Question 2: Descriptive Statistics for Continuous Variables

The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Median	Minimum	Maximum	Lower Quartile	Upper Quartile
TOTCHOL	Serum Total Cholesterol (mg/dL)	2158	229.90	41.86	226.50	113.00	464.00	200.00	256.00
AGE	Age at exam (years)	2182	47.21	8.01	46.00	32.00	70.00	41.00	53.00
SYSBP	Systolic Blood Pressure (mean of last two of	2182	119.69	10.53	120.00	83.50	139.50	112.00	128.00
DIABP	three measurements) (mmHg)	2182	76.75	7.21	78.00	50.00	89.50	72.00	82.00
CIGPDAY	Diastolic Blood Pressure (mean of last two of	2160	9.22	11.62	2.00	0.00	70.00	0.00	20.00
BMI	three measurements) (mmHg)	2176	24.91	3.45	24.59	15.54	40.58	22.54	27.04
HEARTRTE	Number of Cigarettes Smoked per Day	2182	74.09	11.22	74.00	44.00	125.00	66.00	80.00
GLUCOSE	Body Mass Index, weight in kilograms/height meters squared	1980	79.90	17.82	77.00	40.00	386.00	71.00	85.00
	Heart rate (Ventricular rate) in beats/min								
	Casual serum glucose (mg/dL)								

Question 2: Descriptive Statistics for Categorical Variables

The FREQ Procedure

Participant Sex				
SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	943	43.22	943	43.22
Female	1239	56.78	2182	100.00

Current Cigarette Smoking Status at Exam				
CURSMOKE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not Current Smoker	1047	47.98	1047	47.98
Current Smoker	1135	52.02	2182	100.00

Diabetic according to criteria of first exam treated or first exam with casual glucose of 200 mg/dL or more				
DIABETES	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not Diabetic	2154	98.72	2154	98.72
Diabetic	28	1.28	2182	100.00

Use of Anti-hypertensive medication at exam				
BPMEDS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not Currently Using	2140	99.44	2140	99.44
Currently Using	12	0.56	2152	100.00
Frequency Missing = 30				

Question 3: FRS Summary Statistics by Sex

The MEANS Procedure

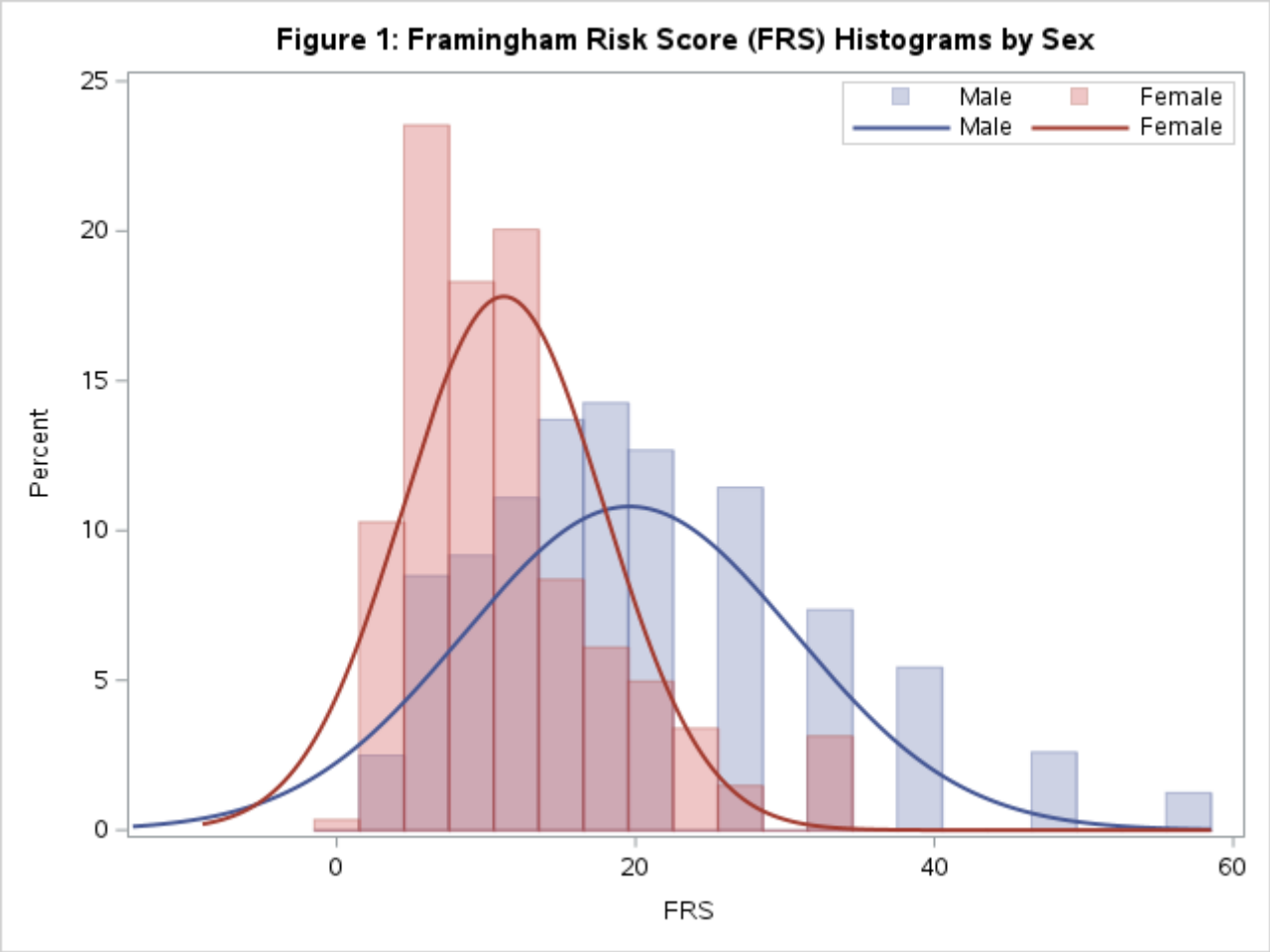
Participant Sex=Male

Analysis Variable : FRS							
N	Mean	Std Dev	Median	Minimum	Maximum	Lower Quartile	Upper Quartile

Analysis Variable : FRS							
N	Mean	Std Dev	Median	Minimum	Maximum	Lower Quartile	Upper Quartile
883	19.60	11.08	18.00	2.00	56.00	11.00	27.00

