vietnamese killed or injured	0.26	1.28	1.97	2.99
12. Killed or thought killed someone	0.28	0.35	1.03	2.17

^a 0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = very often for all questions. Scores for questions 6-12 were doubled for the index but are not doubled here.

Table G.2 Number of Positive Responses to Herbicide Exposure Questions by Level of Index

Type of Herbicide Exposure	Summary Herbicide Exposure Index			
	1 (N=1051)	2 (N=76)	3 (N=561)	4 (N=109)
1. In defoliated area	0	742	502	95
2. Present during spraying	0	0	478	84
3. Got on skin, clothing	0	0	300	68
4. Handled equipment	0	0	0	100
5. Sprayed herbicides	0	0	0	44

Table G.3 Distribution of Self-Reported Exposure to Combat and to Herbicides Among Vietnam Veterans in the Medical Examination Study

Herbicide Exposure Level	Quartile of the Combat Exposure Index				Total
	1	2	3	4	
1	414	276	243	118	1051
2	114	159	247	241	761
3	43	84	186	248	561
4	8	23	35	43	109
TOTAL	579	542	711	650	2482

**Table G.4 Summary Statistics for Psychological and Neuropsychological Battery Tests:
Combat Exposure Index^a**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max ^b
All Races ^c												
30-48 yrs	Vietnam	2482	23.8	16.4	0.33	0	2	3	22	47	54	72
White												
30-39 yrs	Vietnam	1632	24.0	16.0	0.40	0	2	4	23	46	53	72
40-48 yrs	Vietnam	416	20.9	16.5	0.81	0	0	2	17	43	52	72
Black												
30-39 yrs	Vietnam	210	26.7	18.2	1.26	0	2	3	26	54	60	68
40-48 yrs	Vietnam	74	25.7	16.4	1.91	0	1	4	26	48	59	72

^a The Combat Exposure Index was not computed for non-Vietnam veterans. Numbers do not add to 2,490 for Vietnam veterans because of missing data.

^b The index ranges from 0 to 72.

^c All races include white, black, and other.