TABLE 12-6. (continued)

Unadjusted Analysis for SCL-90-R Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand		Group: Comparison		Est. Relative Risk (95% C.I.)	p-Value
Phobic Anxiety	n	880		1,152			
	Number/%						
	Abnormal	61	6.9%	81	7.0%	0.99 (0.70,1.39)	0.999
	Normal	819	93.1%	1,071	93.0%		
Psychoticism	n	880		1,152			
	Number/%						
	Abnormal	82	9.3%	99	8.6%	1.09 (0.80,1.49)	0.624
	Normal	798	90.7%	1,053	91.4%		
Somatization	n	880		1,152			
	Number/%						
	Abnormal	94	10.7%	95	8.2%	1.33 (0.99,1.80)	0.073
	Normal	786	89.3%	1,057	91.8%		
GSI	n	880		1,152			
	Number/%						
	Abnormal	78	8.9%	77	6.7%	1.36 (0.98,1.89)	0.081
	Normal	802	91.1%	1,075	93.3%		
PSDI	n	880		1,152			
	Number/%						
	Abnormal	88	10.0%	105	9.1%	1.11 (0.82,1.49)	0.548
	Normal	792	90.0%	1,047	90.9%		
PST	n	880		1,152			
	Number/%						
	Abnormal	73	8.3%	78	6.8%	1.25 (0.89,1.74)	0.226
	Normal	807	91.7%	1,074	93.2%		

TABLE 12-7.

Adjusted Analysis for SCL-90-R Psychological Variables by Group

Variable	Statistic	Group		Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks
		Ranch Hand	Comparison			
Anxiety	n	839	1,074	1.20 (0.81,1.77)	0.361	EDUC (p<0.001) PTSD (p<0.001) AGE*ALC (p=0.020)
Depression	n	834	1,072	1.17 (0.83,1.65)	0.379	EDUC (p<0.001) PTSD (p<0.001) AGE*RACE (p=0.012) RACE*DRKYR (p=0.044)
Hostility	n	834	1,072	****	****	GRP*PTSD (p=0.009) AGE*PTSD (p=0.033) RACE*PTSD (p=0.010) EDUC*PTSD (p<0.001) DRKYR*PTSD (p=0.021) ALC*PTSD (p=0.015)
Interpersonal Sensitivity	n	834	1,072	0.90 (0.61,1.33)	0.586	AGE (p=0.004) EDUC (p<0.001) DRKYR (p=0.010) PTSD (p<0.001)
Obsessive-Compulsive Behavior	n	834	1,072	1.07 (0.76,1.51)	0.704	AGE (p=0.018) EDUC (p<0.001) DRKYR (p=0.041) PTSD (p<0.001)
Paranoid Ideation	n	834	1,072	0.99 (0.61,1.61)	0.964	DRKYR (p=0.004) PTSD (p<0.001) AGE*EDUC (p=0.017)

TABLE 12-7. (continued)

Adjusted Analysis for SCL-90-R Psychological Variables by Group

Variable	Statistic	Group		Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks
		Ranch Hand	Comparison			
Phobic Anxiety	n	834	1,072	0.87 (0.59,1.27)	0.460	DRKYR (p=0.032) PTSD (p<0.001) AGE*EDUC (p=0.033)
Psychoticism	n	843	1,075	1.01 (0.72,1.40)	0.968	PTSD (p<0.001) RACE*EDUC (p=0.005)
Somatization	n	843	1,075	1.21 (0.88,1.67)**	0.236**	GRP*EDUC (p=0.026) PTSD (p<0.001) AGE*EDUC (p=0.032)
GSI	n	834	1,072	1.20 (0.84,1.73)	0.314	AGE (p=0.001) EDUC (p<0.001) DRKYR (p=0.009) PTSD (p<0.001)
PSDI	n	843	1,075	0.97 (0.71,1.32)**	0.840**	GRP*RACE (p=0.046) EDUC (p=0.035) PTSD (p<0.001)
PST	n	834	1,072	1.13 (0.78,1.62)	0.524	AGE (p=0.003) EDUC (p=0.001) DRKYR (p=0.014) PTSD (p<0.001)

****Exposure index-by-covariate interaction ($p \leq 0.01$)--adjusted relative risk, confidence interval, and p-value not presented.

**Exposure index-by-covariate interaction ($0.01 < p \leq 0.05$)--adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

participants had a lower percentage of abnormalities than the participants with a high school education (5.9% vs. 11.0%). Based on lifetime alcohol history, the lowest percentage of abnormalities was among the moderate drinkers (7.1%), followed by the nondrinkers (10.7%) and the heavy drinkers (11.5%). All (100.0%) of the participants with PTSD were classified as abnormal on depression, as compared to 7.7 percent of those without PTSD.

After adjusting for covariates, no significant difference between the two groups was detected ($p=0.379$). The significant terms in the model were: education ($p<0.001$), PTSD ($p<0.001$), age-by-race ($p=0.012$), and race-by-lifetime alcohol history ($p=0.044$).

Hostility

The unadjusted analysis of the SCL-90-R hostility scale did not detect a significant difference between the two groups ($p=0.584$).

The covariate tests showed that age ($p<0.001$), education ($p=0.001$), lifetime alcohol history ($p=0.001$), and PTSD ($p<0.001$) were significantly associated with hostility. The association with current alcohol use was borderline significant ($p=0.086$). The percentage of abnormalities decreased with age (7.3% for those born in or after 1942, 3.2% for those born between 1923 and 1941, and 1.4% for those born in or before 1922). A higher percentage of abnormalities was found among the high school-educated participants than the college educated (6.5% vs. 3.1%). The percentage of abnormalities increased with alcohol consumption based on both the lifetime alcohol history and current alcohol use. For lifetime alcohol history, the percentages of abnormalities were 2.8, 4.1, and 8.1 for nondrinkers, moderate drinkers, and heavy drinkers, respectively. Based on current alcohol use, 4.4 percent of the light drinkers were classified as abnormal, as contrasted with 6.2 percent of the moderate drinkers and 9.4 percent of the heavy drinkers. Of the participants with PTSD, 81.3 percent were classified as abnormal, as compared to 4.3 percent of the participants without PTSD.

In the adjusted analysis of hostility, all two-factor interactions involving PTSD were significant: group ($p=0.009$), age ($p=0.033$), race ($p=0.010$), education ($p<0.001$), lifetime alcohol history ($p=0.021$), and current alcohol use ($p=0.015$). Investigating the group-by-PTSD interaction revealed that the Comparisons with PTSD had a higher percentage of abnormalities than the Ranch Hands with PTSD, and the Ranch Hands without PTSD had a higher percentage of abnormalities than the Comparisons without PTSD. However, these differences were not statistically significant ($p=0.869$ and $p=0.690$, respectively).

Interpersonal Sensitivity

For the interpersonal sensitivity scale of the SCL-90-R, no significant difference between the Ranch Hands and Comparisons was identified in the unadjusted analysis ($p=0.948$).

Age ($p<0.001$), education ($p<0.001$), lifetime alcohol history ($p=0.016$), and PTSD ($p<0.001$) were significant covariates in the tests of association

with interpersonal sensitivity. For age, the highest percentage of abnormalities was for those born in or after 1942 (8.9%), followed by those born in or before 1922 (8.3%) and those born between 1923 and 1941 (4.5%). The percentage of abnormalities for the high school-educated participants was 9.5 percent, as compared to 3.3 percent for the college-educated participants. The percentage of abnormalities increased with alcohol consumption based on lifetime alcohol history (5.1% for nondrinkers, 5.8% for moderate drinkers, and 9.4% for heavy drinkers). Only 5.8 percent of the participants without PTSD were classified as abnormal based on interpersonal sensitivity, as compared to 81.3 percent of the participants with PTSD.

Based on the adjusted analysis of interpersonal sensitivity, the Ranch Hands and the Comparisons were not statistically different ($p=0.586$). Age ($p=0.004$), education ($p<0.001$), lifetime alcohol history ($p=0.010$), and PTSD ($p<0.001$) were significant covariates in the model.

Obsessive-Compulsive Behavior

Based on the unadjusted analysis of the obsessive-compulsive behavior variable from the SCL-90-R, no significant group difference was detected ($p=0.580$).

The covariate tests revealed that obsessive-compulsive behavior was significantly associated with age ($p=0.006$), education ($p<0.001$), lifetime alcohol history ($p=0.020$), and PTSD ($p<0.001$). The lowest percentage of abnormalities was among the participants born between 1923 and 1941 (6.2%). For the participants born in or before 1922, 9.7 percent were classified as abnormal, as compared to 10.1 percent of those born in or after 1942. The percentage of abnormalities was higher for the high school-educated participants than for those with a college education (11.1% vs. 4.8%). For lifetime alcohol history, the highest percentage of abnormalities was among the heavy drinkers (11.1%), followed by the nondrinkers (7.3%) and the moderate drinkers (7.1%). Participants with PTSD and without PTSD had 81.3 percent and 7.4 percent abnormalities, respectively.

No significant difference between the two groups was identified based on the adjusted analysis ($p=0.704$). The significant covariates in the model were age ($p=0.018$), education ($p<0.001$), lifetime alcohol history ($p=0.041$), and PTSD ($p<0.001$).

Paranoid Ideation

The results of the unadjusted analysis of paranoid ideation from the SCL-90-R did not show a significant difference between the Ranch Hands and Comparisons ($p=0.420$).

Using combined Ranch Hand and Comparison data, age ($p=0.003$), education ($p=0.022$), lifetime alcohol history ($p=0.024$), and PTSD ($p<0.001$) were found to be significantly associated with paranoid ideation. The percentage of abnormalities decreased with age (5.8% for those born in or after 1942, 2.9% for those born between 1923 and 1941, and 1.4% for those born in or before 1922). A higher percentage of abnormalities was found among the high school-educated participants than those with a college education (5.1% vs. 3.0%).

The percentage of abnormalities increased with alcohol consumption based on lifetime alcohol history (2.2% for nondrinkers, 3.6% for moderate drinkers, and 6.2% for heavy drinkers). Seventy-five percent of the participants with PTSD were classified as abnormal based on paranoid ideation scale as compared to 3.5 percent of the participants without PTSD.

The two groups did not differ significantly on paranoid ideation based on the adjusted analysis ($p=0.964$). Lifetime alcohol history, PTSD, and age-by-education were significant terms in the adjusted model ($p=0.004$, $p<0.001$, and $p=0.017$, respectively).

Phobic Anxiety

No significant group difference was found in the unadjusted analysis of phobic anxiety from the SCL-90-R ($p=0.999$).

The covariate tests showed that phobic anxiety was significantly associated with age ($p<0.001$), education ($p<0.001$), lifetime alcohol history ($p=0.019$), and PTSD ($p<0.001$). The participants born in or after 1942 had the highest percentage of abnormalities (9.8%) when compared to the participants born between 1923 and 1941 (4.7%) and those born in or before 1922 (6.9%). A higher percentage of abnormalities was found among the high school-educated participants than those with a college education (9.0% vs. 4.9%). Based on the lifetime alcohol history, the highest percentage of phobic anxiety abnormalities was for the nondrinkers (10.1%), followed by the heavy drinkers (9.0%) and the moderate drinkers (5.9%). Participants with PTSD had a higher percentage of abnormalities than participants without PTSD (75.0% vs. 6.3%).

The adjusted analysis of phobic anxiety did not detect a significant difference between the Ranch Hands and the Comparisons ($p=0.460$). Lifetime alcohol history, PTSD, and age-by-education were significant terms in the model ($p=0.032$, $p<0.001$, and $p=0.033$, respectively).

Psychoticism

Based on the unadjusted analysis of the SCL-90-R psychoticism variable, no difference between the two groups was detected ($p=0.624$).

Of the six covariate tests, five were significantly associated with psychoticism: age ($p=0.008$), education ($p<0.001$), lifetime alcohol history ($p=0.016$), current alcohol use ($p=0.020$), and PTSD ($p<0.001$). The highest percentage of abnormalities was among the participants born in or after 1942 (11.1%), followed by those born in or before 1922 (9.7%) and those born between 1923 and 1941 (7.1%). Of the high school-educated participants, 12.1 percent were classified as abnormal, compared to 5.6 percent of the college-educated participants. For lifetime alcohol history, the highest percentage of abnormalities was among the heavy drinkers (12.2%), followed by the nondrinkers (9.6%) and the moderate drinkers (7.8%). A similar pattern of abnormalities was found for current alcohol use (18.8% for heavy drinkers, 8.6% for light drinkers, and 8.5% for moderate drinkers). The percentages of abnormalities for the participants with and without PTSD were 93.8 and 8.2, respectively.