Participant Sex=Female

Analysis Variable : FRS							
N	Mean	Std Dev	Median	Minimum	Maximum	Lower Quartile	Upper Quartile
1147	11.18	6.72	9.00	1.00	32.00	6.00	15.00



Question 5: FRS Representative Components Summary Statistics

The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Median	Minimum	Maximum	Lower Quartile	Upper Quartile
cigpday_avg	Number of Cigarettes Smoked per Day	2182	8.76	11.17	1.67	0.00	73.33	0.00	16.67
bmi_avg	Body Mass Index, weight in	2180	25.13	3.38	24.80	16.02	42.32	22.88	27.24
heartrte_avg	kilograms/height meters squared	2182	75.45	9.55	75.00	43.67	125.33	69.00	81.67
glucose_max	Heart rate (Ventricular rate) in beats/min	2170	92.59	23.43	88.00	43.00	386.00	80.00	98.00
totchol_max	Casual serum glucose (mg/dL)	2179	256.68	43.36	253.00	155.00	625.00	226.00	281.00
	Serum Total Cholesterol (mg/dL)								

Question 5: Two Sample T Tests

The TTEST Procedure

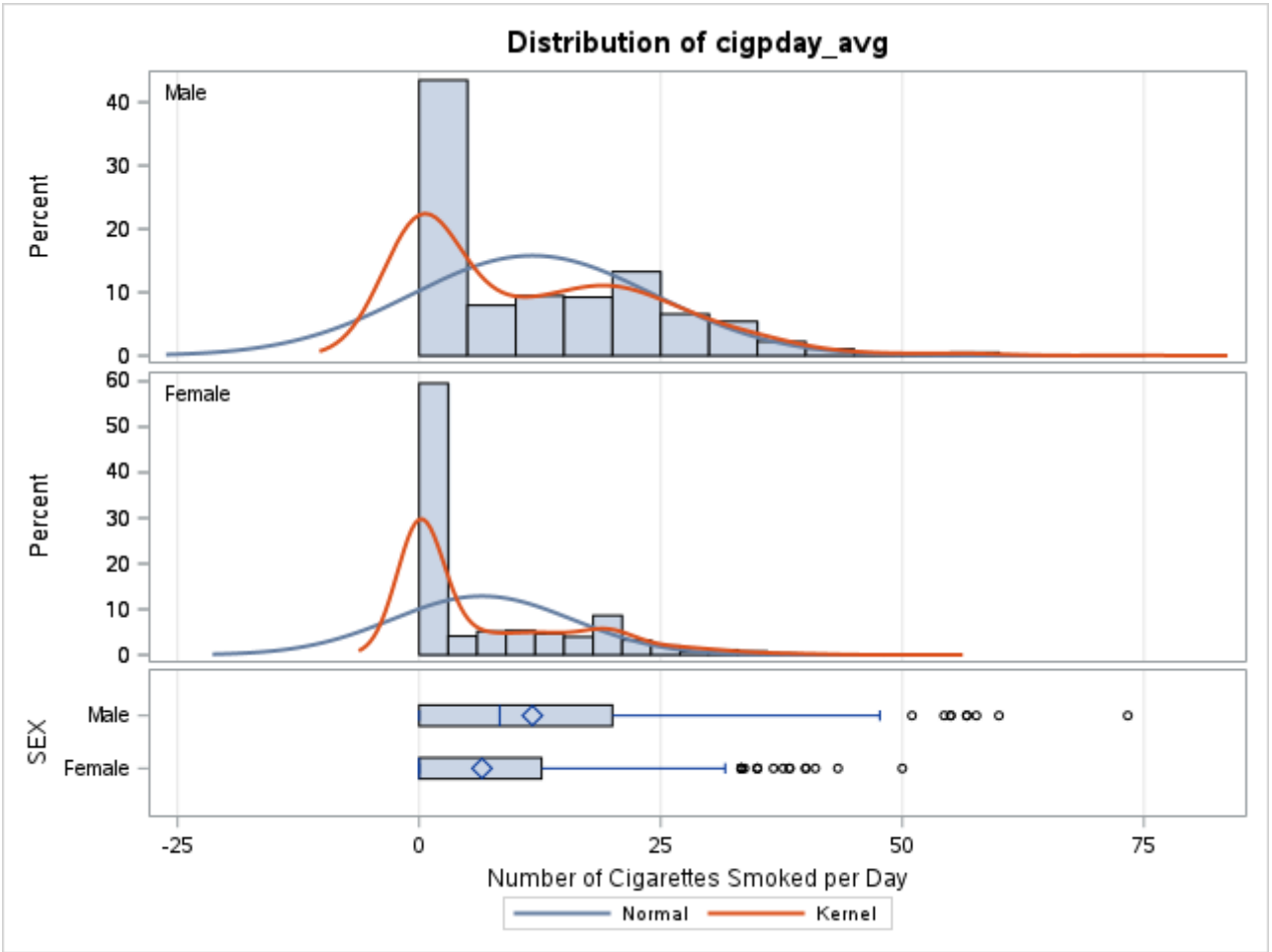
Variable: cigpday_avg (Number of Cigarettes Smoked per Day)

