Modeling: Homocysteine and Cognitive Function (MMSE)
Analysis Dataset (EXCLUDE=0)

N_Analysis
663

Modeling: Homocysteine and Cognitive Function (MMSE)
Model 1 (Crude): MMSE = LHCY

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)

Number of Observations Read	663
Number of Observations Used	661
Number of Observations with Missing Values	2

Analysis of Variance

Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	73.42044	73.42044	9.81	0.0018
Error	659	4931.57502	7.48342		
Corrected Total	660	5004.99546			

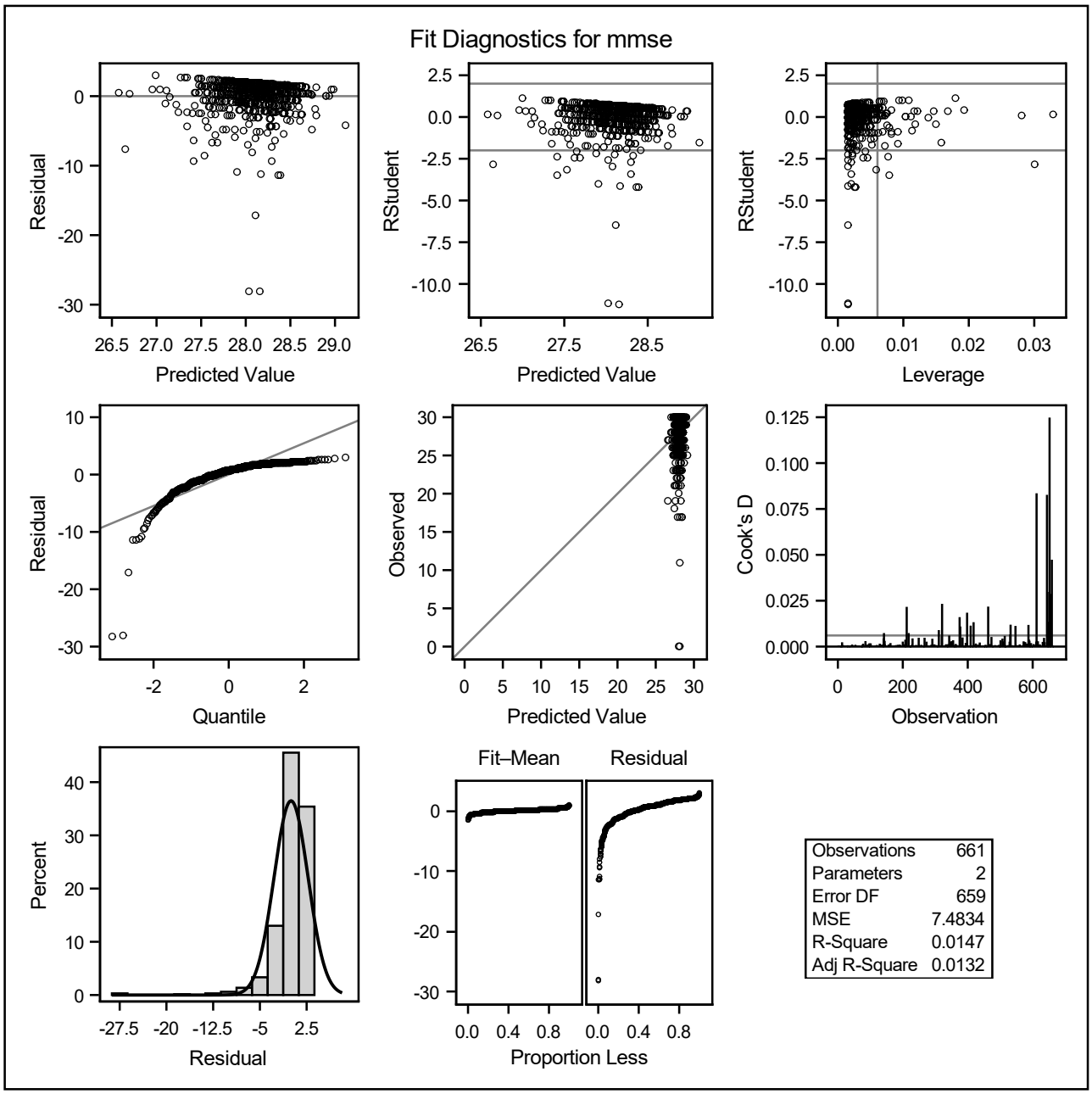
Root MSE	2.73558	*R-Square*	0.0147
Dependent Mean	28.09531	*Adj R-Sq*	0.0132
Coeff Var	9.73680		

Parameter Estimates

Variable	*Label*	*DF*	*Parameter Estimate*	*Standard Error*	*t Value*	*Pr > |t|*	*95% Confidence Limits*	
Intercept	Intercept	1	30.21033	0.68357	44.20	<.0001	28.86809	31.55256
lhcy	Log plasma homocysteine	1	-0.87151	0.27824	-3.13	0.0018	-1.41785	-0.32517