No difference was found between the two groups based on the adjusted analysis of psychoticism (p=0.968). PTSD and race-by-education were significant terms in the model (p<0.001 and p=0.005, respectively).

Somatization

A borderline significant difference between the two groups was identified in the unadjusted analysis of somatization from the SCL-90-R (Est. RR: 1.33, 95% C.I.: [0.99,1.80], p=0.073). For this variable, 10.7 percent of the Ranch Hands were classified as abnormal, as compared to 8.2 percent of the Comparisons.

Education, lifetime alcohol history, and PTSD were found to be significantly associated with somatization (p<0.001, p=0.042, and p<0.001, respectively). The participants with a high school education had a higher percentage of abnormalities than those with a college education (12.6% vs. 5.9%). For lifetime alcohol history, the highest percentage of abnormalities was among the nondrinkers (12.4%), followed by the heavy drinkers (11.3%) and the moderate drinkers (8.2%). Of the participants with PTSD, 87.5 percent were classified as abnormal based on the somatization scale, as compared to 8.7 percent of the participants without PTSD.

In the adjusted analysis of somatization, there was a significant group-by-education interaction (p=0.026). PTSD and age-by-education were also significant terms in the model (p<0.001 and p=0.032, respectively). Stratifying by education revealed that the high school-educated Ranch Hands had a higher percentage of abnormalities than the Comparisons with a high school education (15.5% vs. 9.8%; Adj. RR: 1.57, 95% C.I.: [1.06,2.33], p=0.025). For those with a college education, no difference between the two groups was detected (p=0.256). Without the group-by-education interaction in the model, there was no significant difference between the two groups (p=0.236).

GSI

A borderline significant difference in severity of psychological distress between the two groups was detected in the unadjusted analysis on the GSI of the SCL-90-R (Est. RR: 1.36, 95% C.I.: [0.98,1.89], p=0.081). More Ranch Hands than Comparisons were classified as abnormal on the GSI (8.9% vs. 6.7%).

The results of the covariate tests with the GSI revealed significant associations for age (p=0.001), education (p<0.001), lifetime alcohol history (p=0.030), and PTSD (p<0.001). The association with current alcohol use was borderline significant (p=0.086). The percentage of abnormalities on the GSI decreased with age (10.2% for those born in or after 1942, 5.7% for those born between 1923 and 1941, and 5.6% for those born in or before 1922). The high school-educated participants had a higher percentage of abnormalities than the college-educated participants (10.8% vs. 4.3%). Based on lifetime alcohol history, the highest percentage of abnormalities was among the heavy drinkers (10.4%), followed by the nondrinkers (7.3%) and the moderate drinkers (6.7%). The percentage of abnormalities increased with current alcohol use (7.1% for light drinkers, 8.8% for moderate drinkers, and 14.1% for heavy drinkers). The percentage of abnormalities for the participants with PTSD was 93.8 percent, as compared to 6.8 percent for participants without PTSD.

The adjusted analysis of the GSI did not identify a significant difference between the Ranch Hands and the Comparisons ($p=0.314$). The significant covariates in the model were age ($p=0.001$), education ($p<0.001$), lifetime alcohol history ($p=0.009$), and PTSD ($p<0.001$).

PSDI

No significant group difference in the intensity of psychological distress was identified for the PSDI of the SCL-90-R in the unadjusted analysis ($p=0.548$).

The PSDI covariate tests showed that education, lifetime alcohol history, and PTSD were significant ($p=0.018$, $p=0.042$, and $p<0.001$, respectively). A higher percentage of the high school-educated participants were classified as abnormal on the PSDI than those with a college education (11.1% vs. 7.9%). For lifetime alcohol history, the highest percentage of abnormalities was among the nondrinkers (14.6%), followed by the heavy drinkers (9.6%) and the moderate drinkers (8.7%). Of the participants with PTSD, 75.0 percent were classified as abnormal based on the PSDI, as compared to 9.1 percent of the participants without PTSD.

In the adjusted analysis of the PSDI, there was a significant group-by-race interaction ($p=0.046$). Education and PTSD were significant covariates ($p=0.035$ and $p<0.001$, respectively). After stratifying by race, a borderline significant difference between the Black Ranch Hands and Black Comparisons was identified with 15.7 percent abnormalities among the Black Comparisons, as contrasted with 4.2 percent abnormalities in the Black Ranch Hands (Adj. RR: 0.25, 95% C.I.: [0.05,1.18], $p=0.079$). No difference between the nonblack Ranch Hands and Comparisons was detected ($p=0.761$). Without the group-by-race interaction in the model, there was no significant difference between the two groups ($p=0.840$).

PST

The unadjusted results of the SCL-90-R PST did not detect a significant difference in the total number of reported symptoms between the Ranch Hands and the Comparisons ($p=0.226$).

Using pooled group data, the covariate tests showed that five of the six covariates were significantly associated with the PST: age ($p<0.001$), education ($p<0.001$), lifetime alcohol history ($p=0.009$), current alcohol use ($p=0.024$), and PTSD ($p<0.001$). For age, the highest percentage of abnormalities was among the participants born in or after 1942 (10.2%), followed by those born in or before 1922 (5.6%) and those born between 1923 and 1941 (5.4%). The high school-educated participants had a higher percentage of abnormalities than those with a college education (9.9% vs. 4.8%). For lifetime alcohol history, the highest percentage of abnormalities was among the heavy drinkers (10.7%), followed by the nondrinkers (6.7%) and the moderate drinkers (6.4%). Based on current alcohol use, the percentage of abnormalities increased with alcohol consumption (6.9% for light drinkers, 8.5% for moderate drinkers, and 15.6% for heavy drinkers). The percentages of abnormalities for the participants with and without PTSD were 93.8 and 6.7, respectively.

The Ranch Hands and the Comparisons did not differ significantly based on the adjusted analysis of the PST (p=0.524). The significant covariates in the model were: age (p=0.003), education (p=0.001), lifetime alcohol history (p=0.014), and PTSD (p<0.001).

Physical Examination Variables: MCMI

The results of the unadjusted and adjusted analyses of the MCMI are presented in Tables 12-8 and 12-9, respectively. Dependent variable-covariate associations are provided in Table I-1 of Appendix I. Table I-2 of Appendix I contains the group-by-covariate interactions.

Schizoid Score

The unadjusted analysis of the MCMI schizoid score did not detect a significant difference between the two groups (p=0.408).

The covariate tests showed that the schizoid score was significantly associated with age (p=0.012), education (p<0.001), lifetime alcohol history (p=0.024), and PTSD (p<0.001). Age was negatively correlated with the schizoid score (r=-0.053). The mean score of the high school-educated participants was higher than the mean score for those with a college education (26.3 vs. 22.6). The schizoid score was positively correlated with lifetime alcohol history (r=0.047). The mean score of the participants with PTSD exceeded that of the participants without PTSD (83.0 vs. 24.1).

Based on the adjusted analysis, the two groups did not differ significantly on the schizoid score (p=0.788). Education, PTSD, and age-by-lifetime alcohol history were significant terms in the model (p<0.001, p<0.001, and p=0.029, respectively).

Avoidant Score

Based on the unadjusted analysis of the avoidant score of the MCMI, no significant difference was found between the Ranch Hands and the Comparisons (p=0.812).

The covariate tests revealed significant associations with all of the covariates except race: age (p=0.014), education (p<0.001), lifetime alcohol history (p<0.001), current alcohol use (p=0.010), and PTSD (p<0.001). The avoidant score was negatively correlated with age (r=-0.051). The participants with a high school education had a higher mean score than the college-educated participants (19.3 vs. 14.3). For lifetime alcohol history, the heavy drinkers had the highest mean score (19.3), followed by the nondrinkers (17.6) and the moderate drinkers (15.8). The avoidant score was positively correlated with current alcohol use (r=0.054). The mean score of the participants with PTSD was 89.2, as compared to a mean score of 16.3 for participants without PTSD.

TABLE 12-8.

Unadjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand	Group: Comparison	p-Value
Schizoid Score	n	992	1,296	
	Mean[a]	24.7	24.2	0.408
	95% C.I.[a]	(23.8,25.6)	(23.4,24.9)	
Avoidant Score	n	992	1,296	
	Mean[b]	16.8	16.6	0.812
	95% C.I.[b]	(15.9,17.7)	(15.8,17.5)	
Dependent Score	n	992	1,296	
	Mean[c]	40.4	42.0	0.048
	95% C.I.[c]	(39.1,41.6)	(40.9,43.2)	
Histrionic Score	n	992	1,296	
	Mean[d]	63.3	63.9	0.318
	95% C.I.[d]	(62.5,64.2)	(63.2,64.7)	
Narcissistic Score	n	992	1,296	
	Mean	64.6	63.4	0.090
	95% C.I.	(63.6,65.5)	(62.6,64.3)	
Antisocial Score	n	992	1,296	
	Mean	61.9	59.1	<0.001
	95% C.I.	(60.7,63.1)	(58.1,60.2)	
Compulsive Score	n	992	1,296	
	Mean[d]	68.3	68.6	0.408
	95% C.I.[d]	(67.8,68.9)	(68.1,69.1)	
Passive-Aggressive Score	n	992	1,296	
	Mean[c]	19.6	18.7	0.170
	95% C.I.[c]	(18.6,20.6)	(17.9,19.5)	
Schizotypal Score	n	992	1,296	
	Mean	34.3	34.4	0.949
	95% C.I.	(33.2,35.5)	(33.4,35.4)	
Borderline Score	n	992	1,296	
	Mean	32.7	33.4	0.278
	95% C.I.	(31.6,33.7)	(32.5,34.4)	
Paranoid Score	n	992	1,296	
	Mean	53.2	51.5	0.011
	95% C.I.	(52.3,54.2)	(50.7,52.4)	

TABLE 12-8. (continued)

Unadjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand	Group: Comparison	p-Value
Anxiety Score	n	992	1,296	
	Mean	46.5	47.6	0.200
	95% C.I.	(45.1,47.8)	(46.5,48.8)	
Somatoform Score	n	992	1,296	
	Mean	50.9	51.5	0.370
	95% C.I.	(49.8,52.0)	(50.6,52.5)	
Hypomania Score	n	992	1,296	
	Mean[c]	21.4	21.1	0.736
	95% C.I.[c]	(19.9,23.0)	(19.8,22.4)	
Dysthymia Score	n	992	1,296	
	Mean	49.4	50.5	0.242
	95% C.I.	(48.0,50.8)	(49.3,51.7)	
Alcohol Abuse Score	n	992	1,296	
	Mean	31.5	30.8	0.376
	95% C.I.	(30.4,32.5)	(29.9,31.7)	
Drug Abuse Score	n	992	1,296	
	Mean	47.9	47.1	0.353
	95% C.I.	(46.6,49.1)	(46.0,48.2)	
Psychotic Thinking Score	n	992	1,296	
	Mean	32.1	32.1	0.952
	95% C.I.	(30.9,33.4)	(31.0,33.2)	
Psychotic Depression Score	n	992	1,296	
	Mean	23.5	23.3	0.797
	95% C.I.	(22.2,24.8)	(22.2,24.4)	
Psychotic Delusion Score	n	992	1,296	
	Mean	43.8	42.2	0.061
	95% C.I.	(42.6,45.1)	(41.1,43.3)	

[a]Transformed from natural logarithm scale.

[b]Transformed from natural logarithm (X+1) scale.

[c]Transformed from square root scale.

[d]Transformed from square scale.

TABLE 12-9.

Adjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand	Group: Comparison	p-Value	Covariate Remarks
Schizoid Score	n	942	1,208		EDUC (p<0.001)
	Adj. Mean[a]	44.2	43.9	0.788	PTSD (p<0.001)
	95% C.I.[a]	(38.4,50.9)	(38.1,50.6)		AGE*DRKYR (p=0.029)
Avoidant Score	n	942	1,208		GRP*EDUC (p=0.005)
	Adj. Mean[b]	****	****	****	AGE (p=0.037)
	95% C.I.[b]	****	****		DRKYR (p<0.001)
					PTSD (p<0.001)
Dependent Score	n	947	1,209		GRP*RACE (p=0.018)
	Adj. Mean**[c]	46.2	48.3	0.020**	AGE (p=0.046)
	95% C.I.**[c]	(40.7,52.0)	(42.7,54.3)		EDUC (p<0.001)
					ALC (p<0.001)
					PTSD (p=0.027)
Histrionic Score	n	947	1,209		GRP*RACE (p=0.040)
	Adj. Mean**[d]	62.4	62.7	0.607**	AGE (p=0.037)
	95% C.I.**[d]	(54.8,69.2)	(55.1,69.4)		EDUC (p<0.001)
					ALC (p=0.006)
					RACE*PTSD (p=0.024)
Narcissistic Score	n	942	1,208		RACE (p<0.001)
	Adj. Mean	57.5	55.9	0.015	EDUC (p<0.001)
	95% C.I.	(53.4,61.7)	(51.8,60.1)		DRKYR*PTSD (p=0.003)
Antisocial Score	n	983	1,294		DRKYR (p=0.002)
	Adj. Mean	61.9	59.1	0.001	AGE*ALC (p=0.021)
	95% C.I.	(60.7,63.1)	(58.1,60.2)		

TABLE 12-9. (continued)

Adjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand	Group: Comparison	p-Value	Covariate Remarks
Compulsive Score	n	942	1,208		GRP*ALC (p=0.047)
	Adj. Mean**[d]	58.6	58.8	0.791**	GRP*PTSD (p=0.034)
	95% C.I.**[d]	(56.1,61.1)	(56.2,61.2)		RACE (p=0.041)
					AGE*EDUC (p=0.004)
					DRKYR*ALC (p=0.020)
Passive-Aggressive Score	n	942	1,208		GRP*EDUC (p=0.017)
	Adj. Mean**[c]	46.6	45.5	0.270**	AGE (p<0.001)
	95% C.I.**[c]	(41.2,52.3)	(40.2,51.2)		PTSD (p<0.001)
					EDUC*DRKYR (p=0.031)
Schizotypal Score	n	942	1,208		GRP*DRKYR (p=0.044)
	Adj. Mean**	51.7	52.3	0.446**	AGE (p=0.010)
	95% C.I.**	(46.8,56.5)	(47.4,57.1)		EDUC (p<0.001)
					PTSD (p<0.001)
Borderline Score	n	942	1,208		GRP*RACE (p=0.014)
	Adj. Mean**	51.1	52.6	0.050**	AGE (p=0.005)
	95% C.I.**	(46.8,55.5)	(48.2,56.9)		EDUC (p<0.001)
					DRKYR (p<0.001)
					PTSD (p<0.001)
Paranoid Score	n	984	1,290		RACE (p=0.002)
	Adj. Mean	55.0	53.4	0.014	EDUC (p<0.001)
	95% C.I.	(53.5,56.6)	(52.0,54.9)		
Anxiety Score	n	951	1,210		GRP*RACE (p=0.010)
	Adj. Mean	****	****	****	PTSD (p<0.001)
	95% C.I.	****	****		AGE*EDUC (p=0.003)

TABLE 12-9. (continued)

Adjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group: Ranch Hand	Group: Comparison	p-Value	Covariate Remarks
Somatoform Score	n	947	1,209		ALC (p=0.013)
	Adj. Mean	68.6	69.4	0.321	AGE*EDUC (p=0.002)
	95% C.I.	(59.9,77.4)	(60.7,78.1)		RACE*PTSD (p=0.035)
Hypomania Score	n	942	1,208		AGE (p=0.022)
	Adj. Mean[c]	30.7	30.1	0.646	EDUC (p=0.004)
	95% C.I.[c]	(23.5,38.7)	(23.0,38.1)		DRKYR (p<0.001)
					PTSD (p=0.034)
					RACE*ALC (p=0.020)
Dysthymia Score	n	951	1,210		EDUC (p=0.014)
	Adj. Mean	68.6	70.0	0.166	PTSD (p<0.001)
	95% C.I.	(63.2,74.1)	(64.5,75.5)		
Alcohol Abuse Score	n	942	1,208		GRP*RACE (p=0.027)
	Adj. Mean**	49.6	49.1	0.475**	GRP*PTSD (p=0.038)
	95% C.I.**	(45.5,53.7)	(45.0,53.2)		EDUC (p<0.001)
					ALC (p=0.019)
					AGE*DRKYR (p=0.008)
Drug Abuse Score	n	942	1,208		AGE (p=0.007)
	Adj. Mean	65.3	64.1	0.131	EDUC (p=0.040)
	95% C.I.	(55.4,75.3)	(54.2,74.0)		DRKYR (p<0.001)
					RACE*PTSD (p=0.035)
Psychotic Thinking Score	n	942	1,208		AGE (p=0.005)
	Adj. Mean	49.7	50.4	0.443	EDUC (p<0.001)
	95% C.I.	(44.8,54.7)	(45.5,55.3)		DRKYR (p<0.001)
					PTSD (p<0.001)

TABLE 12-9. (continued)

Adjusted Analysis for MCMI Psychological Variables by Group

Variable	Statistic	Group		p-Value	Covariate Remarks
		Ranch Hand	Comparison		
Psychotic Depression Score	n	942	1,208		GRP*EDUC (p=0.010)
	Adj. Mean	****	****	****	AGE (p=0.049)
	95% C.I.	****	****		DRKYR (p<0.001)
					PTSD (p<0.001)
Psychotic Delusion Score	n	947	1,209		RACE (p=0.015)
	Adj. Mean	50.9	49.3	0.062	PTSD (p=0.036)
	95% C.I.	(45.4,56.5)	(43.8,54.8)		EDUC*ALC (p=0.045)

[a]Transformed from natural logarithm scale.

[b]Transformed from natural logarithm (X+1) scale.

****Group-by-covariate interaction ($p \leq 0.01$)--adjusted mean, confidence interval, and p-value not presented.

[c]Transformed from square root scale.

**Group-by-covariate interaction ($0.01 < p \leq 0.05$)--adjusted mean, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

[d]Transformed from square scale.

In the adjusted analysis, there was a significant group-by-education interaction ($p=0.005$). The covariates that made a significant contribution to the model were age, lifetime alcohol history, and PTSD ($p=0.037$, $p<0.001$, $p<0.001$, respectively). After stratifying by education, the results showed that the college-educated Comparisons had a significantly higher adjusted mean score than the Ranch Hands with a college education (35.0 vs. 31.0, $p=0.022$). For those with a high school education, the Ranch Hands had an adjusted mean score of 45.6, as contrasted with an adjusted mean score of 41.9 for the Comparisons; this difference was borderline significant ($p=0.099$).

Dependent Score

The results of the unadjusted analysis showed that the Comparisons had a significantly higher mean dependent score on the MCMI than the Ranch Hands (42.0 vs. 40.4, $p=0.048$).

Based on pooled group data, the dependent score was significantly associated with age, education, and current alcohol use ($p=0.003$, $p<0.001$, and $p<0.001$, respectively). The participants born in or before 1922 had the highest mean score (45.9), followed by those born in or after 1942 (42.5) and those born between 1923 and 1941 (40.1). The mean score for the high school-educated participants was higher than the mean score for the participants with a college education (44.0 vs. 38.6). The mean dependent scores were 42.1, 37.5, and 43.6 for the light, moderate, and heavy drinkers, respectively.

In the adjusted analysis, there was a significant group-by-race interaction ($p=0.018$). The significant covariates in the model were: age ($p=0.046$), education ($p<0.001$), current alcohol use ($p<0.001$), and PTSD ($p=0.027$). Stratifying by race revealed that the nonblack Comparisons had a higher adjusted mean dependent score than the nonblack Ranch Hands (48.5 vs. 45.9, $p=0.005$). The difference between the adjusted mean scores for the Black Ranch Hands and Black Comparisons was borderline significant (52.4 and 45.8, respectively; $p=0.086$). Without the group-by-race interaction in the model, the Comparisons had a significantly higher adjusted mean score than the Ranch Hands (48.3 vs. 46.2, $p=0.020$).

Histrionic Score

In the unadjusted analysis of the MCMI histrionic score, the two groups did not differ significantly ($p=0.318$).

The covariate tests with the histrionic score found significant associations with race ($p=0.002$), education ($p<0.001$), current alcohol use ($p=0.004$), and PTSD ($p<0.001$). The mean score for the Blacks exceeded the mean score for the nonblacks (67.2 vs. 63.4). For education, the participants with a high school education had a mean score of 61.4 as compared to a mean score of 65.9 for the participants with a college education. Based on current alcohol use, the highest mean score was for the moderate drinkers (65.7), followed by the light drinkers (63.3) and the heavy drinkers (61.9). The participants without PTSD had a mean score of 63.9, as compared to a mean score of 41.2 for the participants with PTSD.

The results of the adjusted analysis showed that the group-by-race interaction was significant ($p=0.040$). Age ($p=0.037$), education ($p<0.001$), current alcohol use ($p=0.006$), and race-by-PTSD ($p=0.024$) were also significant terms in the model. Stratifying by race identified a borderline significant difference between the adjusted mean scores of the Black Ranch Hands and Comparisons (74.5 and 70.5, respectively; $p=0.062$). No difference was detected for nonblacks ($p=0.313$). Without the group-by-race interaction in the model, no significant difference between the two groups was found ($p=0.607$).

Narcissistic Score

The results of the unadjusted analysis of the narcissistic score of the MCMI showed that the mean score of the Ranch Hands was marginally significantly higher than the mean score of the Comparisons (64.6 vs. 63.4, respectively; $p=0.090$).

Using combined Ranch Hand and Comparison data, race, education, and PTSD were found to be significantly associated with the narcissistic score ($p<0.001$ for all). The mean score for Blacks exceeded the mean score of the nonblacks (69.2 vs. 63.6). The college-educated participants had a higher mean score than those with a high school education (65.3 vs. 62.6). The mean scores of the participants with and without PTSD were 40.1 and 64.1, respectively.

In the adjusted analysis, the Ranch Hands had a significantly higher adjusted mean score than the Comparisons (57.5 vs. 55.9, $p=0.015$). Race, education, and lifetime alcohol history-by-PTSD were significant terms in the model ($p<0.001$, $p<0.001$, and $p=0.003$, respectively).

Antisocial Score

Based on the unadjusted analysis, the Ranch Hands had a significantly higher mean antisocial score on the MCMI than the Comparisons (61.9 vs. 59.1, $p<0.001$).

The covariate tests identified a significant association between the antisocial score and lifetime alcohol history ($p<0.001$). The associations with education and current alcohol use were borderline significant ($p=0.063$ and $p=0.066$, respectively). For education, the mean score for the high school-educated participants was higher than the mean score for those with a college education (61.0 vs. 59.5). Lifetime alcohol history and current alcohol use were found to be positively correlated with the antisocial score ($r=0.075$ and $r=0.039$, respectively).

The results of the adjusted analysis also showed that the Ranch Hands differed significantly from the Comparisons, with the Ranch Hands having a higher adjusted mean antisocial score (61.9 vs. 59.1, $p=0.001$). Lifetime alcohol history and age-by-current alcohol use were significant terms in the model ($p=0.002$ and $p=0.021$, respectively).

Compulsive Score

Based on the unadjusted analysis of the MCMI compulsive score, no significant difference between the two groups was detected ($p=0.408$).

The results of the covariate tests showed that the compulsive score was significantly associated with five of the six covariates: age ($p<0.001$), education ($p=0.035$), lifetime alcohol history ($p<0.001$), current alcohol use ($p<0.001$), and PTSD ($p<0.001$). Age was positively correlated with the compulsive score ($r=0.138$). The mean scores for the high school- and college-educated participants were 68.1 and 68.9, respectively. Lifetime alcohol history and current alcohol use were negatively correlated with the compulsive score ($r=-0.164$ and $r=-0.108$, respectively). The mean score for the participants without PTSD exceeded the mean score of those with PTSD (68.7 vs. 42.2).

Two interactions involving group (group-by-current alcohol use and group-by-PTSD) were significant in the adjusted model ($p=0.047$ and $p=0.034$, respectively). The other significant terms in the model were race, age-by-education, and lifetime alcohol history-by-current alcohol use ($p=0.041$, $p=0.004$, and $p=0.020$, respectively). After stratifying by current alcohol use and PTSD, no differences were identified for the light drinkers without PTSD ($p=0.318$), the moderate drinkers with PTSD ($p=0.614$), and the moderate drinkers without PTSD ($p=0.802$). Significant differences were detected for the light drinkers with PTSD, with the Ranch Hands having a higher adjusted mean score than the Comparisons (51.9 vs. 25.7, $p=0.004$), and for the heavy drinkers without PTSD, where the Ranch Hand adjusted mean score was higher than the adjusted mean score of the Comparisons (71.4 vs. 67.0, $p=0.028$). There were no participants in the heavy drinker with PTSD stratum. No significant difference between the two groups was found without the two interactions involving group in the model ($p=0.791$).

Passive-Aggressive Score

The Ranch Hands and the Comparisons did not differ significantly based on the unadjusted analysis of the passive-aggressive score of the MCMI ($p=0.170$).

