

APPENDIX L-1.

Dependent Variable-Covariate Associations for the Hematology Assessment

This appendix contains results of tests of association between each dependent variable and candidate covariates for the adjusted analysis of each dependent variable. Pearson's chi-square test (continuity-adjusted for 2×2 tables) is used for the significance testing of the association between each discrete dependent variable and the candidate covariate. When a candidate covariate is continuous in nature (for example, age), the covariate is discretized prior to the analysis of the discrete dependent variable. Pearson's correlation coefficient is used for significance testing of the associations between each continuous dependent variable and a continuous candidate covariate. When a candidate covariate is discrete in nature, means (transformed back to the original scale, if necessary) are presented and an analysis of variance is used to investigate the difference between the means.

Table L-1-1.
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Age			Race		
		Born ≥ 1942	Born < 1942	p-Value	Black	Non-Black	p-Value
Red Blood Cell (RBC) Count (million/mm ³) (continuous) (discrete)		(n=2,224) r=-0.143		<0.001	(n=131) x̄=5.11	(n=2,093) x̄=5.01	0.021
	Abnormal Low	(n=950) 1.8%	(n=1,274) 3.5%	0.047	3.1%	2.8%	<0.001
	Abnormal High	1.3%	1.3%		5.3%	1.1%	
White Blood Cell (WBC) Count (thousand/mm ³) (continuous) ^a (discrete)		(n=2,224) r=-0.002		0.908	(n=131) x̄=6.58	(n=2,093) x̄=7.43	<0.001
	Abnormal Low	(n=950) 4.6%	(n=1,274) 3.0%	0.124	13.0%	3.1%	<0.001
	Abnormal High	5.5%	5.7%		3.1%	5.7%	
Hemoglobin (gm/dl) (continuous) (discrete)		(n=2,224) r=-0.089		<0.001	(n=131) x̄=15.41	(n=2,093) x̄=15.89	<0.001
	Abnormal Low	(n=950) 2.2%	(n=1,274) 3.0%	0.469	7.6%	2.3%	0.001
	Abnormal High	1.7%	2.0%		0.8%	1.9%	
Hematocrit (percent) (continuous) (discrete)		(n=2,224) r=-0.067		0.002	(n=131) x̄=45.48	(n=2,093) x̄=46.33	0.003
	Abnormal Low	(n=950) 1.1%	(n=1,274) 1.7%	0.254	3.8%	1.3%	0.048
Platelet Count (thousand/mm ³) (continuous) ^b (discrete)		(n=2,223) r=-0.114		<0.001	(n=131) x̄=247.2	(n=2,092) x̄=251.6	0.378
	Abnormal High	(n=950) 1.3%	(n=1,273) 1.0%	0.740	0.8%	1.2%	0.999
Prothrombin Time (seconds) (continuous) ^a (discrete)		(n=2,045) r=0.031		0.155	(n=123) x̄=12.09	(n=1,922) x̄=11.93	0.018
	High	(n=899) 0.2%	(n=1,146) 1.1%	0.033	0.8%	0.7%	0.999
RBC Morphology	Abnormal	(n=950) 38.8%	(n=1,274) 50.5%	<0.001	(n=131) 56.5%	(n=2,093) 44.8%	0.012
Absolute Neutrophils (segs) (thousand/mm ³) ^a		(n=2,224) r=0.006		0.765	(n=131) x̄=3.54	(n=2,093) x̄=4.28	<0.001

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Occupation			p-Value
		Officer	Enlisted Flyer	Enlisted Groundcrew	
Red Blood Cell (RBC) Count (million/mm ³) (continuous)		(n=865) \bar{x} =4.96	(n=363) \bar{x} =5.02	(n=996) \bar{x} =5.07	<0.001
(discrete)	Abnormal Low	3.9%	1.9%	2.1%	0.029
	Abnormal High	0.7%	1.7%	1.7%	
White Blood Cell (WBC) Count (thousand/mm ³) (continuous) ^a		(n=865) \bar{x} =6.95	(n=363) \bar{x} =7.77	(n=996) \bar{x} =7.62	<0.001
(discrete)	Abnormal Low	4.1%	4.1%	3.2%	0.002
	Abnormal High	3.4%	8.8%	6.3%	
Hemoglobin (gm/dl) (continuous)		(n=865) \bar{x} =15.78	(n=363) \bar{x} =15.90	(n=996) \bar{x} =15.93	0.007
(discrete)	Abnormal Low	3.1%	2.5%	2.3%	0.617
	Abnormal High	2.1%	1.1%	1.9%	
Hematocrit (percent) (continuous)		(n=865) \bar{x} =45.98	(n=363) \bar{x} =46.42	(n=996) \bar{x} =46.49	0.001
(discrete)	Abnormal Low	2.0%	1.4%	1.0%	0.220
Platelet Count (thousand/mm ³) (continuous) ^b		(n=864) \bar{x} =243.9	(n=363) \bar{x} =251.9	(n=996) \bar{x} =257.6	<0.001
(discrete)	Abnormal High	0.5%	1.1%	1.7%	0.040
Prothrombin Time (seconds) (continuous) ^a		(n=793) \bar{x} =11.92	(n=327) \bar{x} =11.97	(n=925) \bar{x} =11.95	0.519
(discrete)	High	1.0%	1.2%	0.3%	0.133
RBC Morphology	Abnormal	(n=865) 47.3%	(n=363) 49.0%	(n=996) 42.7%	0.046
Absolute Neutrophils (segs) (thousand/mm ³) ^a		(n=865) \bar{x} =3.96	(n=363) \bar{x} =4.45	(n=996) \bar{x} =4.40	<0.001