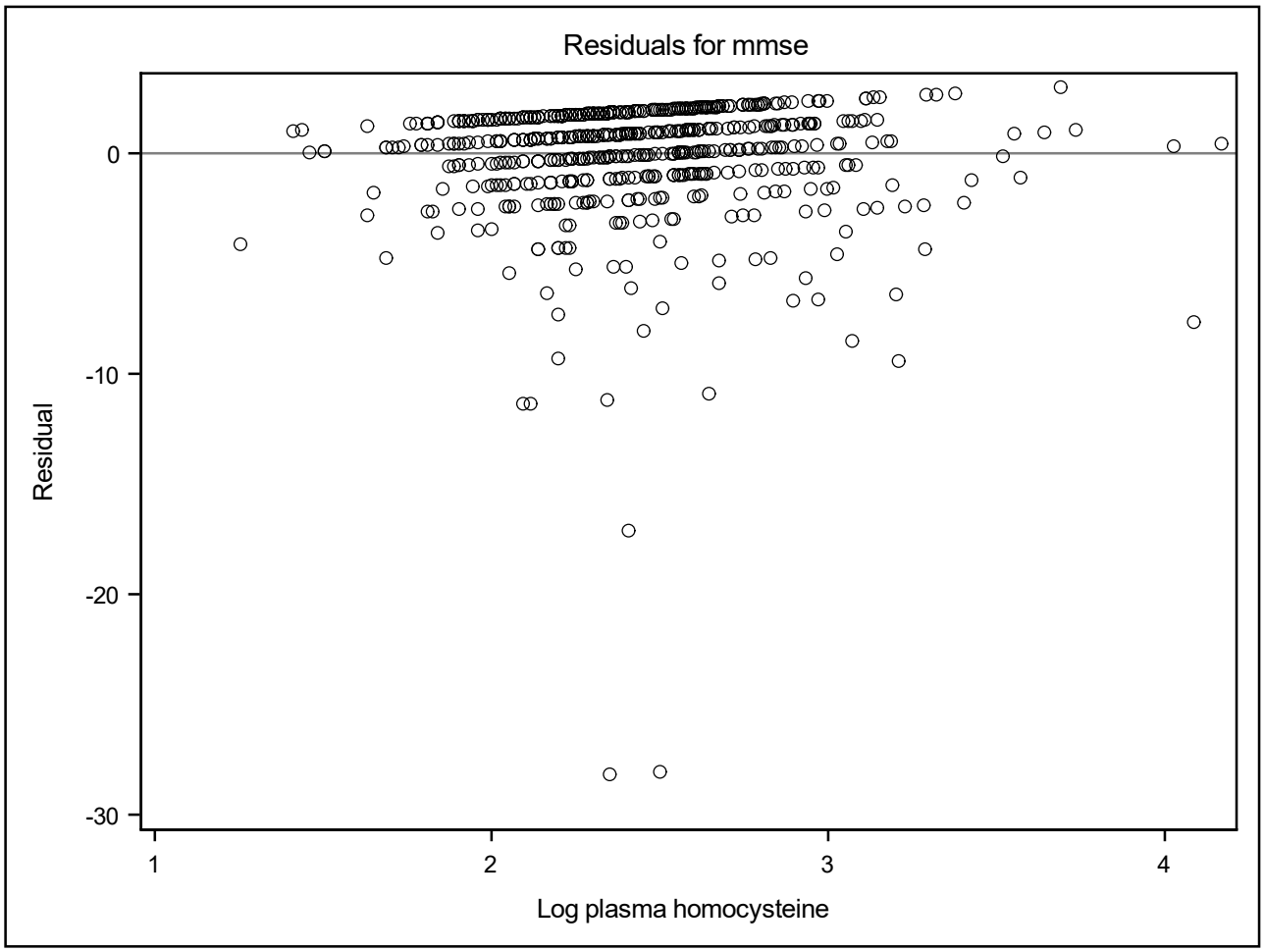
Modeling: Homocysteine and Cognitive Function (MMSE)
Model 1 (Crude): MMSE = LHCY

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)