Age, education, lifetime alcohol history, current alcohol use, and PTSD were significantly associated with the passive-aggressive score based on the covariate tests ($p<0.001$ for all). Age was negatively correlated with the passive-aggressive score ($r=-0.142$). The high school-educated participants had a mean score of 20.9, as compared to a mean score of 17.2 for the participants with a college education. Lifetime alcohol history and current alcohol use were positively correlated with the passive-aggressive score ($r=0.152$ and $r=0.074$, respectively). The mean score of the participants with PTSD exceeded the mean score of those without PTSD (91.0 vs. 18.6).

In the adjusted analysis, there was a significant group-by-education interaction ($p=0.017$). Age ($p<0.001$), PTSD ($p<0.001$), and education-by-lifetime alcohol history ($p=0.031$) also made significant contributions to the model. Stratifying by education revealed that the high school-educated Ranch Hands had a higher adjusted mean score than the Comparisons with a high school education (49.6 vs. 46.2, $p=0.014$). No significant difference between the two

groups was found for the college-educated participants (p=0.354). Without the group-by-education interaction in the model, no significant difference between the two groups was detected (p=0.270).

Schizotypal Score

No significant group difference was found in the unadjusted analysis of the schizotypal score (p=0.949).

The results of the covariate tests revealed that age (p=0.003), education (p<0.001), lifetime alcohol history (p<0.001), and PTSD (p<0.001) were significantly associated with the schizotypal score. The association between the schizotypal score and current alcohol use was borderline significant (p=0.075). The highest mean score was among the participants born in or before 1922 (36.9), followed by those born in or after 1942 (35.7) and those born between 1923 and 1941 (33.2). The high school-educated participants had a higher schizotypal mean score than those with a college education (36.8 vs. 31.8). For lifetime alcohol history, the mean scores were 36.5, 33.1, and 37.3 for the nondrinkers, moderate drinkers, and heavy drinkers, respectively. Current alcohol use was positively correlated with the schizotypal score (r=0.037). The mean score of those with PTSD was higher than the mean score for the participants without PTSD (67.3 vs. 34.0).

The results of the adjusted analysis showed that the interaction of group and lifetime alcohol history was significant (p=0.044). The covariates that contributed significantly to the model were age, education, and PTSD (p=0.010, p<0.001, and p<0.001, respectively). Contrasting the two groups for each of the categories of lifetime alcohol history revealed no difference between the two groups for the nondrinkers (p=0.977) and borderline significant differences for the moderate (p=0.053) and heavy drinkers (p=0.081). For the moderate drinkers, the Comparisons had a marginally significantly higher adjusted mean score than the Ranch Hands (49.9 vs. 48.0). The Ranch Hands had a marginally significantly higher adjusted mean than the Comparisons for the heavy drinkers (55.0 vs. 52.1). Without the group-by-lifetime alcohol history interaction in the model, no significant group difference was detected (p=0.446).

Borderline Score

Based on the unadjusted analysis of the MCMI borderline score, no significant difference between the two groups was found (p=0.278).

Using pooled group data, age, education, lifetime alcohol history, and PTSD were found to be significantly associated with the borderline score (p<0.001 for all). The association with current alcohol use was marginally significant (p=0.052). The mean scores were 34.7, 31.8, and 35.1 for those born in or after 1942, between 1923 and 1941, and in or before 1922, respectively. The mean score for the high school-educated participants was higher than the mean score for those with a college education (35.4 vs. 30.7). Lifetime alcohol history and current alcohol use were found to be positively correlated with the borderline score (r=0.095 and r=0.041, respectively). The participants with PTSD had a higher mean score than the participants without PTSD (71.5 vs. 32.6).

In the adjusted analysis of the borderline score, there was a significant group-by-race interaction ($p=0.014$). The significant covariates in the model were age ($p=0.005$), education ($p<0.001$), lifetime alcohol history ($p<0.001$), and PTSD ($p<0.001$). Stratifying by race showed that the nonblack Comparisons had a significantly higher adjusted mean score than the nonblack Ranch Hands (52.9 vs. 51.0, $p=0.012$) and the Black Ranch Hands had a marginally significantly higher adjusted mean than the Black Comparisons (55.8 vs. 50.2, $p=0.057$). Without the group-by-race interaction in the model, the Comparisons had a significantly higher adjusted mean than the Ranch Hands (52.6 vs. 51.1, $p=0.050$).

Paranoid Score

Based on the results of the unadjusted analysis of the MCMI paranoid score, the mean score of the Ranch Hands was significantly higher than the mean score of the Comparisons (53.2 vs. 51.5, $p=0.011$).

The results of the covariate tests showed that race ($p=0.001$), education ($p<0.001$), lifetime alcohol history ($p=0.026$), and PTSD ($p=0.034$) were significantly associated with the paranoid score. The Black participants had a mean score of 56.5, as compared to a mean score of 52.0 for nonblack participants. The participants with a high school education had a higher mean score than the college-educated participants (54.1 vs. 50.4). Lifetime alcohol history was positively correlated with the paranoid score ($r=0.047$). The participants with PTSD had a mean score of 60.5, as compared to a mean score of 52.2 for those without PTSD.

In the adjusted analysis, the two groups were significantly different ($p=0.014$). The adjusted mean score of the Ranch Hands was 55.0, as compared to an adjusted mean score of 53.4 for the Comparisons. Race and education were significant covariates in the model ($p=0.002$ and $p<0.001$, respectively).

Anxiety Score

Based on the MCMI anxiety score, the Ranch Hands and Comparisons did not differ significantly in the unadjusted analysis ($p=0.200$).

Of the six covariate tests, only education and PTSD were found to be significantly associated with the anxiety score ($p<0.001$ for both). The high school-educated participants had a mean score of 49.8, as compared to the mean score of 44.3 for those with a college education. The mean of the participants with PTSD was higher than the mean score for those without PTSD (92.9 vs. 46.7).

The results of the adjusted analysis revealed a significant group-by-race interaction ($p=0.010$). PTSD and age-by-education were also significant terms in the model ($p<0.001$ and $p=0.003$, respectively). Stratifying by race showed that the two groups differed for both Blacks and nonblacks ($p=0.042$ and $p=0.014$, respectively). The adjusted mean score of the Black Ranch Hands was higher than the adjusted mean score of the Black Comparisons (75.6 vs. 68.3). For nonblacks, the Comparisons had a higher adjusted mean score than the Ranch Hands (71.0 vs. 68.7).

Somatoform Score

No difference between the two groups was identified in the unadjusted analysis of the MCMI somatoform score ($p=0.370$).

The results of the covariate tests showed that education ($p=0.011$), current alcohol use ($p=0.036$), and PTSD ($p<0.001$) were significantly associated with the somatoform score. The association between the somatoform score and lifetime alcohol history was borderline significant ($p=0.096$). The high school-educated participants had a higher mean score than those with a college education (52.1 vs. 50.3). Lifetime alcohol history and current alcohol use were negatively correlated with the somatoform score ($r=-0.035$ and $r=-0.044$, respectively). The mean score of the participants with PTSD was 68.5, as compared to a mean score of 51.0 for participants without PTSD.

In the adjusted analysis of the somatoform score, no significant difference between the Ranch Hands and Comparisons was detected ($p=0.321$). The significant terms in the model were current alcohol use, age-by-education, and race-by-PTSD ($p=0.013$, $p=0.002$, and $p=0.035$, respectively).

Hypomania Score

In the unadjusted analysis, no significant difference between the two groups was detected ($p=0.736$).

The results of the covariate tests of associations revealed significant relationships for five of the six covariates: age ($p=0.031$), race ($p=0.017$), education ($p=0.022$), lifetime alcohol history ($p=0.001$), and PTSD ($p=0.023$). Age was negatively correlated with the MCMI hypomania score ($r=-0.045$). The Black participants had a higher mean score than the nonblack participants (26.3 vs. 20.9). The participants with a college education had a mean score of 22.4 as compared to a mean score of 20.1 for those with a high school education. Lifetime alcohol history was positively correlated with the hypomania score ($r=0.067$). The participants with PTSD had a higher mean score than the participants without PTSD (37.2 vs. 21.0).

The adjusted analysis of the hypomania score did not identify a significant difference between the two groups ($p=0.646$). The significant terms in the model were age ($p=0.022$), education ($p=0.004$), lifetime alcohol history ($p<0.001$), PTSD ($p=0.034$), and race-by-current alcohol use ($p=0.020$).

Dysthymia Score

The results of the unadjusted analysis of the MCMI dysthymia score showed that the two groups did not differ significantly ($p=0.242$).

In the covariate tests of association, significant relationships were identified for education and PTSD ($p=0.004$ and $p<0.001$, respectively). The high school-educated participants had a higher mean score than those with a college education (51.3 vs. 48.6). The mean score of the participants with PTSD was 89.3, as compared to a mean score of 49.6 for participants without PTSD.

No significant difference between the two groups was detected based on the results of the adjusted analysis ($p=0.166$). Education and PTSD were significant covariates in the adjusted model ($p=0.014$ and $p<0.001$, respectively).

Alcohol Abuse Score

No significant group difference was detected in the unadjusted analysis of the alcohol abuse score of the MCMI ($p=0.376$).

Race, education, lifetime alcohol history, current alcohol use, and PTSD were found to be significantly associated with the alcohol abuse score ($p<0.001$ for all). The association with age was borderline significant ($p=0.065$). Age was negatively correlated with the alcohol abuse score ($r=-0.039$). The Black participants had a higher mean score than the nonblack participants (36.5 vs. 30.8). The mean score of the high school-educated participants was 33.5, as compared to a mean score of 28.7 for those with a college education. Lifetime alcohol history and current alcohol use were both positively correlated with the alcohol abuse score ($r=0.279$ and $r=0.187$, respectively). The participants with PTSD had a higher mean score than those without PTSD (66.0 vs. 30.6).

In the adjusted analysis there were two significant interactions involving group: group-by-race and group-by-PTSD ($p=0.027$ and $p=0.038$, respectively). Education, current alcohol use, and age-by-lifetime alcohol history were also significant ($p<0.001$, $p=0.019$, and $p=0.008$, respectively). For the Blacks without PTSD, the adjusted mean score of the Ranch Hands was significantly higher than the mean of the Comparisons (39.3 vs. 32.5, $p=0.014$). There was no significant difference between the two groups for the nonblacks with or without PTSD ($p=0.135$ and $p=0.777$, respectively). There was only one Black participant (Comparison) with PTSD. Without the two interactions involving group in the model, there was no significant difference between the Ranch Hands and Comparisons ($p=0.475$).

Drug Abuse Score

In the unadjusted analysis of the drug abuse score of the MCMI, no significant difference between the Ranch Hands and the Comparisons was found ($p=0.353$).

The covariate tests revealed significant associations between the MCMI drug abuse score and all of the covariates: age ($p=0.004$), race ($p<0.001$), education ($p=0.003$), lifetime alcohol history ($p<0.001$), current alcohol use ($p=0.004$), and PTSD ($p=0.029$). Age was found to be negatively correlated with the drug abuse score ($r=-0.060$). The Black participants had a higher mean score than the nonblack participants (55.7 vs. 46.9). The participants with a high school education had a mean score of 48.7, as compared to a mean score of 46.2 for the college-educated participants. Lifetime alcohol history and current alcohol use were positively correlated with the drug abuse score ($r=0.109$ and $r=0.061$, respectively). The participants with PTSD had a higher mean score than those without PTSD (58.1 vs. 47.2).

The adjusted analysis of the drug abuse score did not detect a significant difference between the two groups ($p=0.131$). The significant terms in the model were age ($p=0.007$), education ($p=0.040$), lifetime alcohol history ($p<0.001$), and race-by-PTSD ($p=0.035$).

Psychotic Thinking Score

For the unadjusted analysis of the MCMI psychotic thinking score, the results did not indicate a significant difference between the two groups ($p=0.952$).

The results of the covariate tests showed that all six covariates had significant relationships with the psychotic thinking score: age ($p<0.001$), race ($p=0.021$), education ($p<0.001$), lifetime alcohol history ($p<0.001$), current alcohol use ($p=0.003$), and PTSD ($p<0.001$). Age was negatively correlated with the psychotic thinking score ($r=-0.072$). The Black participants had a higher mean score than the nonblack participants (36.0 vs. 31.9). The mean score of the high school-educated participants was 36.3, as compared to a mean score of 27.9 for the college-educated participants. Lifetime alcohol history and current alcohol use were both positively correlated with the psychotic thinking score ($r=0.100$ and $r=0.063$, respectively). The participants with PTSD had a higher mean score than the participants without PTSD (70.8 vs. 31.6).