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day)				p-Value
		0-Never	0-Former	>0-20	>20	
Red Blood Cell (RBC) Count (million/mm ³) (continuous) (discrete)			(n=2,222) r=0.083			<0.001
		(n=608)	(n=1,054)	(n=349)	(n=211)	
	Abnormal Low	2.6%	3.5%	1.4%	1.9%	0.423
	Abnormal High	1.0%	1.3%	1.7%	1.4%	
White Blood Cell (WBC) Count (thousand/mm ³) (continuous) ^a (discrete)			(n=2,222) r=0.438			<0.001
		(n=608)	(n=1,054)	(n=349)	(n=211)	
	Abnormal Low	6.3%	3.8%	0.9%	0.0%	<0.001
	Abnormal High	0.7%	2.0%	13.5%	24.6%	
Hemoglobin (gm/dl) (continuous) (discrete)			(n=2,222) r=0.227			<0.001
		(n=608)	(n=1,054)	(n=349)	(n=211)	
	Abnormal Low	3.0%	3.2%	2.0%	0.0%	<0.001
	Abnormal High	0.7%	1.0%	4.0%	5.7%	
Hematocrit (percent) (continuous) (discrete)			(n=2,222) r=0.239			<0.001
		(n=608)	(n=1,054)	(n=349)	(n=211)	
	Abnormal Low	1.6%	2.0%	0.3%	0.0%	0.032
Platelet Count (thousand/mm ³) (continuous) ^b (discrete)			(n=2,221) r=0.109			<0.001
		(n=607)	(n=1,054)	(n=349)	(n=211)	
	Abnormal High	0.8%	0.8%	1.4%	3.3%	0.011
Prothrombin Time (seconds) (continuous) ^a (discrete)			(n=2,043) r=-0.140			<0.001
		(n=558)	(n=966)	(n=319)	(n=200)	
	High	0.5%	1.1%	0.3%	0.0%	0.194
RBC Morphology	Abnormal	(n=608) 45.2%	(n=1,054) 47.4%	(n=349) 42.4%	(n=211) 41.7%	0.242
Absolute Neutrophils (segs) (thousand/mm ³) ^a			(n=2,222) r=0.426			<0.001

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years)			p-Value
		0	>0-10	>10	
Red Blood Cell (RBC) Count (million/mm ³) (continuous)			(n=2,221) r=-0.029		0.169
(discrete)		(n=608)	(n=679)	(n=934)	
	Abnormal Low	2.6%	2.1%	3.4%	0.293
	Abnormal High	1.0%	1.0%	1.7%	
White Blood Cell (WBC) Count (thousand/mm ³) (continuous) ^a			(n=2,221) r=0.245		<0.001
(discrete)		(n=608)	(n=679)	(n=934)	
	Abnormal Low	6.3%	3.2%	2.3%	<0.001
	Abnormal High	0.7%	5.2%	9.1%	
Hemoglobin (gm/dl) (continuous)			(n=2,221) r=0.057		0.007
(discrete)		(n=608)	(n=679)	(n=934)	
	Abnormal Low	3.0%	2.5%	2.6%	0.103
	Abnormal High	0.7%	1.9%	2.6%	
Hematocrit (percent) (continuous)			(n=2,221) r=0.072		<0.001
(discrete)		(n=608)	(n=679)	(n=934)	
	Abnormal Low	1.6%	2.1%	0.9%	0.118
Platelet Count (thousand/mm ³) (continuous) ^b			(n=2,220) r=0.091		<0.001
(discrete)		(n=607)	(n=679)	(n=934)	
	Abnormal High	0.8%	1.3%	1.2%	0.683
Prothrombin Time (seconds) (continuous) ^a			(n=2,042) r=-0.060		0.007
(discrete)		(n=558)	(n=641)	(n=843)	
	High	0.5%	0.9%	0.7%	0.719
RBC Morphology	Abnormal	(n=608) 45.2%	(n=679) 45.8%	(n=934) 45.5%	0.979
Absolute Neutrophils (segs) (thousand/mm ³) ^a			(n=2,221) r=0.242		<0.001