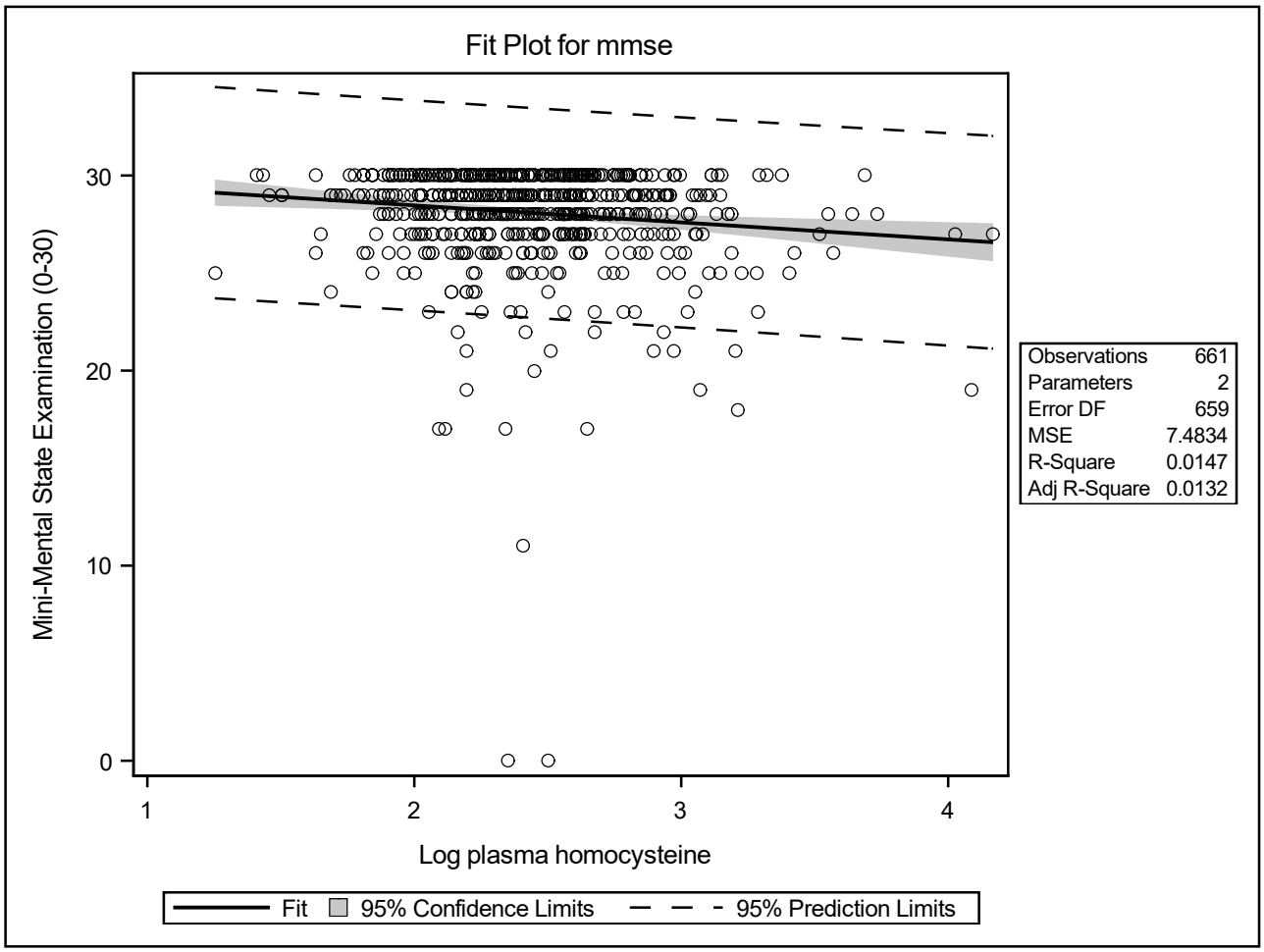
Modeling: Homocysteine and Cognitive Function (MMSE)
Model 1 (Crude): MMSE = LHCY

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)



Modeling: Homocysteine and Cognitive Function (MMSE)
Model 1 (Crude): MMSE = LHCY

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)



Modeling: Homocysteine and Cognitive Function (MMSE)
Model 2 (Adjusted): MMSE = LHCY + AGE + EDUCG + MALE + PKYRS

The GLM Procedure

Class Level Information

Class	*Levels*	*Values*
educg	4	<8 years >=8 years, no HS HS, no college Some college+

Number of Observations Read	663
Number of Observations Used	589

Modeling: Homocysteine and Cognitive Function (MMSE)
Model 2 (Adjusted): MMSE = LHCY + AGE + EDUCG + MALE + PKYRS

The GLM Procedure

Dependent Variable: mmse Mini-Mental State Examination (0-30)

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	573.531912	81.933130	14.21	<.0001
Error	581	3349.771993	5.765528		
Corrected Total	588	3923.303905			

R-Square	Coeff Var	Root MSE	mmse Mean
0.146186	8.532599	2.401151	28.14092

Source	DF	Type I SS	Mean Square	F Value	Pr > F
lhcy	1	56.1437040	56.1437040	9.74	0.0019
age	1	180.2630957	180.2630957	31.27	<.0001
male	1	11.1059122	11.1059122	1.93	0.1657
educg	3	322.8667806	107.6222602	18.67	<.0001
pkyrs	1	3.1524196	3.1524196	0.55	0.4599

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lhcy	1	11.2016335	11.2016335	1.94	0.1639
age	1	106.4425589	106.4425589	18.46	<.0001
male	1	15.1436120	15.1436120	2.63	0.1056
educg	3	325.0884425	108.3628142	18.79	<.0001
pkyrs	1	3.1524196	3.1524196	0.55	0.4599

Parameter		Estimate		Standard Error	t Value	Pr > |t|	95% Confidence Limits	
Intercept		37.12601966	B	1.72265592	21.55	<.0001	33.74262793	40.50941140
lhcy		-0.36246629		0.26004380	-1.39	0.1639	-0.87320673	0.14827415
age		-0.09731937		0.02264963	-4.30	<.0001	-0.14180450	-0.05283423
male		-0.35722553		0.22041813	-1.62	0.1056	-0.79013896	0.07568790
educg	<8 years	-3.48474511	B	0.61230286	-5.69	<.0001	-4.68734188	-2.28214835
educg	>=8 years, no HS	-1.51960800	B	0.26149099	-5.81	<.0001	-2.03319080	-1.00602521
educg	HS, no college	-0.54168481	B	0.23861512	-2.27	0.0236	-1.01033814	-0.07303147
educg	Some college+	0.00000000	B	.	.	.	.	.
pkyrs		0.00361209		0.00488490	0.74	0.4599	-0.00598213	0.01320631