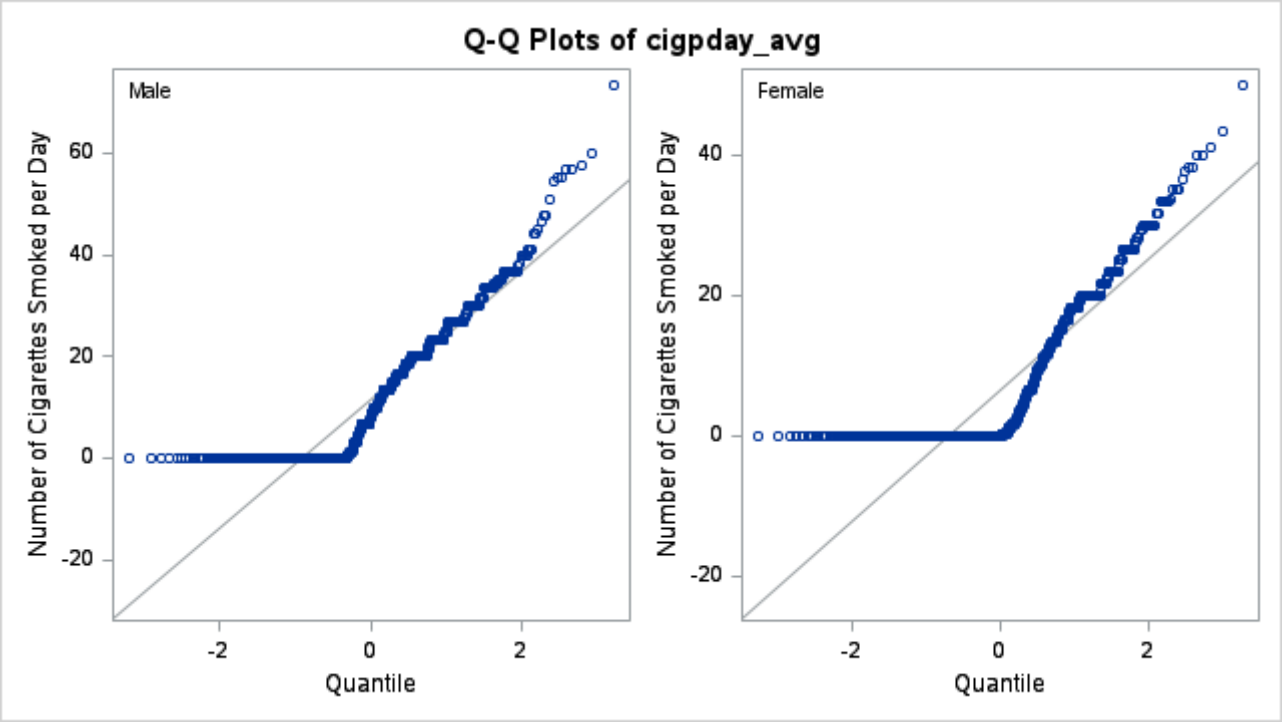
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Male		943	11.7192	12.6366	0.4115	0	73.3333
Female		1239	6.5030	9.2956	0.2641	0	50.0000
Diff (1-2)	Pooled		5.2162	10.8661	0.4696		
Diff (1-2)	Satterthwaite		5.2162		0.4890		

SEX	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Male		11.7192	10.9116	12.5267	12.6366	12.0909	13.2343
Female		6.5030	5.9849	7.0211	9.2956	8.9435	9.6768
Diff (1-2)	Pooled	5.2162	4.2953	6.1371	10.8661	10.5529	11.1985
Diff (1-2)	Satterthwaite	5.2162	4.2572	6.1752			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	2180	11.11	<.0001
Satterthwaite	Unequal	1663.1	10.67	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	942	1238	1.85	<.0001





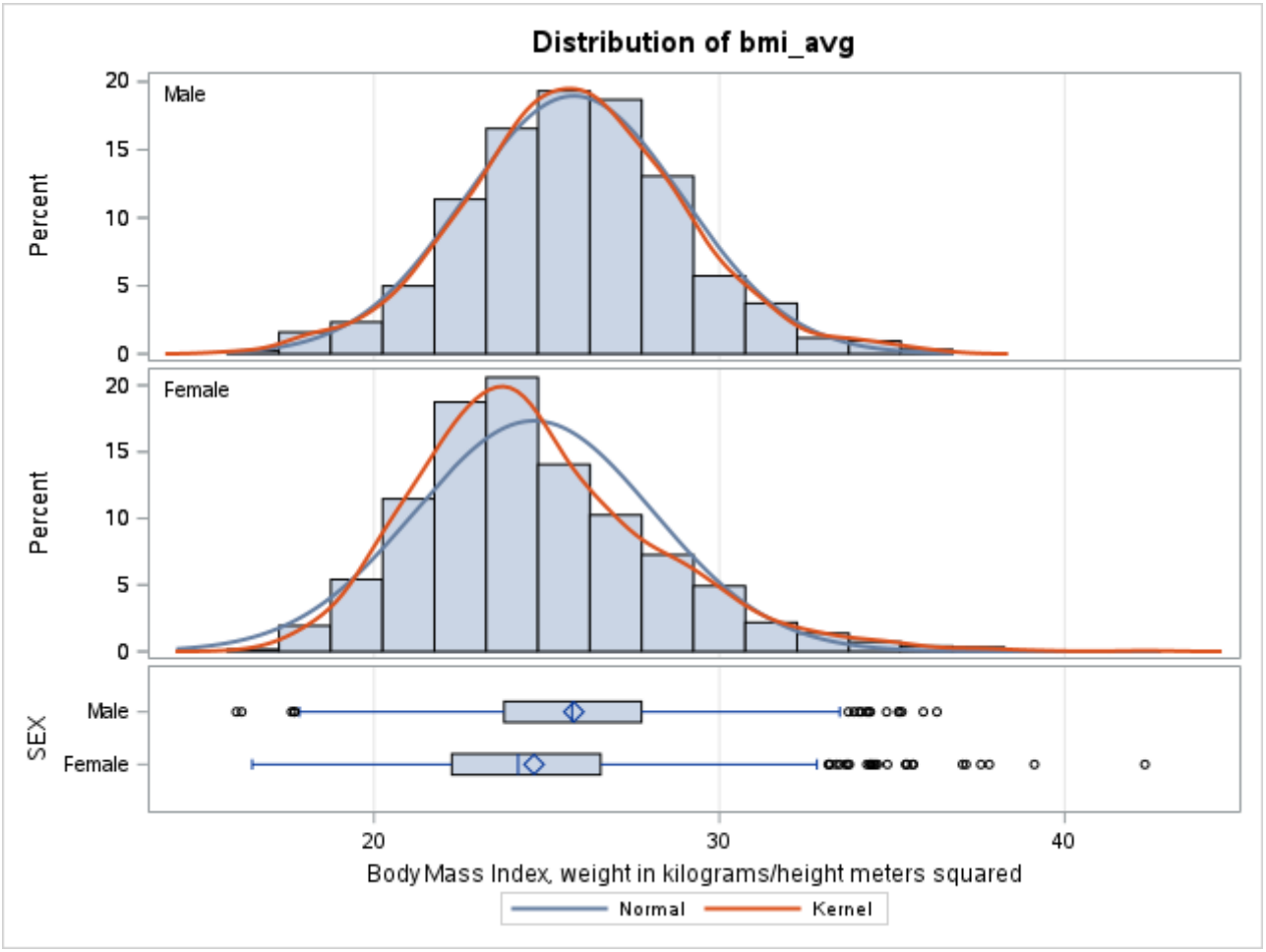
Variable: bmi_avg (Body Mass Index, weight in kilograms/height meters squared)