No significant difference between the Ranch Hands and Comparisons was found based on the adjusted analysis of the psychotic thinking score ($p=0.443$). Four covariates contributed significantly to the model: age ($p=0.005$), education ($p<0.001$), lifetime alcohol history ($p<0.001$), and PTSD ($p<0.001$).

Psychotic Depression Score

No significant group difference was detected in the unadjusted analysis ($p=0.797$).

Based on the covariate tests, age ($p=0.011$), education ($p<0.001$), lifetime alcohol history ($p<0.001$), current alcohol use ($p=0.013$), and PTSD ($p<0.001$) were significantly associated with the MCMI psychotic depression score. The association between the psychotic depression score and race was borderline significant ($p=0.063$). Age was negatively correlated with the psychotic depression score ($r=-0.053$). The mean score for the Black participants was 26.5, as compared to a mean score of 23.2 for the nonblack participants. The high school-educated participants had a higher mean score than those with a college education (27.1 vs. 19.5). Lifetime alcohol history and current alcohol use were both positively correlated with the psychotic depression score ($r=0.118$ and $r=0.052$, respectively). The participants with PTSD had a higher mean score than the participants without PTSD (74.9 vs. 22.8).

In the adjusted analysis of the psychotic depression score, there was a significant group-by-education interaction ($p=0.010$). Age, lifetime alcohol history, and PTSD were significant covariates in the model ($p=0.049$, $p<0.001$,

and p<0.001, respectively). Stratifying by education revealed that the college-educated Comparisons had a significantly higher adjusted mean score than the Ranch Hands (45.3 vs. 42.7, p=0.034). No difference between the two groups was identified for those with a high school education (p=0.125).

Psychotic Delusion Score

The results of the unadjusted analysis showed that the Ranch Hands had a marginally significantly higher mean psychotic delusion score than the Comparisons (43.8 vs. 42.2, p=0.061).

The covariate tests showed that age (p=0.039), race (p=0.018), education (p<0.001), current alcohol use (p<0.001), and PTSD (p=0.033) were significantly associated with the psychotic delusion score. The participants born in or after 1942 had the highest mean score (44.2), followed by those born in or before 1922 (43.2) and those born between 1923 and 1941 (41.9). The Black participants had a higher mean score than the nonblack participants (47.0 vs. 42.7). The mean score of the participants with a high school education was 46.3, as compared to a mean score of 39.5 for those with a college education. Based on current alcohol use, the heavy drinkers had the highest mean score (45.8), followed by the light drinkers (43.7) and the moderate drinkers (38.9). The mean scores of the participants with and without PTSD were 53.8 and 42.8, respectively.

Based on the adjusted analysis, the difference between the two groups was borderline significant, with the Ranch Hands having a higher adjusted mean score than the Comparisons (50.9 vs. 49.3, p=0.062). Race, PTSD, and education-by-current alcohol use were significant terms in the model (p=0.015, p=0.036, and p=0.045, respectively).

Exposure Index Analysis

Tables 12-10 and 12-11 contain the results of the unadjusted and adjusted exposure index analyses of the psychological assessment, respectively. A summary of the exposure index-by-covariate interactions is presented in Table 12-12; detailed results are provided in Table I-3 of Appendix I. As in the 1985 followup report, participants with PTSD are excluded from these exposure index analyses due to the sparse number of Ranch Hands with this condition.

The final interpretation of these exposure index data must await the reanalysis of the clinical data using the results of the serum dioxin assay. This report is expected in 1991.

Questionnaire Variables: Reported Sleep Disorders

Trouble Falling Asleep

No significant differences were detected in the unadjusted or adjusted analyses of the enlisted flyer and enlisted groundcrew cohorts for trouble falling asleep.

TABLE 12-10.

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Trouble Falling Asleep	Officer	n	130		123		125		Overall		0.084
		Number/%									
		Yes	7	5.4%	7	5.7%	15	12.0%	M vs. L	1.06 (0.36,3.12)	0.999
		No	123	94.6%	116	94.3%	110	88.0%	H vs. L	2.40 (0.94,6.09)	0.096
	Enlisted Flyer	n	54		63		52		Overall		0.865
		Number/%									
		Yes	3	5.6%	5	7.9%	4	7.7%	M vs. L	1.47 (0.33,6.44)	0.896
		No	51	94.4%	58	92.1%	48	92.3%	H vs. L	1.42 (0.30,6.66)	0.958
	Enlisted Groundcrew	n	145		156		137		Overall		0.693
		Number/%									
		Yes	21	14.5%	18	11.5%	16	11.7%	M vs. L	0.77 (0.39,1.51)	0.556
		No	124	85.5%	138	88.5%	121	88.3%	H vs. L	0.78 (0.39,1.57)	0.604
Waking Up During the Night	Officer	n	130		123		125		Overall		0.116
		Number/%									
		Yes	12	9.2%	14	11.4%	22	17.6%	M vs. L	1.26 (0.56,2.85)	0.722
		No	118	90.8%	109	88.6%	103	82.4%	H vs. L	2.10 (0.99,4.45)	0.074
	Enlisted Flyer	n	54		63		52		Overall		0.267
		Number/%									
		Yes	5	9.3%	12	19.0%	6	11.5%	M vs. L	2.31 (0.76,7.03)	0.216
		No	49	90.7%	51	81.0%	46	88.5%	H vs. L	1.28 (0.37,4.48)	0.946
	Enlisted Groundcrew	n	145		156		137		Overall		0.003
		Number/%									
		Yes	24	16.6%	27	17.3%	7	5.1%	M vs. L	1.06 (0.58,1.93)	0.984
		No	121	83.4%	129	82.7%	130	94.9%	H vs. L	0.27 (0.11,0.65)	0.003

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Waking Up Too Early and Can't Go Back to Sleep	Officer	n	130		123		125		Overall		0.297
		Number/%									
		Yes	11	8.5%	7	5.7%	14	11.2%	M vs. L	0.65 (0.24,1.74)	0.542
		No	119	91.5%	116	94.3%	111	88.8%	H vs. L	1.36 (0.59,3.13)	0.600
	Enlisted Flyer	n	54		63		52		Overall		0.431
		Number/%									
		Yes	5	9.3%	4	6.3%	7	13.5%	M vs. L	0.66 (0.17,2.61)	0.806
		No	49	90.7%	59	93.7%	45	86.5%	H vs. L	1.52 (0.45,5.15)	0.708
	Enlisted Groundcrew	n	145		156		137		Overall		0.579
		Number/%									
		Yes	21	14.5%	23	14.7%	15	10.9%	M vs. L	1.02 (0.54,1.94)	0.999
		No	124	85.5%	133	85.3%	122	89.1%	H vs. L	0.73 (0.36,1.47)	0.478
Waking Up Unrefreshed	Officer	n	130		123		125		Overall		0.906
		Number/%									
		Yes	8	6.2%	6	4.9%	7	5.6%	M vs. L	0.78 (0.26,2.32)	0.868
		No	122	93.8%	117	95.1%	118	94.4%	H vs. L	0.91 (0.32,2.57)	0.999
	Enlisted Flyer	n	54		63		52		Overall		0.340
		Number/%									
		Yes	3	5.6%	5	7.9%	7	13.5%	M vs. L	1.47 (0.33,6.44)	0.896
		No	51	94.4%	58	92.1%	45	86.5%	H vs. L	2.64 (0.65,10.84)	0.290
	Enlisted Groundcrew	n	145		156		137		Overall		0.515
		Number/%									
		Yes	15	10.3%	23	14.7%	17	12.4%	M vs. L	1.50 (0.75,3.00)	0.330
		No	130	89.7%	133	85.3%	120	87.6%	H vs. L	1.23 (0.59,2.57)	0.720

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Medium		High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Involuntarily Falling Asleep During the Day	Officer	n	130		123		125		Overall		0.064
		Number/%									
		Yes	3	2.3%	7	5.7%	1	0.8%	M vs. L	2.56 (0.65,10.11)	0.290
		No	127	97.7%	116	94.3%	124	99.2%	H vs. L	0.34 (0.04,3.33)	0.652
	Enlisted Flyer	n	54		63		52		Overall		0.673
		Number/%									
		Yes	2	3.7%	4	6.3%	4	7.7%	M vs. L	1.76 (0.31,10.02)	0.832
		No	52	96.3%	59	93.7%	48	92.3%	H vs. L	2.17 (0.38,12.37)	0.642
	Enlisted Groundcrew	n	145		156		137		Overall		0.296
		Number/%									
		Yes	9	6.2%	5	3.2%	4	2.9%	M vs. L	0.50 (0.16,1.53)	0.336
		No	136	93.8%	151	96.8%	133	97.1%	H vs. L	0.45 (0.14,1.51)	0.302
Great or Disabling Fatigue During the Day	Officer	n	130		123		125		Overall		0.436
		Number/%									
		Yes	1	0.8%	1	0.8%	3	2.4%	M vs. L	1.06 (0.07,17.09)	0.999
		No	129	99.2%	122	99.2%	122	97.6%	H vs. L	3.17 (0.33,30.91)	0.592
	Enlisted Flyer	n	54		63		52		Overall		0.698
		Number/%									
		Yes	1	1.9%	1	1.6%	2	3.8%	M vs. L	0.86 (0.05,14.00)	0.999
		No	53	98.1%	62	98.4%	50	96.2%	H vs. L	2.12 (0.19,24.11)	0.972
	Enlisted Groundcrew	n	145		156		137		Overall		0.153
		Number/%									
		Yes	12	8.3%	9	5.8%	4	2.9%	M vs. L	0.68 (0.28,1.66)	0.530
		No	133	91.7%	147	94.2%	133	97.1%	H vs. L	0.33 (0.11,1.06)	0.088

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Frightening Dreams	Officer	n	130		123		125		Overall		0.728
		Number/%									
		Yes	3	2.3%	5	4.1%	4	3.2%	M vs. L	1.79 (0.42,7.67)	0.662
		No	127	97.7%	118	95.9%	121	96.8%	H vs. L	1.40 (0.31,6.38)	0.956
	Enlisted Flyer	n	54		63		52		Overall		0.857
		Number/%									
		Yes	2	3.7%	2	3.2%	1	1.9%	M vs. L	0.85 (0.12,6.27)	0.999
		No	52	96.3%	61	96.8%	51	98.1%	H vs. L	0.51 (0.05,5.80)	0.999
	Enlisted Groundcrev	n	144		156		136		Overall		0.166
		Number/%									
		Yes	11	7.6%	12	7.7%	4	2.9%	M vs. L	1.01 (0.43,2.36)	0.999
		No	133	92.4%	144	92.3%	132	97.1%	H vs. L	0.37 (0.11,1.18)	0.136
Talking in Sleep	Officer	n	130		123		125		Overall		0.376
		Number/%									
		Yes	4	3.1%	3	2.4%	7	5.6%	M vs. L	0.79 (0.17,3.59)	0.999
		No	126	96.9%	120	97.6%	118	94.4%	H vs. L	1.87 (0.53,6.55)	0.496
	Enlisted Flyer	n	54		63		52		Overall		0.588
		Number/%									
		Yes	3	5.6%	2	3.2%	1	1.9%	M vs. L	0.56 (0.09,3.47)	0.854
		No	51	94.4%	61	96.8%	51	98.1%	H vs. L	0.33 (0.03,3.31)	0.646
	Enlisted Groundcrev	n	145		156		136		Overall		0.208
		Number/%									
		Yes	9	6.2%	12	7.7%	4	2.9%	M vs. L	1.26 (0.51,3.08)	0.782
		No	136	93.8%	144	92.3%	132	97.1%	H vs. L	0.46 (0.14,1.52)	0.308