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

Modeling: Homocysteine and Cognitive Function (MMSE)
Model 3 (Interaction): Test Effect Modification by Sex (LHCY*MALE)

The GLM Procedure

Class Level Information

Class	*Levels*	*Values*
educg	4	<8 years >=8 years, no HS HS, no college Some college+

Number of Observations Read	663
Number of Observations Used	589

Modeling: Homocysteine and Cognitive Function (MMSE)
Model 3 (Interaction): Test Effect Modification by Sex (LHCY*MALE)

The GLM Procedure

Dependent Variable: mmse Mini-Mental State Examination (0-30)

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	574.092473	71.761559	12.43	<.0001
Error	580	3349.211432	5.774502		
Corrected Total	588	3923.303905			

R-Square	Coeff Var	Root MSE	mmse Mean
0.146329	8.539237	2.403019	28.14092

Source	DF	Type I SS	Mean Square	F Value	Pr > F
lhcy	1	56.1437040	56.1437040	9.72	0.0019
male	1	6.1607787	6.1607787	1.07	0.3021
lhcy*male	1	0.0423210	0.0423210	0.01	0.9318
age	1	185.3257445	185.3257445	32.09	<.0001
educg	3	323.2636352	107.7545451	18.66	<.0001
pkyrs	1	3.1562895	3.1562895	0.55	0.4600

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lhcy	1	5.3755900	5.3755900	0.93	0.3350
male	1	0.0095025	0.0095025	0.00	0.9677
lhcy*male	1	0.5605607	0.5605607	0.10	0.7555
age	1	106.9060986	106.9060986	18.51	<.0001
educg	3	325.4862702	108.4954234	18.79	<.0001
pkyrs	1	3.1562895	3.1562895	0.55	0.4600

Parameter		Estimate		Standard Error	t Value	Pr > |t|	95% Confidence Limits	
Intercept		37.01487979	B	1.76051264	21.03	<.0001	33.55712291	40.47263668
lhcy		-0.30599372		0.31714417	-0.96	0.3350	-0.92888470	0.31689726
male		0.05432563		1.33919207	0.04	0.9677	-2.57593131	2.68458258
lhcy*male		-0.16903186		0.54251848	-0.31	0.7555	-1.23457206	0.89650834
age		-0.09761847		0.02268757	-4.30	<.0001	-0.14217828	-0.05305866
educg	<8 years	-3.48256071	B	0.61281931	-5.68	<.0001	-4.68617613	-2.27894529
educg	>=8 years, no HS	-1.52351643	B	0.26199490	-5.82	<.0001	-2.03809078	-1.00894207
educg	HS, no college	-0.54511486	B	0.23905438	-2.28	0.0230	-1.01463261	-0.07559711
educg	Some college+	0.00000000	B	.	.	.	.	.
pkyrs		0.00361431		0.00488871	0.74	0.4600	-0.00598742	0.01321604

Modeling: Homocysteine and Cognitive Function (MMSE)
Model 3 (Interaction): Test Effect Modification by Sex (LHCY*MALE)

The GLM Procedure

Dependent Variable: mmse Mini-Mental State Examination (0-30)

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)

Number of Observations Read	663
Number of Observations Used	589
Number of Observations with Missing Values	74

Analysis of Variance

Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	5	544.02736	108.80547	18.77	<.0001
Error	583	3379.27654	5.79636		
Corrected Total	588	3923.30390			