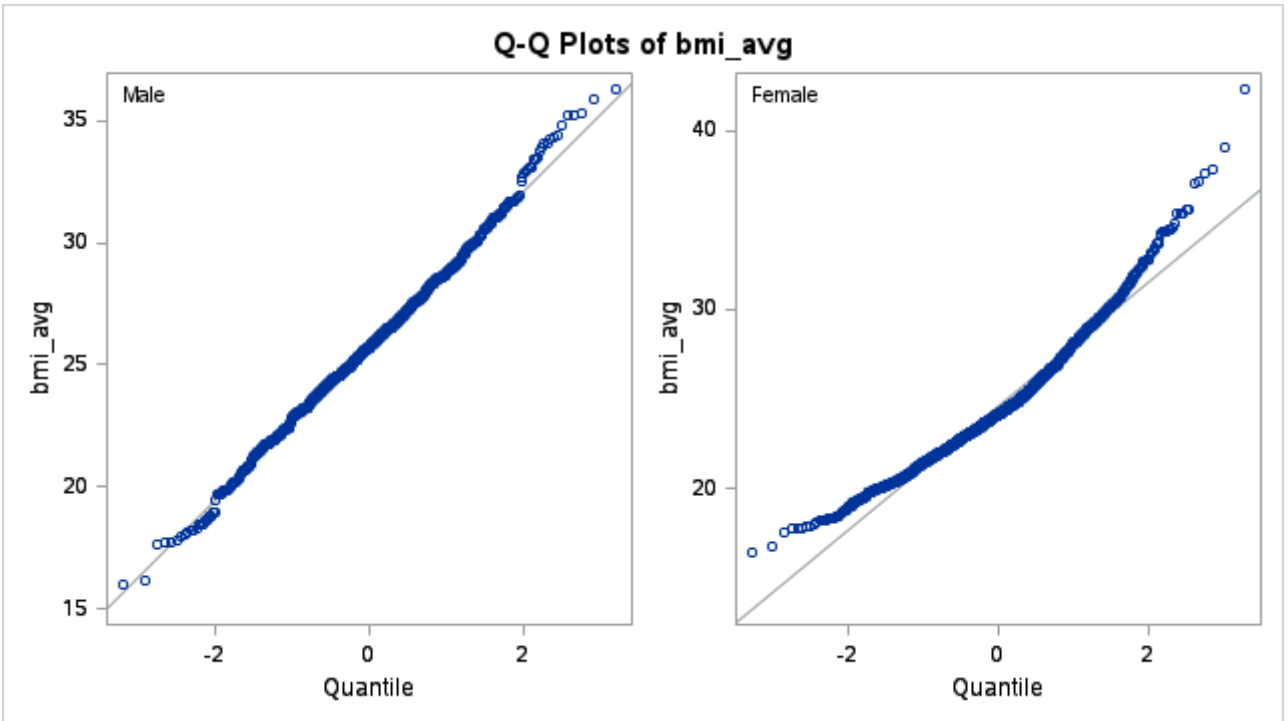
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Male		942	25.7867	3.1572	0.1029	16.0167	36.3000
Female		1238	24.6344	3.4524	0.0981	16.4733	42.3233
Diff (1-2)	Pooled		1.1523	3.3281	0.1439		
Diff (1-2)	Satterthwaite		1.1523		0.1422		

SEX	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Male		25.7867	25.5848	25.9886	3.1572	3.0208	3.3066
Female		24.6344	24.4419	24.8269	3.4524	3.3216	3.5941
Diff (1-2)	Pooled	1.1523	0.8701	1.4345	3.3281	3.2321	3.4300
Diff (1-2)	Satterthwaite	1.1523	0.8735	1.4311			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	2178	8.01	<.0001
Satterthwaite	Unequal	2106.1	8.11	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	1237	941	1.20	0.0037





Variable: heartrte_avg (Heart rate (Ventricular rate) in beats/min)

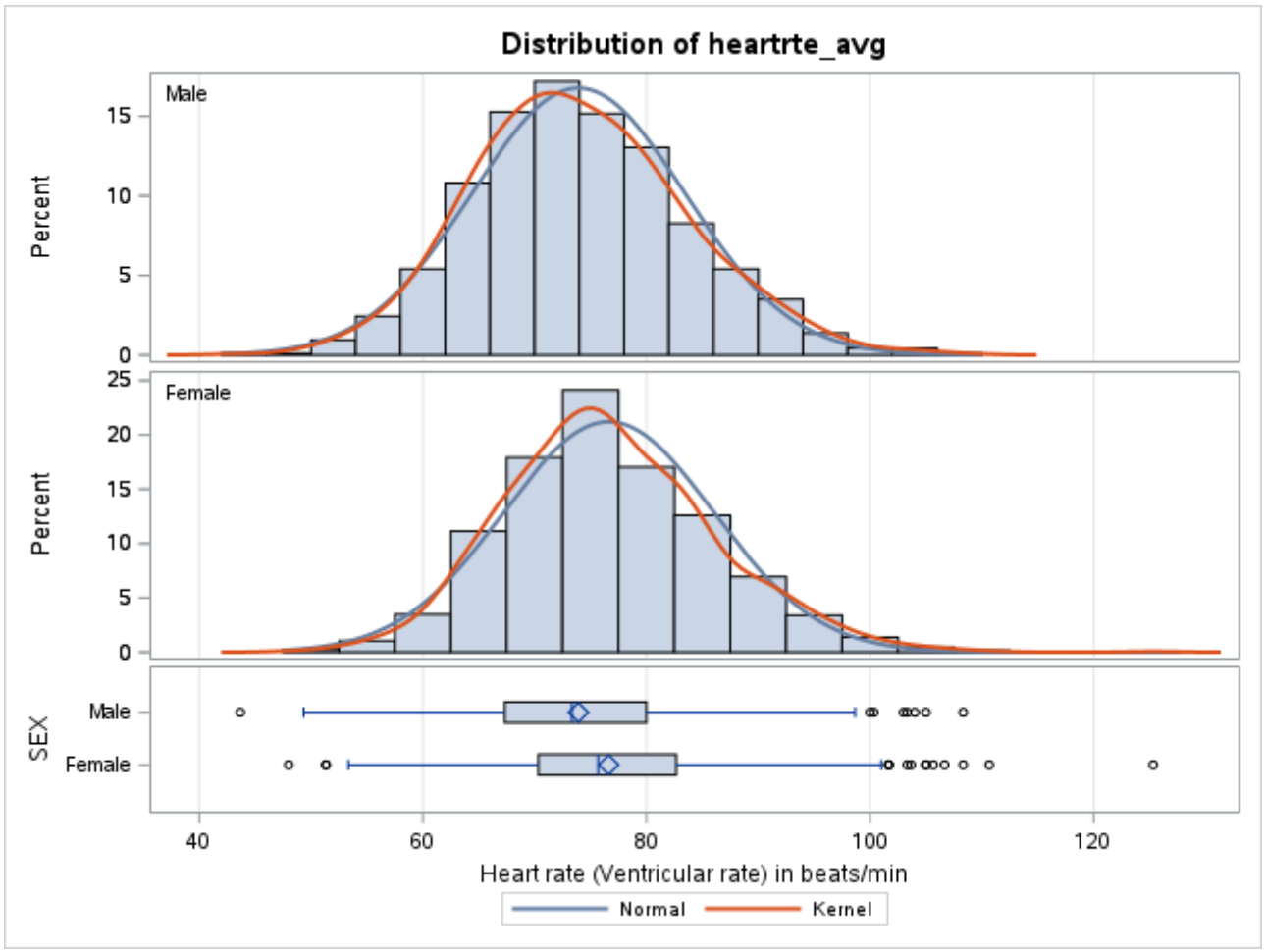
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Male		943	73.9134	9.5197	0.3100	43.6667	108.3
Female		1239	76.6242	9.4093	0.2673	48.0000	125.3
Diff (1-2)	Pooled		-2.7108	9.4571	0.4087		