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Sleep-walking	Officer	n	130		123		125		Overall		0.528
		Number/%									
		Yes	1	0.8%	3	2.4%	3	2.4%	M vs. L	3.23 (0.33,31.43)	0.580
		No	129	99.2%	120	97.6%	122	97.6%	H vs. L	3.17 (0.33,30.91)	0.592
	Enlisted Flyer	n	54		63		52		Overall		0.990
		Number/%									
		Yes	1	1.9%	1	1.6%	1	1.9%	M vs. L	0.86 (0.05,14.00)	0.999
		No	53	98.1%	62	98.4%	51	98.1%	H vs. L	1.04 (0.06,17.06)	0.999
	Enlisted Groundcrew	n	145		156		137		Overall		0.419
		Number/%									
		Yes	2	1.4%	6	3.8%	4	2.9%	M vs. L	2.86 (0.57,14.40)	0.332
		No	143	98.6%	150	96.2%	133	97.1%	H vs. L	2.15 (0.39,11.93)	0.632
Abnormal Movement/ Activity During the Night	Officer	n	130		123		125		Overall		0.581
		Number/%									
		Yes	1	0.8%	2	1.6%	3	2.4%	M vs. L	2.13 (0.19,23.82)	0.958
		No	129	99.2%	121	98.4%	122	97.6%	H vs. L	3.17 (0.33,30.91)	0.592
	Enlisted Flyer	n	54		63		52		Overall		0.149
		Number/%									
		Yes	3	5.6%	1	1.6%	0	0.0%	M vs. L	0.27 (0.03,2.72)	0.506
		No	51	94.4%	62	98.4%	52	100.0%	H vs. L	--	0.258
	Enlisted Groundcrew	n	145		156		137		Overall		0.290
		Number/%									
		Yes	11	7.6%	7	4.5%	5	3.6%	M vs. L	0.57 (0.22,1.52)	0.374
		No	134	92.4%	149	95.5%	132	96.4%	H vs. L	0.46 (0.16,1.36)	0.240

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Sleep Problems Requiring Medication	Officer	n	130		123		125		Overall		0.581
		Number/%									
		Yes	1	0.8%	2	1.6%	3	2.4%	M vs. L	2.13 (0.19,23.82)	0.958
		No	129	99.2%	121	98.4%	122	97.6%	H vs. L	3.17 (0.33,30.91)	0.592
	Enlisted Flyer	n	54		63		52		Overall		0.343
		Number/%									
		Yes	1	1.9%	0	0.0%	0	0.0%	M vs. L	--	0.924
		No	53	98.1%	63	100.0%	52	100.0%	H vs. L	--	0.999
	Enlisted Groundcrew	n	145		156		137		Overall		0.350
		Number/%									
		Yes	7	4.8%	3	1.9%	4	2.9%	M vs. L	0.39 (0.10,1.52)	0.278
		No	138	95.2%	153	98.1%	133	97.1%	H vs. L	0.59 (0.17,2.07)	0.608
Snore Loudly in All Sleeping Positions	Officer	n	130		123		125		Overall		0.162
		Number/%									
		Yes	7	5.4%	6	4.9%	13	10.4%	M vs. L	0.90 (0.29,2.76)	0.999
		No	123	94.6%	117	95.1%	112	89.6%	H vs. L	2.04 (0.79,5.29)	0.208
	Enlisted Flyer	n	54		63		52		Overall		0.598
		Number/%									
		Yes	4	7.4%	3	4.8%	5	9.6%	M vs. L	0.63 (0.13,2.93)	0.828
		No	50	92.6%	60	95.2%	47	90.4%	H vs. L	1.33 (0.34,5.25)	0.952
	Enlisted Groundcrew	n	145		156		137		Overall		0.317
		Number/%									
		Yes	8	5.5%	16	10.3%	11	8.0%	M vs. L	1.96 (0.81,4.72)	0.191
		No	137	94.5%	140	89.7%	126	92.0%	H vs. L	1.50 (0.58,3.84)	0.546

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Insomnia	Officer	n	130		123		125		Overall		0.102
		Number/%									
		Yes	24	18.5%	21	17.1%	34	27.2%	M vs. L	0.91 (0.48,1.73)	0.902
		No	106	81.5%	102	82.9%	91	72.8%	H vs. L	1.65 (0.91,2.99)	0.130
	Enlisted Flyer	n	54		63		52		Overall		0.634
		Number/%									
		Yes	9	16.7%	15	23.8%	11	21.2%	M vs. L	1.56 (0.62,3.93)	0.470
		No	45	83.3%	48	76.2%	41	78.8%	H vs. L	1.34 (0.51,3.57)	0.732
	Enlisted Groundcrew	n	145		156		137		Overall		0.245
		Number/%									
		Yes	38	26.2%	45	28.8%	28	20.4%	M vs. L	1.14 (0.69,1.90)	0.702
		No	107	73.8%	111	71.2%	109	79.6%	H vs. L	0.72 (0.42,1.26)	0.316
Overall Sleep Disorder Index	Officer	n	130		123		125		Overall		0.023
		Number/%									
		Abnormal	34	26.2%	34	27.6%	51	40.8%	M vs. L	1.08 (0.62,1.88)	0.900
		Normal	96	73.8%	89	72.4%	74	59.2%	H vs. L	1.95 (1.15,3.30)	0.019
	Enlisted Flyer	n	54		63		52		Overall		0.611
		Number/%									
		Abnormal	14	25.9%	20	31.7%	18	34.6%	M vs. L	1.33 (0.59,2.98)	0.628
		Normal	40	74.1%	43	68.3%	34	65.4%	H vs. L	1.51 (0.66,3.49)	0.446
	Enlisted Groundcrew	n	144		156		136		Overall		0.449
		Number/%									
		Abnormal	53	36.8%	67	42.9%	50	36.8%	M vs. L	1.29 (0.81,2.06)	0.334
		Normal	91	63.2%	89	57.1%	86	63.2%	H vs. L	1.00 (0.61,1.62)	0.999

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low	Exposure Index: Medium	Exposure Index: High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
Average Sleep Each Night	Officer	n	130	123	125	Overall		0.870
		Mean	7.00	7.01	7.06	M vs. L	--	0.945
		95% C.I.	(6.83,7.17)	(6.85,7.16)	(6.91,7.20)	H vs. L	--	0.629
	Enlisted Flyer	n	54	63	52	Overall		0.998
		Mean	6.91	6.92	6.92	M vs. L	--	0.947
		95% C.I.	(6.64,7.17)	(6.64,7.20)	(6.48,7.37)	H vs. L	--	0.953
	Enlisted Groundcrew	n	145	156	137	Overall		0.818
		Mean	6.83	6.80	6.88	M vs. L	--	0.834
		95% C.I.	(6.67,6.99)	(6.62,6.98)	(6.68,7.08)	H vs. L	--	0.671
SCL-90-R Anxiety	Officer	n	109	103	110	Overall		0.877
		Number/%						
		Abnormal	3 2.8%	2 1.9%	2 1.8%	M vs. L	0.70 (0.12,4.28)	0.999
		Normal	106 97.2%	101 98.1%	108 98.2%	H vs. L	0.65 (0.11,4.00)	0.992
	Enlisted Flyer	n	49	54	47	Overall		0.097
		Number/%						
		Abnormal	0 0.0%	5 9.3%	4 8.5%	M vs. L	--	0.072
		Normal	49 100.0%	49 90.7%	43 91.5%	H vs. L	--	0.107
	Enlisted Groundcrew	n	131	143	124	Overall		0.671
		Number/%						
		Abnormal	16 12.2%	13 9.1%	12 9.7%	M vs. L	0.72 (0.33,1.56)	0.520
		Normal	115 87.8%	130 90.9%	112 90.3%	H vs. L	0.77 (0.35,1.70)	0.656

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Medium		High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R Depression	Officer	n	109		103		110		Overall		0.137
		Number/%									
		Abnormal	2	1.8%	4	3.9%	8	7.3%	M vs. L	2.16 (0.39,12.06)	0.630
		Normal	107	98.2%	99	96.1%	102	92.7%	H vs. L	4.20 (0.87,20.23)	0.104
	Enlisted Flyer	n	49		54		47		Overall		0.917
		Number/%									
		Abnormal	4	8.2%	5	9.3%	5	10.6%	M vs. L	1.15 (0.29,4.54)	0.999
		Normal	45	91.8%	49	90.7%	42	89.4%	H vs. L	1.34 (0.34,5.33)	0.946
	Enlisted Groundcrew	n	131		143		124		Overall		0.375
		Number/%									
		Abnormal	19	14.5%	18	12.6%	11	8.9%	M vs. L	0.85 (0.42,1.70)	0.774
		Normal	112	85.5%	125	87.4%	113	91.1%	H vs. L	0.57 (0.26,1.26)	0.230
SCL-90-R Hostility	Officer	n	109		103		110		Overall		0.003
		Number/%									
		Abnormal	0	0.0%	0	0.0%	6	5.5%	M vs. L	--	--
		Normal	109	100.0%	103	100.0%	104	94.5%	H vs. L	--	0.030
	Enlisted Flyer	n	49		54		47		Overall		0.317
		Number/%									
		Abnormal	3	6.1%	1	1.9%	4	8.5%	M vs. L	0.29 (0.03,2.88)	0.546
		Normal	46	93.9%	53	98.1%	43	91.5%	H vs. L	1.43 (0.30,6.75)	0.952
	Enlisted Groundcrew	n	131		143		124		Overall		0.572
		Number/%									
		Abnormal	7	5.3%	11	7.7%	6	4.8%	M vs. L	1.48 (0.56,3.93)	0.592
		Normal	124	94.7%	132	92.3%	118	95.2%	H vs. L	0.90 (0.29,2.76)	0.999

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R Inter-personal Sensitivity	Officer	n	109		103		110		Overall		0.238
		Number/%									
		Abnormal	1	0.9%	1	1.0%	4	3.6%	M vs. L	1.06 (0.07,17.15)	0.999
		Normal	108	99.1%	102	99.0%	106	96.4%	H vs. L	4.08 (0.45,37.06)	0.374
	Enlisted Flyer	n	49		54		47		Overall		0.572
		Number/%									
		Abnormal	2	4.1%	5	9.3%	3	6.4%	M vs. L	2.40 (0.44,12.97)	0.522
		Normal	47	95.9%	49	90.7%	44	93.6%	H vs. L	1.60 (0.26,10.05)	0.960
	Enlisted Groundcrew	n	131		143		124		Overall		0.670
		Number/%									
		Abnormal	12	9.2%	13	9.1%	8	6.5%	M vs. L	0.99 (0.44,2.26)	0.999
		Normal	119	90.8%	130	90.9%	116	93.5%	H vs. L	0.68 (0.27,1.73)	0.570
SCL-90-R Obsessive-Compulsive Behavior	Officer	n	109		103		110		Overall		0.885
		Number/%									
		Abnormal	2	1.8%	2	1.9%	3	2.7%	M vs. L	1.06 (0.15,7.66)	0.999
		Normal	107	98.2%	101	98.1%	107	97.3%	H vs. L	1.50 (0.25,9.16)	0.999
	Enlisted Flyer	n	49		54		47		Overall		0.597
		Number/%									
		Abnormal	3	6.1%	2	3.7%	4	8.5%	M vs. L	0.59 (0.09,3.69)	0.908
		Normal	46	93.9%	52	96.3%	43	91.5%	H vs. L	1.43 (0.30,6.75)	0.952
	Enlisted Groundcrew	n	131		143		124		Overall		0.389
		Number/%									
		Abnormal	20	15.3%	14	9.8%	16	12.9%	M vs. L	0.60 (0.29,1.25)	0.234
		Normal	111	84.7%	129	90.2%	108	87.1%	H vs. L	0.82 (0.41,1.67)	0.718

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R Paranoid Ideation	Officer	n	109		103		110		Overall		0.020
		Number/%									
		Abnormal	0	0.0%	0	0.0%	4	3.6%	M vs. L	--	--
		Normal	109	100.0%	103	100.0%	106	96.4%	H vs. L	--	0.124
	Enlisted Flyer	n	49		54		47		Overall		0.132
		Number/%									
		Abnormal	1	2.0%	0	0.0%	3	6.4%	M vs. L	--	0.952
		Normal	48	98.0%	54	100.0%	44	93.6%	H vs. L	3.27 (0.33,32.64)	0.586
	Enlisted Groundcrew	n	131		143		124		Overall		0.133
		Number/%									
		Abnormal	12	9.2%	8	5.6%	4	3.2%	M vs. L	0.59 (0.23,1.49)	0.368
		Normal	119	90.8%	135	94.4%	120	96.8%	H vs. L	0.33 (0.10,1.05)	0.087
SCL-90-R Phobic Anxiety	Officer	n	109		103		110		Overall		0.997
		Number/%									
		Abnormal	2	1.8%	2	1.9%	2	1.8%	M vs. L	1.06 (0.15,7.66)	0.999
		Normal	107	98.2%	101	98.1%	108	98.2%	H vs. L	0.99 (0.14,7.16)	0.999
	Enlisted Flyer	n	49		54		47		Overall		0.100
		Number/%									
		Abnormal	1	2.0%	7	13.0%	3	6.4%	M vs. L	7.15 (0.85,60.37)	0.082
		Normal	48	98.0%	47	87.0%	44	93.6%	H vs. L	3.27 (0.33,32.64)	0.586
	Enlisted Groundcrew	n	131		143		124		Overall		0.261
		Number/%									
		Abnormal	16	12.2%	12	8.4%	8	6.5%	M vs. L	0.66 (0.30,1.45)	0.398
		Normal	115	87.8%	131	91.6%	116	93.5%	H vs. L	0.50 (0.20,1.20)	0.172