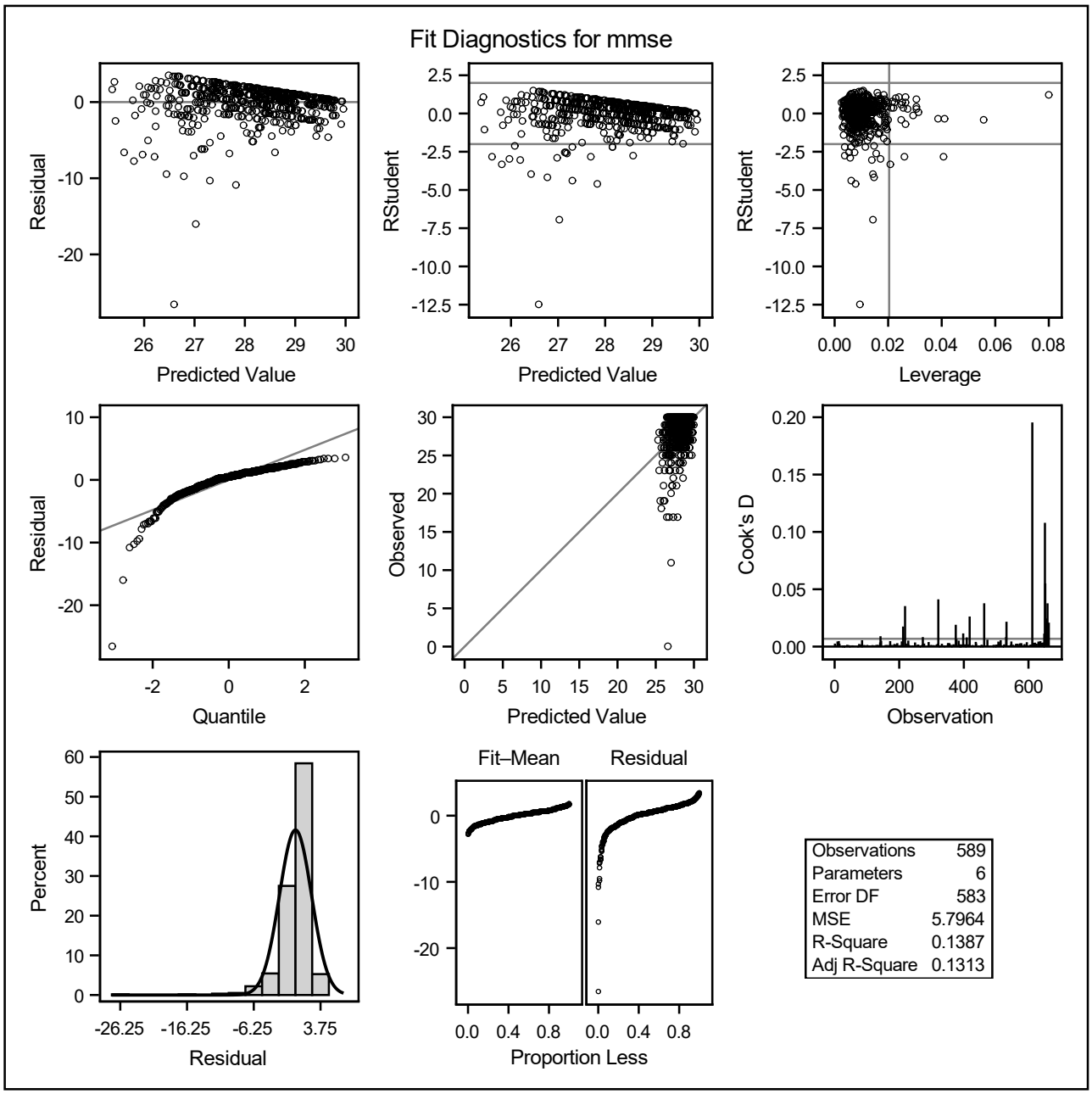
Root MSE	2.40756	*R-Square*	0.1387
Dependent Mean	28.14092	*Adj R-Sq*	0.1313
Coeff Var	8.55538		

Parameter Estimates

Variable	*Label*	*DF*	*Parameter Estimate*	*Standard Error*	*t Value*	*Pr > |t|*	*Tolerance*	*Variance Inflation*	*95% Confidence Limits*	
Intercept	Intercept	1	34.13914	1.80760	18.89	<.0001	.	0	30.58895	37.68934
lhcy	Log plasma homocysteine	1	-0.34426	0.26060	-1.32	0.1870	0.95116	1.05134	-0.85609	0.16757
age	Age (years)	1	-0.10170	0.02240	-4.54	<.0001	0.93906	1.06490	-0.14570	-0.05770
male	Sex (1=Male,0=Female)	1	-0.33754	0.22062	-1.53	0.1266	0.90827	1.10099	-0.77085	0.09578
educg	Education category (1-4)	1	0.85509	0.11974	7.14	<.0001	0.96491	1.03636	0.61991	1.09027
pkyrs	Pack-years of smoking	1	0.00288	0.00488	0.59	0.5556	0.89883	1.11256	-0.00671	0.01247