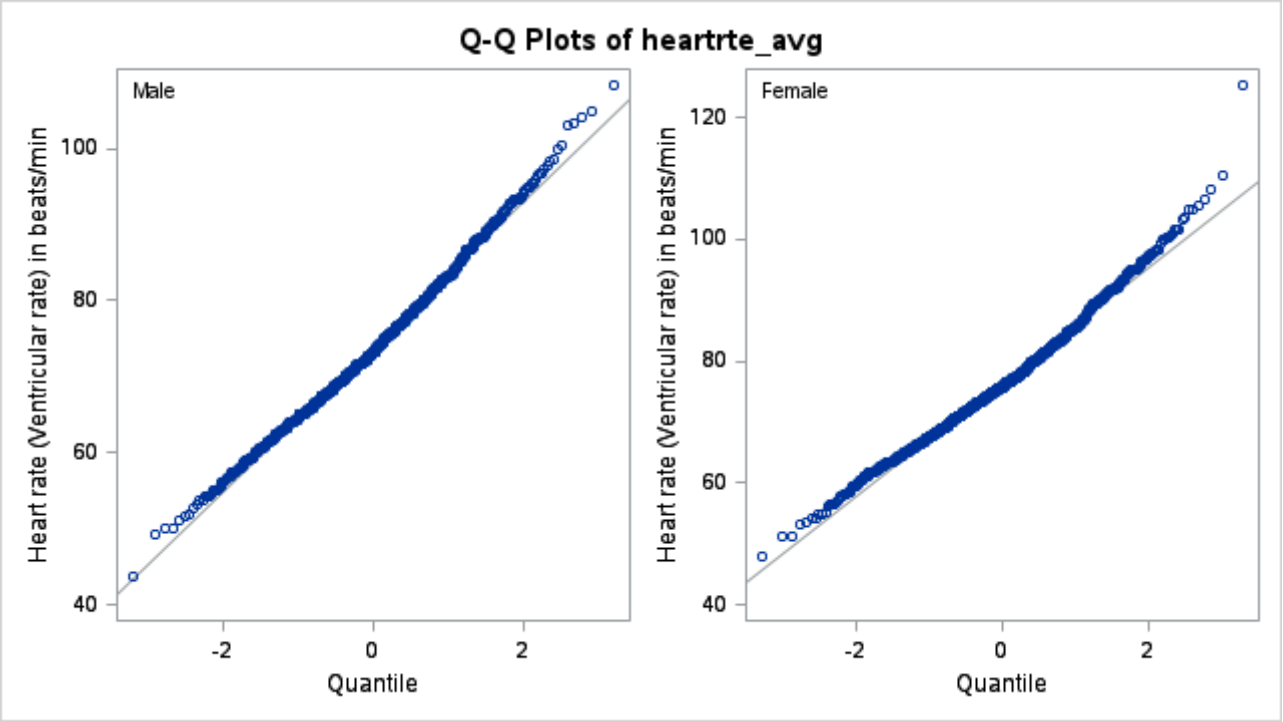
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Diff (1-2)	Satterthwaite		-2.7108		0.4093		

SEX	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Male		73.9134	73.3050	74.5218	9.5197	9.1086	9.9699
Female		76.6242	76.0997	77.1486	9.4093	9.0528	9.7951
Diff (1-2)	Pooled	-2.7108	-3.5122	-1.9093	9.4571	9.1846	9.7465
Diff (1-2)	Satterthwaite	-2.7108	-3.5135	-1.9080			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	2180	-6.63	<.0001
Satterthwaite	Unequal	2015.7	-6.62	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	942	1238	1.02	0.7006