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R Psychoticism	Officer	n	109		103		110		Overall		0.004
		Number/%									
		Abnormal	1	0.9%	2	1.9%	10	9.1%	M vs. L	2.14 (0.19,23.95)	0.958
		Normal	108	99.1%	101	98.1%	100	90.9%	H vs. L	10.80 (1.36,85.89)	0.010
	Enlisted Flyer	n	49		54		47		Overall		0.182
		Number/%									
		Abnormal	1	2.0%	6	11.1%	3	6.4%	M vs. L	6.00 (0.70,51.74)	0.146
		Normal	48	98.0%	48	88.9%	44	93.6%	H vs. L	3.27 (0.33,32.64)	0.586
	Enlisted Groundcrew	n	131		143		124		Overall		0.755
		Number/%									
		Abnormal	17	13.0%	19	13.3%	13	10.5%	M vs. L	1.03 (0.51,2.07)	0.999
		Normal	114	87.0%	124	86.7%	111	89.5%	H vs. L	0.79 (0.36,1.69)	0.674
SCL-90-R Somatization	Officer	n	109		103		110		Overall		0.283
		Number/%									
		Abnormal	5	4.6%	2	1.9%	7	6.4%	M vs. L	0.41 (0.08,2.17)	0.494
		Normal	104	95.4%	101	98.1%	103	93.6%	H vs. L	1.41 (0.44,4.60)	0.780
	Enlisted Flyer	n	49		54		47		Overall		0.971
		Number/%									
		Abnormal	7	14.3%	7	13.0%	6	12.8%	M vs. L	0.89 (0.29,2.76)	0.999
		Normal	42	85.7%	47	87.0%	41	87.2%	H vs. L	0.88 (0.27,2.84)	0.999
	Enlisted Groundcrew	n	131		143		124		Overall		0.831
		Number/%									
		Abnormal	19	14.5%	18	12.6%	15	12.1%	M vs. L	0.85 (0.42,1.70)	0.774
		Normal	112	85.5%	125	87.4%	109	87.9%	H vs. L	0.81 (0.39,1.68)	0.704

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low		Exposure Index: Medium		Exposure Index: High		Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R GSI	Officer	n	109		103		110		Overall		0.379
		Number/%									
		Abnormal	1	0.9%	2	1.9%	4	3.6%	M vs. L	2.14 (0.19,23.95)	0.958
		Normal	108	99.1%	101	98.1%	106	96.4%	H vs. L	4.08 (0.45,37.06)	0.374
	Enlisted Flyer	n	49		54		47		Overall		0.962
		Number/%									
		Abnormal	3	6.1%	4	7.4%	3	6.4%	M vs. L	1.23 (0.26,5.78)	0.999
		Normal	46	93.9%	50	92.6%	44	93.6%	H vs. L	1.05 (0.20,5.46)	0.999
	Enlisted Groundcrew	n	131		143		124		Overall		0.617
		Number/%									
		Abnormal	19	14.5%	19	13.3%	13	10.5%	M vs. L	0.90 (0.46,1.79)	0.906
		Normal	112	85.5%	124	86.7%	111	89.5%	H vs. L	0.69 (0.33,1.47)	0.436
SCL-90-R PSDI	Officer	n	109		103		110		Overall		0.767
		Number/%									
		Abnormal	5	4.6%	7	6.8%	7	6.4%	M vs. L	1.52 (0.47,4.94)	0.690
		Normal	104	95.4%	96	93.2%	103	93.6%	H vs. L	1.41 (0.44,4.60)	0.780
	Enlisted Flyer	n	49		54		47		Overall		0.972
		Number/%									
		Abnormal	5	10.2%	5	9.3%	5	10.6%	M vs. L	0.90 (0.24,3.31)	0.999
		Normal	44	89.8%	49	90.7%	42	89.4%	H vs. L	1.05 (0.28,3.88)	0.999
	Enlisted Groundcrew	n	131		143		124		Overall		0.959
		Number/%									
		Abnormal	16	12.2%	16	11.2%	14	11.3%	M vs. L	0.91 (0.43,1.89)	0.938
		Normal	115	87.8%	127	88.8%	110	88.7%	H vs. L	0.92 (0.43,1.96)	0.974

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low	Exposure Index: Medium	Exposure Index: High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
SCL-90-R PST	Officer	n	109	103	110	Overall		0.393
		Number/%						
		Abnormal	2 1.8%	1 1.0%	4 3.6%	M vs. L	0.53 (0.05,5.87)	0.999
		Normal	107 98.2%	102 99.0%	106 96.4%	H vs. L	2.02 (0.36,11.26)	0.692
	Enlisted Flyer	n	49	54	47	Overall		0.801
		Number/%						
		Abnormal	3 6.1%	4 7.4%	2 4.3%	M vs. L	1.23 (0.26,5.78)	0.999
		Normal	46 93.9%	50 92.6%	45 95.7%	H vs. L	0.68 (0.11,4.27)	0.999
	Enlisted Groundcrew	n	131	143	124	Overall		0.694
		Number/%						
		Abnormal	18 13.7%	16 11.2%	13 10.5%	M vs. L	0.79 (0.39,1.62)	0.648
		Normal	113 86.3%	127 88.8%	111 89.5%	H vs. L	0.74 (0.34,1.57)	0.548
MCMI Schizoid Score	Officer	n	130	123	125	Overall		0.409
		Mean[a]	21.4	21.1	23.0	M vs. L	--	0.826
		95% C.I.[a]	(19.5,23.4)	(19.1,23.2)	(20.9,25.3)	H vs. L	--	0.295
	Enlisted Flyer	n	53	63	52	Overall		0.249
		Mean[a]	22.7	27.0	23.4	M vs. L	--	0.132
		95% C.I.[a]	(19.7,26.3)	(23.0,31.7)	(20.0,27.3)	H vs. L	--	0.794
	Enlisted Groundcrew	n	144	156	136	Overall		0.410
		Mean[a]	26.2	28.1	25.9	M vs. L	--	0.292
		95% C.I.[a]	(23.8,28.8)	(25.6,31.0)	(23.6,28.5)	H vs. L	--	0.879

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
MCMI Avoidant Score	Officer	n	130	123	125	Overall		0.715
		Mean[b]	12.9	12.6	13.8	M vs. L	--	0.800
		95% C.I.[b]	(11.0,15.2)	(10.7,14.7)	(11.8,16.0)	H vs. L	--	0.586
	Enlisted Flyer	n	53	63	52	Overall		0.338
		Mean[b]	15.4	19.7	17.7	M vs. L	--	0.156
		95% C.I.[b]	(12.1,19.7)	(15.7,24.6)	(14.2,22.1)	H vs. L	--	0.415
	Enlisted Groundcrew	n	144	156	136	Overall		0.211
		Mean[b]	17.7	20.6	20.5	M vs. L	--	0.128
		95% C.I.[b]	(15.5,20.3)	(18.0,23.6)	(18.1,23.1)	H vs. L	--	0.128
MCMI Dependent Score	Officer	n	130	123	125	Overall		0.324
		Mean[c]	37.9	34.7	36.0	M vs. L	--	0.144
		95% C.I.[c]	(34.6,41.3)	(32.1,37.4)	(33.2,38.8)	H vs. L	--	0.392
	Enlisted Flyer	n	53	63	52	Overall		0.940
		Mean[c]	43.5	42.1	42.5	M vs. L	--	0.733
		95% C.I.[c]	(37.7,49.6)	(37.1,47.4)	(36.9,48.4)	H vs. L	--	0.811
	Enlisted Groundcrew	n	144	156	136	Overall		0.410
		Mean[c]	41.9	42.4	45.0	M vs. L	--	0.830
		95% C.I.[c]	(38.7,45.2)	(39.1,45.8)	(41.5,48.6)	H vs. L	--	0.207

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index Low	Exposure Index Medium	Exposure Index High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Histrionic Score	Officer	n	130	123	125	Overall		0.797
		Mean[d]	65.8	65.4	66.5	M vs. L	--	0.795
		95% C.I.[d]	(63.6,68.0)	(63.2,67.6)	(64.0,68.9)	H vs. L	--	0.679
	Enlisted Flyer	n	53	63	52	Overall		0.964
		Mean[d]	62.9	62.3	62.3	M vs. L	--	0.824
		95% C.I.[d]	(59.4,66.1)	(58.6,65.8)	(59.0,65.3)	H vs. L	--	0.794
	Enlisted Groundcrew	n	144	156	136	Overall		0.128
		Mean[d]	63.9	60.6	61.4	M vs. L	--	0.055
		95% C.I.[d]	(61.5,66.2)	(58.1,63.0)	(58.9,63.7)	H vs. L	--	0.140
MCMI Narcissistic Score	Officer	n	130	123	125	Overall		0.567
		Mean	66.8	65.4	67.3	M vs. L	--	0.460
		95% C.I.	(64.4,69.1)	(62.9,68.0)	(64.7,69.9)	H vs. L	--	0.746
	Enlisted Flyer	n	53	63	52	Overall		0.735
		Mean	64.5	63.0	62.1	M vs. L	--	0.605
		95% C.I.	(60.4,68.5)	(59.1,66.8)	(57.9,66.4)	H vs. L	--	0.439
	Enlisted Groundcrew	n	144	156	136	Overall		0.778
		Mean	64.3	63.2	64.4	M vs. L	--	0.550
		95% C.I.	(61.9,66.6)	(60.7,65.7)	(61.7,67.0)	H vs. L	--	0.967

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
MCMI Antisocial Score	Officer	n	130	123	125	Overall		0.585
		Mean	60.2	61.5	62.5	M vs. L	--	0.563
		95% C.I.	(56.9,63.5)	(58.7,64.3)	(59.5,65.5)	H vs. L	--	0.324
	Enlisted Flyer	n	53	63	52	Overall		0.650
		Mean	60.1	63.3	60.6	M vs. L	--	0.371
		95% C.I.	(54.7,65.6)	(58.9,67.6)	(54.5,66.6)	H vs. L	--	0.915
	Enlisted Groundcrew	n	144	156	136	Overall		0.419
		Mean	62.0	64.0	61.1	M vs. L	--	0.366
		95% C.I.	(58.9,65.0)	(60.9,67.2)	(57.8,64.4)	H vs. L	--	0.700
MCMI Compulsive Score	Officer	n	130	123	125	Overall		0.585
		Mean[d]	70.0	69.4	69.1	M vs. L	--	0.488
		95% C.I.[d]	(68.6,71.5)	(68.2,70.5)	(67.8,70.3)	H vs. L	--	0.341
	Enlisted Flyer	n	53	63	52	Overall		0.748
		Mean[d]	68.5	67.4	68.1	M vs. L	--	0.468
		95% C.I.[d]	(66.6,70.3)	(65.0,69.7)	(66.1,70.0)	H vs. L	--	0.787
	Enlisted Groundcrew	n	144	156	136	Overall		0.283
		Mean[d]	67.2	67.5	68.9	M vs. L	--	0.812
		95% C.I.[d]	(65.5,68.9)	(66.1,68.9)	(67.3,70.4)	H vs. L	--	0.154

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index Low	Exposure Index Medium	Exposure Index High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Passive-Aggressive Score	Officer	n	130	123	125	Overall		0.583
		Mean[c]	15.7	14.9	16.4	M vs. L	--	0.551
		95% C.I.[c]	(13.6,18.0)	(13.0,16.8)	(14.4,18.6)	H vs. L	--	0.665
	Enlisted Flyer	n	53	63	52	Overall		0.267
		Mean[c]	17.7	22.0	21.3	M vs. L	--	0.126
		95% C.I.[c]	(14.0,21.9)	(18.4,25.8)	(17.3,25.7)	H vs. L	--	0.224
	Enlisted Groundcrew	n	144	156	136	Overall		0.386
		Mean[c]	22.1	23.2	20.4	M vs. L	--	0.622
		95% C.I.[c]	(19.3,25.2)	(20.4,26.2)	(17.8,23.1)	H vs. L	--	0.387
MCMI Schizotypal Score	Officer	n	130	123	125	Overall		0.736
		Mean	29.7	28.9	30.7	M vs. L	--	0.720
		95% C.I.	(26.7,32.8)	(25.9,32.0)	(27.6,33.8)	H vs. L	--	0.667
	Enlisted Flyer	n	53	63	52	Overall		0.949
		Mean	33.9	34.8	35.1	M vs. L	--	0.795
		95% C.I.	(29.2,38.6)	(29.9,39.8)	(29.7,40.4)	H vs. L	--	0.757
	Enlisted Groundcrew	n	144	156	136	Overall		0.234
		Mean	35.3	38.1	38.9	M vs. L	--	0.192
		95% C.I.	(32.0,38.5)	(35.3,41.0)	(35.8,41.9)	H vs. L	--	0.117