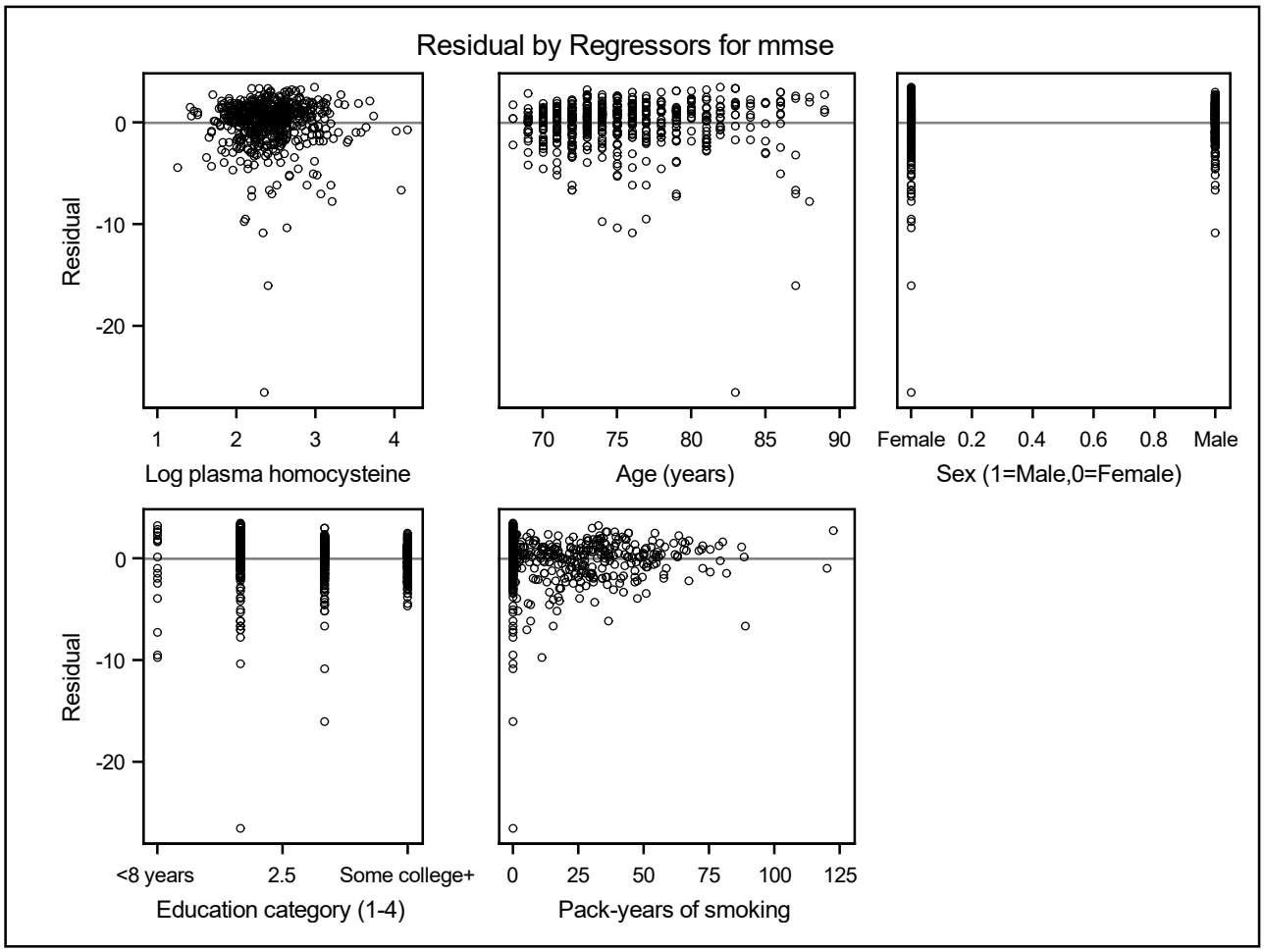
Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points

The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)



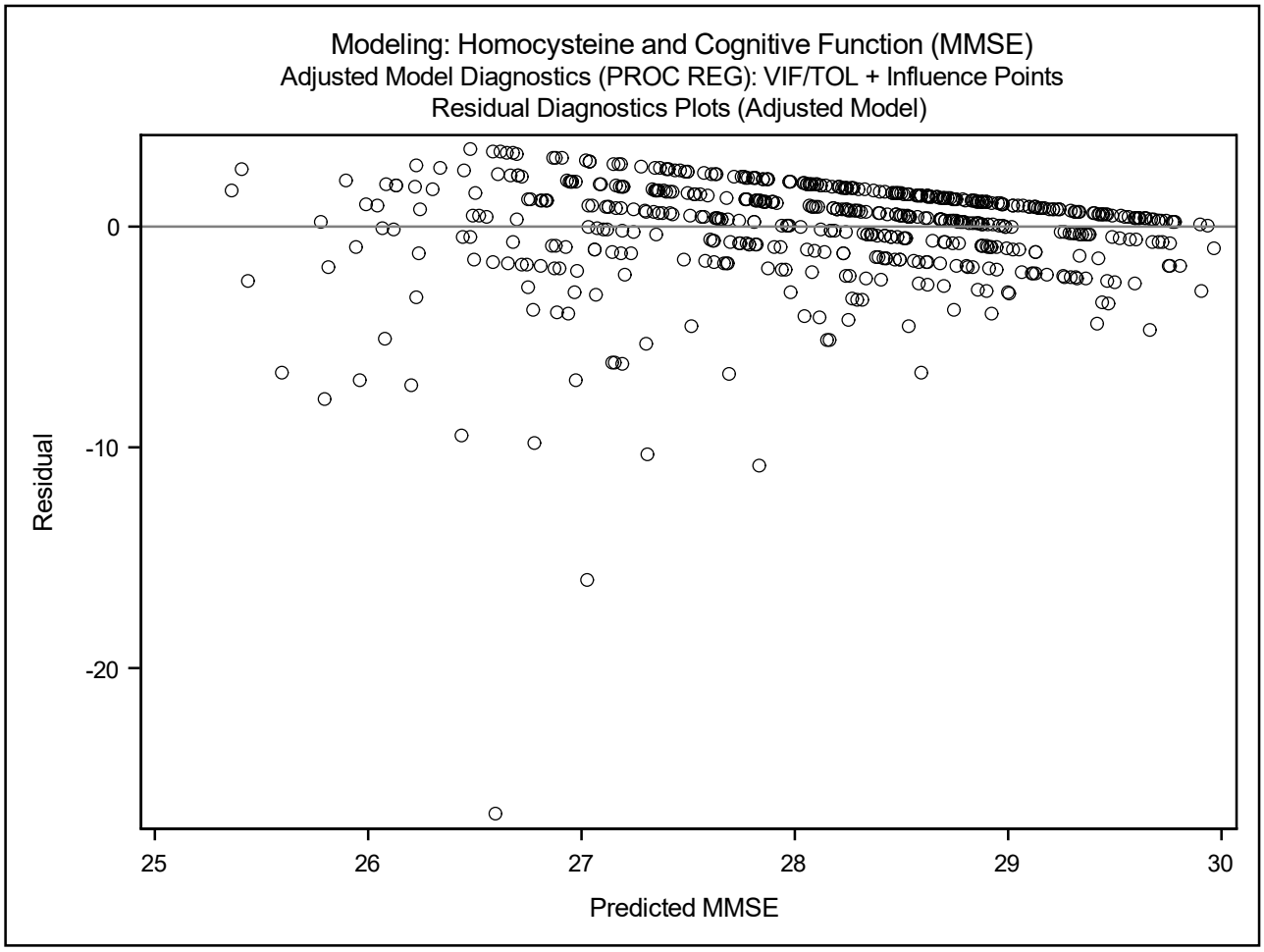
Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points