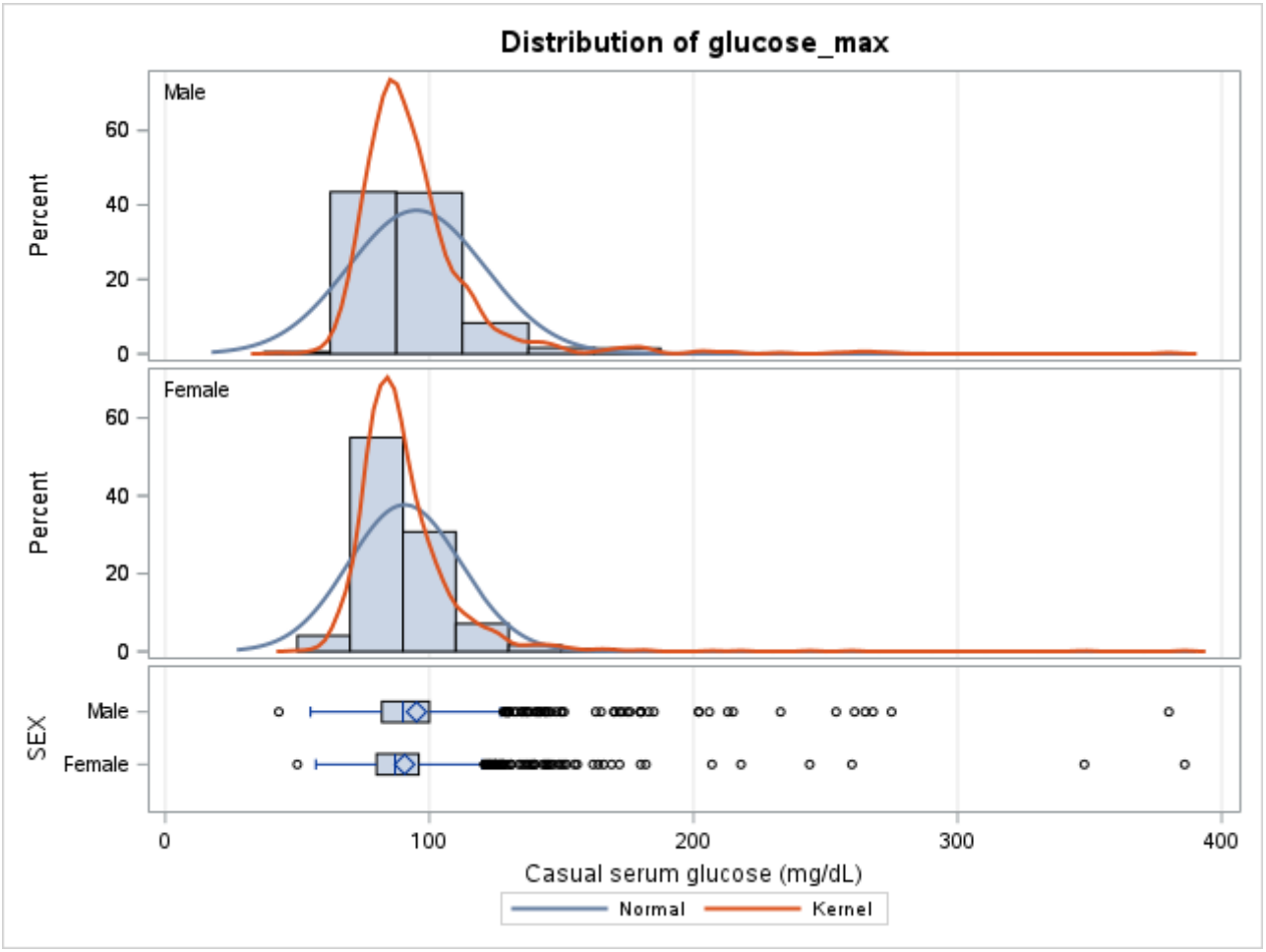
Variable: glucose_max (Casual serum glucose (mg/dL))

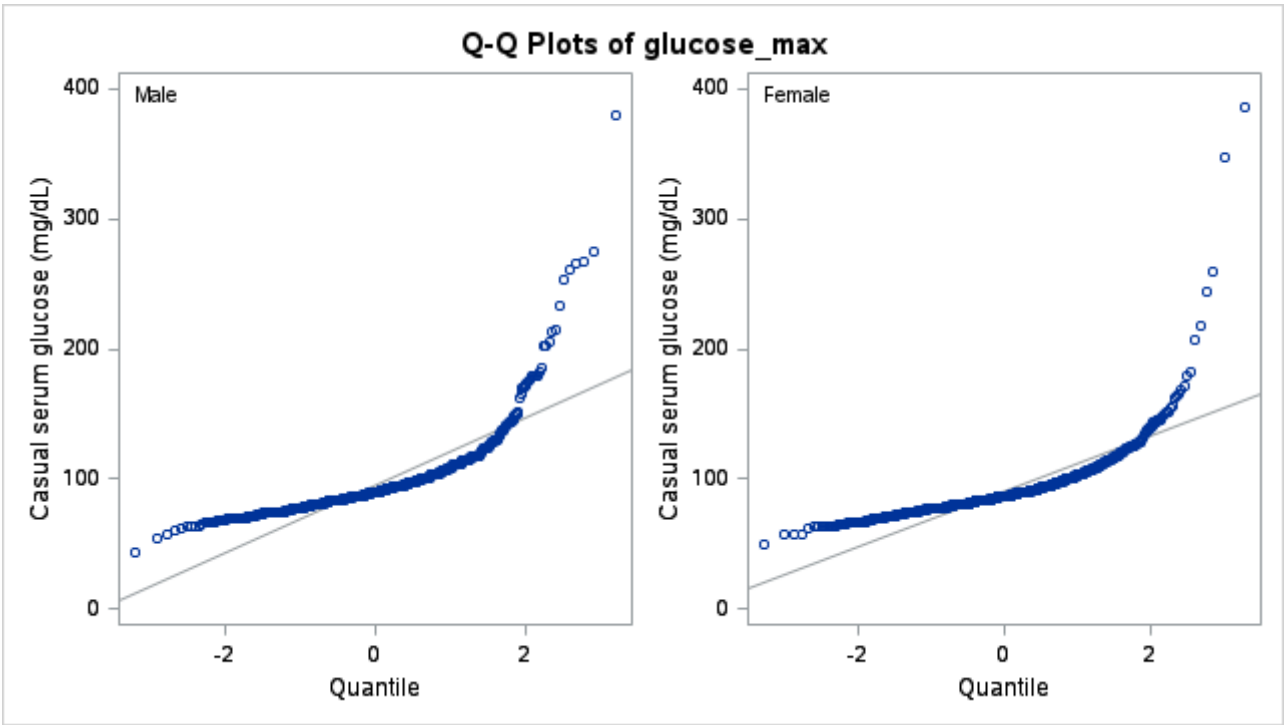
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Male		940	95.1362	25.8765	0.8440	43.0000	380.0
Female		1230	90.6358	21.1761	0.6038	50.0000	386.0
Diff (1-2)	Pooled		4.5004	23.3284	1.0106		
Diff (1-2)	Satterthwaite		4.5004		1.0377		