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942	Born <1942	p-Value	Black	Non-Black	p-Value
Absolute Neutrophils (bands) (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=1,852) r=0.035		0.133	(n=88) x̄=0.185	(n=1,764) x̄=0.261	0.003
	Zero	(n=950) 17.4%	(n=1,274) 16.3%	0.520	(n=131) 32.8%	(n=2,093) 15.7%	<0.001
Absolute Lymphocytes (thousand/mm ³) ^a		(n=2,224) r=-0.019		0.375	(n=131) x̄=2.15	(n=2,093) x̄=2.08	0.332
Absolute Monocytes (thousand/mm ³) ^b		(n=2,224) r=0.013		0.530	(n=131) x̄=0.459	(n=2,093) x̄=0.491	0.151
Absolute Eosinophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=1,965) r=-0.001		0.978	(n=118) x̄=0.189	(n=1,847) x̄=0.220	0.021
	Zero	(n=950) 11.3%	(n=1,274) 11.9%	0.675	(n=131) 9.9%	(n=2,093) 11.8%	0.622
Absolute Basophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=1,219) r=-0.009		0.768	(n=65) x̄=0.091	(n=1,154) x̄=0.101	0.178
	Zero	(n=950) 43.6%	(n=1,274) 46.4%	0.203	(n=131) 50.4%	(n=2,093) 44.9%	0.254

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Occupation			p-Value
		Officer	Enlisted Flyer	Enlisted Groundcrew	
Absolute Neutrophils (bands) (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=732) \bar{x} =0.255	(n=301) \bar{x} =0.267	(n=819) \bar{x} =0.255	0.730
	Zero	(n=865) 15.4%	(n=363) 17.1%	(n=996) 17.8%	0.378
Absolute Lymphocytes (thousand/mm ³) ^a		(n=865) \bar{x} =1.94	(n=363) \bar{x} =2.24	(n=996) \bar{x} =2.16	<0.001
Absolute Monocytes (thousand/mm ³) ^b		(n=865) \bar{x} =0.485	(n=363) \bar{x} =0.490	(n=996) \bar{x} =0.493	0.775
Absolute Eosinophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=756) \bar{x} =0.215	(n=326) \bar{x} =0.229	(n=883) \bar{x} =0.217	0.484
	Zero	(n=865) 12.6%	(n=363) 10.2%	(n=996) 11.4%	0.449
Absolute Basophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero	(n=478) \bar{x} =0.097	(n=202) \bar{x} =0.106	(n=539) \bar{x} =0.101	0.126
	Zero	(n=865) 44.7%	(n=363) 44.4%	(n=996) 45.9%	0.832

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day)				p-Value
		0-Never	0-Former	>0-20	>20	
Absolute Neutrophils (bands) (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,850) r=0.229			<0.001
	Zero	(n=608) 17.8%	(n=1,054) 17.9%	(n=349) 13.5%	(n=211) 13.3%	0.110
Absolute Lymphocytes (thousand/mm ³) ^a			(n=2,222) r=0.164			<0.001
Absolute Monocytes (thousand/mm ³) ^b			(n=2,222) r=0.184			<0.001
Absolute Eosinophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,963) r=0.147			<0.001
	Zero	(n=608) 13.2%	(n=1,054) 11.0%	(n=349) 10.6%	(n=211) 12.3%	0.526
Absolute Basophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,218) r=0.199			<0.001
	Zero	(n=608) 44.7%	(n=1,054) 43.3%	(n=349) 47.3%	(n=211) 52.6%	0.074

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table L-1-1. (Continued)
Dependent Variable-Covariate Associations for the Hematology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years)			p-Value
		0	>0-10	>10	
Absolute Neutrophils (bands) (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,849) r=0.129		<0.001
	Zero	(n=608) 17.8%	(n=679) 18.9%	(n=934) 14.6%	0.055
Absolute Lymphocytes (thousand/mm ³) ^a			(n=2,221) r=0.087		<0.001
Absolute Monocytes (thousand/mm ³) ^b			(n=2,221) r=0.109		<0.001
Absolute Eosinophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,962) r=0.080		<0.001
	Zero	(n=608) 13.2%	(n=679) 10.3%	(n=934) 11.7%	0.283
Absolute Basophils (thousand/mm ³) (continuous) ^a (discrete)	Nonzero		(n=1,217) r=0.105		<0.001
	Zero	(n=608) 44.7%	(n=679) 44.5%	(n=934) 46.0%	0.794

^aMeans transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^bMeans transformed from square root scale; correlations based on square root versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.