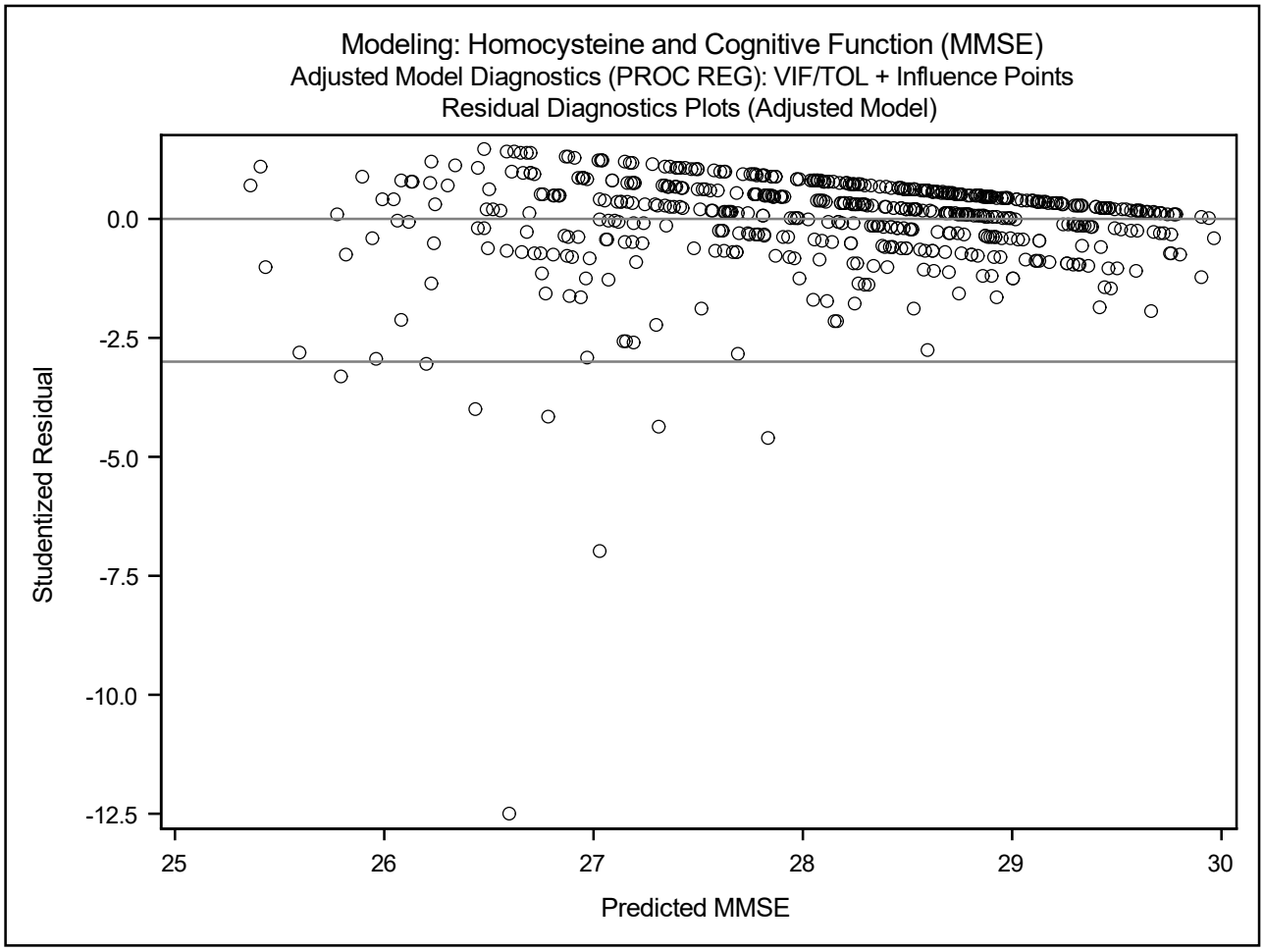
The REG Procedure
Model: MODEL1
Dependent Variable: mmse Mini-Mental State Examination (0-30)