SEX	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Male		95.1362	93.4798	96.7925	25.8765	24.7573	27.1024
Female		90.6358	89.4512	91.8204	21.1761	20.3711	22.0478
Diff (1-2)	Pooled	4.5004	2.5185	6.4823	23.3284	22.6543	24.0442
Diff (1-2)	Satterthwaite	4.5004	2.4651	6.5357			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	2168	4.45	<.0001
Satterthwaite	Unequal	1788.2	4.34	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	939	1229	1.49	<.0001





Variable: totchol_max (Serum Total Cholesterol (mg/dL))

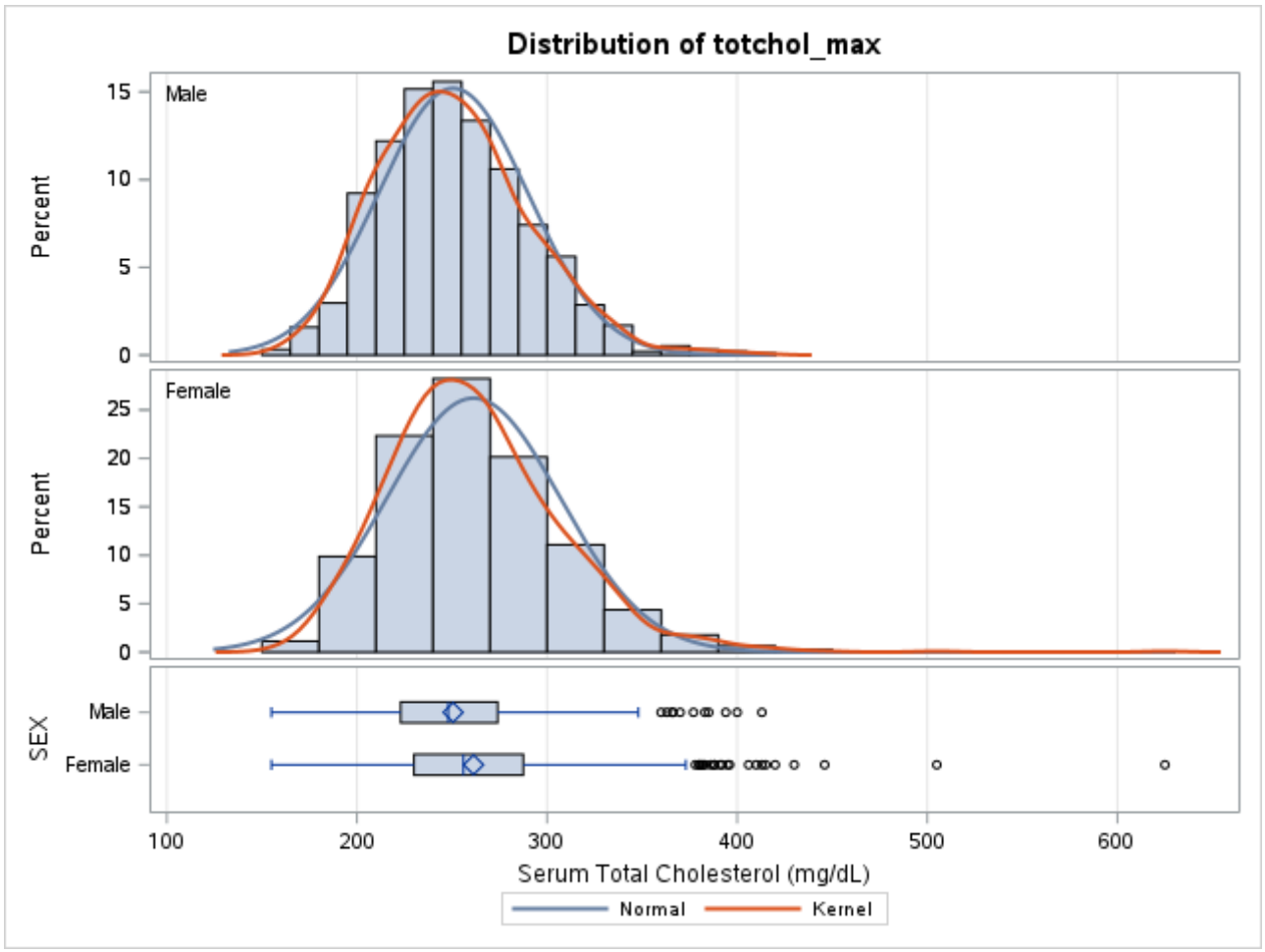
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Male		943	250.6	39.3594	1.2817	155.0	413.0
Female		1236	261.3	45.6527	1.2985	155.0	625.0
Diff (1-2)	Pooled		-10.7570	43.0427	1.8611		