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index Low	Exposure Index Medium	Exposure Index High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Borderline Score	Officer	n	130	123	125	Overall		0.045
		Mean	29.8	25.4	29.2	M vs. L	--	0.017
		95% C.I.	(27.3,32.4)	(22.9,28.0)	(26.4,31.9)	H vs. L	--	0.718
	Enlisted Flyer	n	53	63	52	Overall		0.346
		Mean	35.5	32.9	31.0	M vs. L	--	0.364
		95% C.I.	(31.1,40.0)	(29.1,36.6)	(26.4,35.6)	H vs. L	--	0.163
	Enlisted Groundcrew	n	144	156	136	Overall		0.875
		Mean	35.2	36.1	35.2	M vs. L	--	0.649
		95% C.I.	(32.1,38.3)	(33.4,38.9)	(32.3,38.2)	H vs. L	--	0.977
MCMI Paranoid Score	Officer	n	130	123	125	Overall		0.958
		Mean	51.5	51.1	51.6	M vs. L	--	0.825
		95% C.I.	(49.0,54.0)	(48.7,53.5)	(48.9,54.3)	H vs. L	--	0.947
	Enlisted Flyer	n	53	63	52	Overall		0.648
		Mean	53.8	51.2	51.5	M vs. L	--	0.378
		95% C.I.	(49.5,58.0)	(47.5,55.0)	(47.1,56.0)	H vs. L	--	0.470
	Enlisted Groundcrew	n	144	156	136	Overall		0.216
		Mean	53.4	56.5	55.1	M vs. L	--	0.078
		95% C.I.	(51.1,55.7)	(54.0,58.9)	(52.5,57.7)	H vs. L	--	0.326

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low	Exposure Index: Medium	Exposure Index: High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Anxiety Score	Officer	n	130	123	125	Overall		0.402
		Mean	40.5	40.1	43.3	M vs. L	--	0.874
		95% C.I.	(37.1,43.9)	(36.7,43.6)	(39.6,46.9)	H vs. L	--	0.280
	Enlisted Flyer	n	53	63	52	Overall		0.448
		Mean	44.9	45.1	49.4	M vs. L	--	0.963
		95% C.I.	(39.1,50.8)	(39.8,50.4)	(44.4,54.3)	H vs. L	--	0.257
	Enlisted Groundcrew	n	144	156	136	Overall		0.870
		Mean	50.6	49.4	50.4	M vs. L	--	0.617
		95% C.I.	(47.1,54.1)	(46.0,52.8)	(46.6,54.2)	H vs. L	--	0.931
MCMI Somatoform Score	Officer	n	130	123	125	Overall		0.674
		Mean	49.9	48.6	48.1	M vs. L	--	0.536
		95% C.I.	(47.1,52.7)	(45.8,51.5)	(45.1,51.1)	H vs. L	--	0.395
	Enlisted Flyer	n	53	63	52	Overall		0.637
		Mean	52.2	49.3	51.0	M vs. L	--	0.372
		95% C.I.	(47.5,57.0)	(44.9,53.7)	(47.0,55.0)	H vs. L	--	0.701
	Enlisted Groundcrew	n	144	156	136	Overall		0.851
		Mean	53.0	52.0	52.0	M vs. L	--	0.609
		95% C.I.	(50.1,55.9)	(49.2,54.7)	(48.7,55.2)	H vs. L	--	0.630

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
MCMI Hypomania Score	Officer	n	130	123	125	Overall		0.590
		Mean[c]	19.9	21.5	23.0	M vs. L	--	0.576
		95% C.I.[c]	(16.3,24.0)	(17.7,25.7)	(18.8,27.5)	H vs. L	--	0.313
	Enlisted Flyer	n	53	63	52	Overall		0.996
		Mean[c]	21.2	21.6	21.5	M vs. L	--	0.927
		95% C.I.[c]	(15.1,28.4)	(15.5,28.8)	(14.8,29.4)	H vs. L	--	0.960
	Enlisted Groundcrew	n	144	156	136	Overall		0.229
		Mean[c]	24.1	19.4	20.2	M vs. L	--	0.106
		95% C.I.[c]	(20.1,28.5)	(15.8,23.4)	(16.4,24.4)	H vs. L	--	0.188
MCMI Dysthymia Score	Officer	n	130	123	125	Overall		0.662
		Mean	48.2	46.2	45.9	M vs. L	--	0.463
		95% C.I.	(44.5,51.9)	(42.2,50.2)	(42.1,49.7)	H vs. L	--	0.403
	Enlisted Flyer	n	53	63	52	Overall		0.731
		Mean	48.3	46.7	49.9	M vs. L	--	0.692
		95% C.I.	(42.9,53.6)	(41.5,52.0)	(43.6,56.3)	H vs. L	--	0.695
	Enlisted Groundcrew	n	144	156	136	Overall		0.755
		Mean	52.4	51.2	50.4	M vs. L	--	0.634
		95% C.I.	(48.6,56.2)	(48.0,54.4)	(46.6,54.3)	H vs. L	--	0.475

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index: Low	Exposure Index: Medium	Exposure Index: High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Alcohol Abuse Score	Officer	n	130	123	125	Overall		0.584
		Mean	26.9	27.3	28.8	M vs. L	--	0.844
		95% C.I.	(24.2,29.5)	(24.4,30.1)	(26.1,31.5)	H vs. L	--	0.322
	Enlisted Flyer	n	53	63	52	Overall		0.840
		Mean	35.5	33.7	34.8	M vs. L	--	0.543
		95% C.I.	(31.2,39.8)	(29.9,37.6)	(29.9,39.7)	H vs. L	--	0.829
	Enlisted Groundcrew	n	144	156	136	Overall		0.774
		Mean	33.5	33.0	32.0	M vs. L	--	0.789
		95% C.I.	(30.7,36.4)	(30.3,35.7)	(29.1,35.0)	H vs. L	--	0.484
MCMI Drug Abuse Score	Officer	n	130	123	125	Overall		0.157
		Mean	46.5	42.7	46.9	M vs. L	--	0.115
		95% C.I.	(43.4,49.7)	(39.2,46.3)	(43.7,50.2)	H vs. L	--	0.866
	Enlisted Flyer	n	53	63	52	Overall		0.951
		Mean	50.4	49.3	50.1	M vs. L	--	0.761
		95% C.I.	(44.8,56.0)	(44.6,53.9)	(44.6,55.5)	H vs. L	--	0.940
	Enlisted Groundcrew	n	144	156	136	Overall		0.799
		Mean	49.1	49.9	48.3	M vs. L	--	0.745
		95% C.I.	(45.7,52.5)	(46.8,52.9)	(44.5,52.0)	H vs. L	--	0.733

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
MCMI Psychotic Thinking Score	Officer	n	130	123	125	Overall		0.305
		Mean	24.7	24.3	27.7	M vs. L	--	0.863
		95% C.I.	(21.4,28.0)	(21.0,27.6)	(24.3,31.1)	H vs. L	--	0.213
	Enlisted Flyer	n	53	63	52	Overall		0.384
		Mean	32.0	35.8	37.2	M vs. L	--	0.338
		95% C.I.	(26.3,37.8)	(30.7,40.9)	(32.5,41.9)	H vs. L	--	0.176
	Enlisted Groundcrew	n	144	156	136	Overall		0.316
		Mean	33.9	36.1	37.6	M vs. L	--	0.366
		95% C.I.	(30.6,37.3)	(32.8,39.4)	(34.5,40.7)	H vs. L	--	0.124
MCMI Psychotic Depression Score	Officer	n	130	123	125	Overall		0.897
		Mean	17.8	16.9	16.9	M vs. L	--	0.677
		95% C.I.	(14.7,20.8)	(13.9,19.8)	(13.8,20.0)	H vs. L	--	0.701
	Enlisted Flyer	n	53	63	52	Overall		0.708
		Mean	27.9	24.9	27.1	M vs. L	--	0.422
		95% C.I.	(22.7,30.1)	(19.8,30.0)	(21.4,32.8)	H vs. L	--	0.836
	Enlisted Groundcrew	n	144	156	136	Overall		0.619
		Mean	25.6	26.5	28.0	M vs. L	--	0.714
		95% C.I.	(22.1,29.1)	(23.1,29.9)	(24.7,31.3)	H vs. L	--	0.322

TABLE 12-10. (continued)

Unadjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index Low	Exposure Index Medium	Exposure Index High	Exposure Index Contrast	Est. Relative Risk (95% C.I.)	p-Value
MCMI Psychotic Delusion Score	Officer	n	130	123	125	Overall		0.716
		Mean	40.1	38.5	40.6	M vs. L	--	0.544
		95% C.I.	(36.7,43.5)	(34.8,42.2)	(37.0,44.1)	H vs. L	--	0.853
	Enlisted Flyer	n	53	63	52	Overall		0.981
		Mean	44.8	44.2	44.8	M vs. L	--	0.865
		95% C.I.	(39.1,50.6)	(39.0,49.3)	(39.4,50.2)	H vs. L	--	0.992
	Enlisted Groundcrew	n	144	156	136	Overall		0.106
		Mean	44.1	47.6	48.8	M vs. L	--	0.127
		95% C.I.	(40.9,47.3)	(44.5,50.6)	(45.6,52.0)	H vs. L	--	0.041

[a]Transformed from natural logarithm scale.

[b]Transformed from natural logarithm (X+1) scale.

[c]Transformed from square root scale.

[d]Transformed from square scale.

--Relative risk/confidence interval/p-value not given due to cell with zero frequency; estimated relative risk not applicable for continuous analysis of a variable.

TABLE 12-11.

Adjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Exposure Index Contrast	Adj. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
Trouble Falling Asleep	Officer	n	128	121	124	Overall		0.058
						M vs. L	0.91 (0.29,2.88)	0.874
						H vs. L	2.52 (0.95,6.65)	0.062
	Enlisted Flyer	n	53	62	50	Overall		0.755
						M vs. L	1.66 (0.32,8.75)	0.549
						H vs. L	1.85 (0.33,10.37)	0.485
	Enlisted Groundcrew	n	141	155	133	Overall		0.422
						M vs. L	0.63 (0.31,1.26)	0.191
						H vs. L	0.83 (0.41,1.68)	0.599
Waking Up During the Night	Officer	n	128	121	124	Overall		0.165
						M vs. L	1.07 (0.45,2.56)	0.880
						H vs. L	1.93 (0.88,4.26)	0.103
	Enlisted Flyer	n	53	62	50	Overall		0.322
						M vs. L	2.26 (0.71,7.19)	0.166
						H vs. L	1.32 (0.36,4.85)	0.678
	Enlisted Groundcrew	n	141	155	133	Overall		0.002
						M vs. L	0.97 (0.52,1.81)	0.916
						H vs. L	0.26 (0.11,0.64)	0.003

TABLE 12-11. (continued)

Adjusted Exposure Index for Psychology Variables by Occupation

Variable	Occupation	Statistic	Exposure Index Low	Exposure Index Medium	Exposure Index High	Exposure Index Contrast	Adj. Relative Risk (95% C.I.)	p-Value
Waking Up Too Early Can't Go Back to Sleep	Officer	n	128	121	124	Overall		0.177
						M vs. L	0.57 (0.19,1.67)	0.305
						H vs. L	1.42 (0.59,3.44)	0.431
	Enlisted Flyer	n	53	62	50	Overall		0.272
						M vs. L	0.65 (0.15,2.77)	0.565
						H vs. L	1.89 (0.52,6.89)	0.336
	Enlisted Groundcrew	n	141	155	133	Overall		0.629
						M vs. L	1.04 (0.54,2.03)	0.898
						H vs. L	0.75 (0.36,1.55)	0.441
Waking Up Unrefreshed	Officer	n	128	121	124	Overall		0.821
						M vs. L	0.71 (0.21,2.38)	0.576
						H vs. L	0.97 (0.32,2.98)	0.962
	Enlisted Flyer	n	53	62	50	Overall		0.136
						M vs. L	3.01 (0.44,20.79)	0.264
						H vs. L	5.66 (0.84,38.32)	0.076
	Enlisted Groundcrew	n	141	155	133	Overall		0.709
						M vs. L	1.34 (0.66,2.73)	0.413
						H vs. L	1.21 (0.58,2.56)	0.612