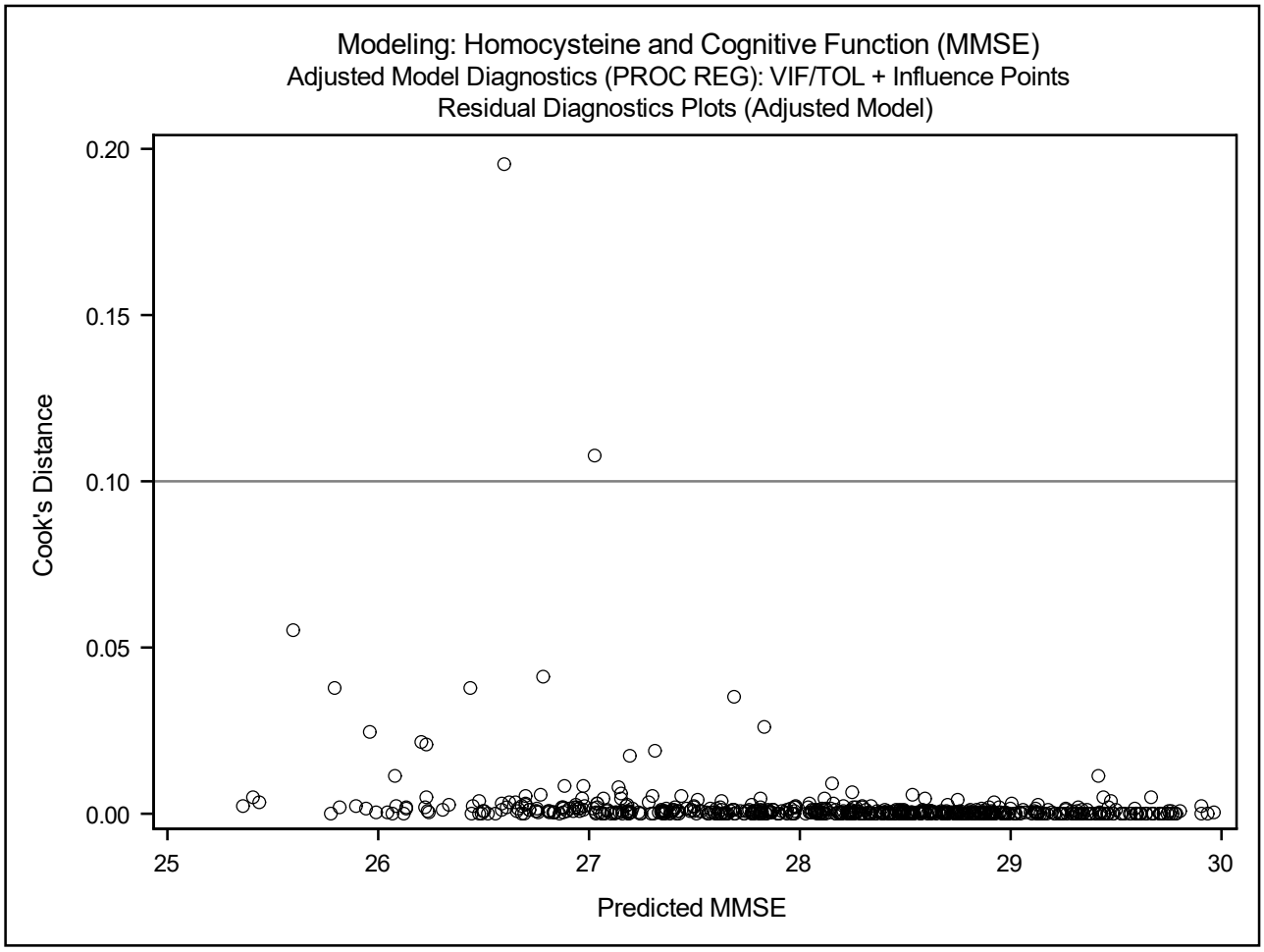


Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points
Influential Observations (\|RStudent\| > 3 OR Cook's D > 0.1)

id	*rstud*	*cookd*	*pred*	*mmse*	*lhcy*	*age*	*male*	*educg*	*pkyrs*
616	-4.1488	0.04118	26.7805	17	2.09186	74	Female	<8 years	11.1532
697	-4.3618	0.01901	27.3109	17	2.64617	75	Female	>=8 years, no HS	0.0000
499	-4.5935	0.02622	27.8315	17	2.34181	76	Male	HS, no college	0.0000
460	-3.9976	0.03775	26.4348	17	2.11626	77	Female	<8 years	0.0000
497	-3.0345	0.02166	26.2036	19	2.19722	79	Female	<8 years	0.0000
254	-12.4890	0.19544	26.5988	0	2.35138	83	Female	>=8 years, no HS	0.0000
350	-6.9736	0.10793	27.0279	11	2.40695	87	Female	HS, no college	0.0000
234	-3.2992	0.03771	25.7947	18	3.21084	88	Female	>=8 years, no HS	0.0929


Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points
Residual Diagnostics Plots (Adjusted Model)
Residual
0
-10
-20
25
26
27
28
29
30
Predicted MMSE


Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points
Residual Diagnostics Plots (Adjusted Model)
Studentized Residual
0.0
-2.5
-5.0
-7.5
-10.0
-12.5
25
26
27
28
29
30
Predicted MMSE


Modeling: Homocysteine and Cognitive Function (MMSE)
Adjusted Model Diagnostics (PROC REG): VIF/TOL + Influence Points
Residual Diagnostics Plots (Adjusted Model)
Cook's Distance
0.20
0.15
0.10
0.05
0.00
25
26
27
28
29
30
Predicted MMSE