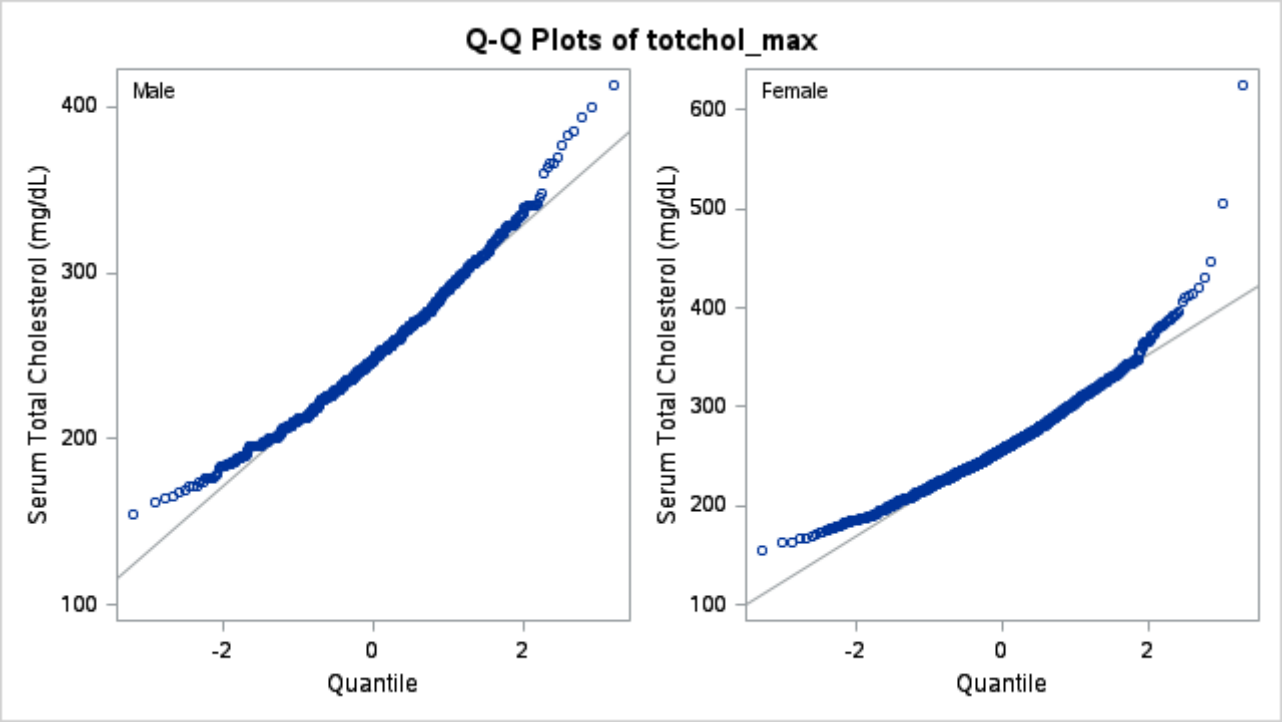
SEX	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Diff (1-2)	Satterthwaite		-10.7570		1.8246		

SEX	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Male		250.6	248.1	253.1	39.3594	37.6597	41.2210
Female		261.3	258.8	263.9	45.6527	43.9213	47.5273
Diff (1-2)	Pooled	-10.7570	-14.4067	-7.1073	43.0427	41.8014	44.3605
Diff (1-2)	Satterthwaite	-10.7570	-14.3351	-7.1789			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	2177	-5.78	<.0001
Satterthwaite	Unequal	2144.7	-5.90	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	1235	942	1.35	<.0001




Q-Q Plots of totchol_max
Male
Female
Serum Total Cholesterol (mg/dL)
Quantile
100
200
300
400
500
600
-2
0
2

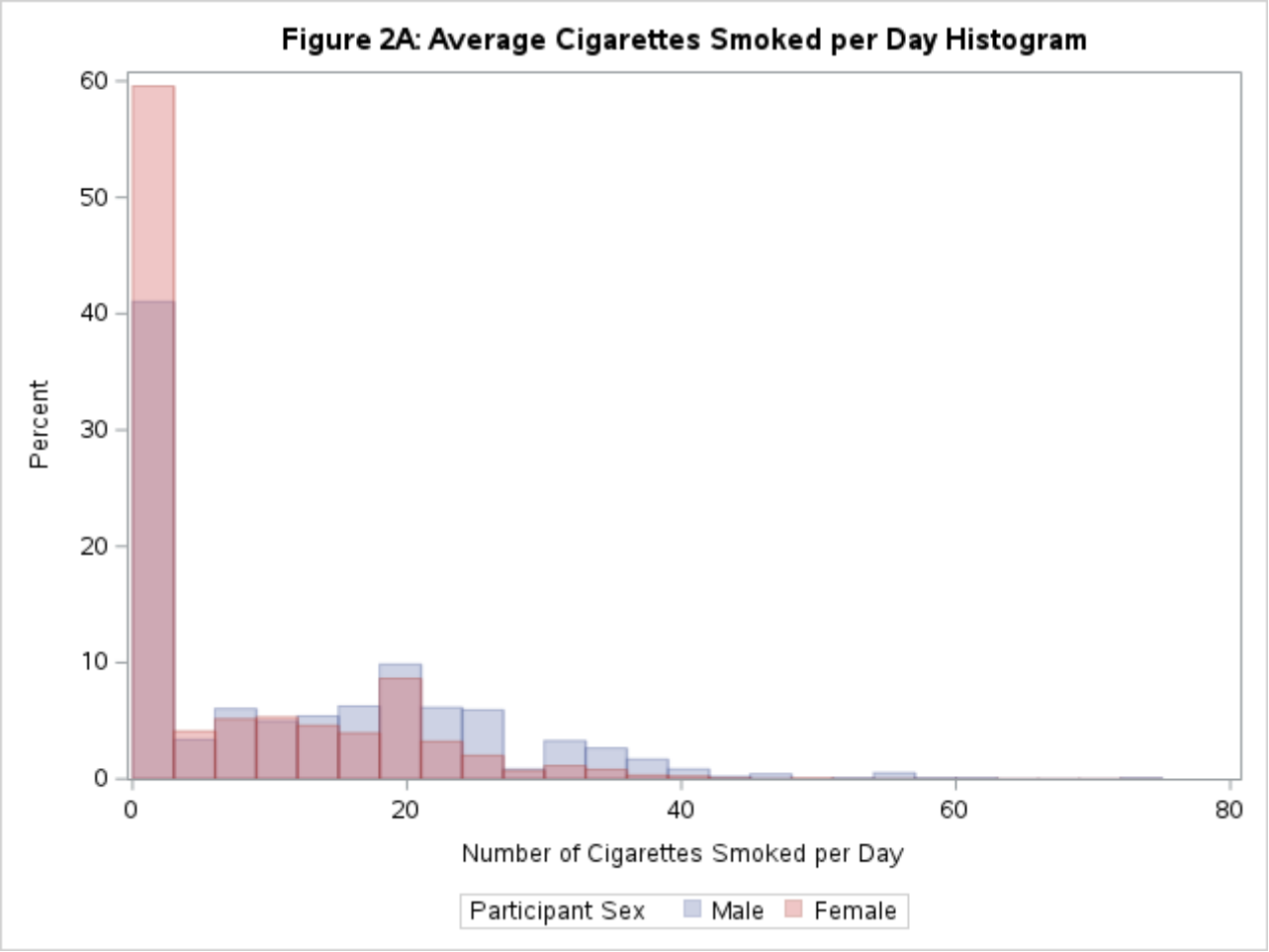


Figure 2A: Average Cigarettes Smoked per Day Histogram
Percent
Number of Cigarettes Smoked per Day
0
10
20
30
40
50
60
0
20
40
60
80
Participant Sex
Male
Female

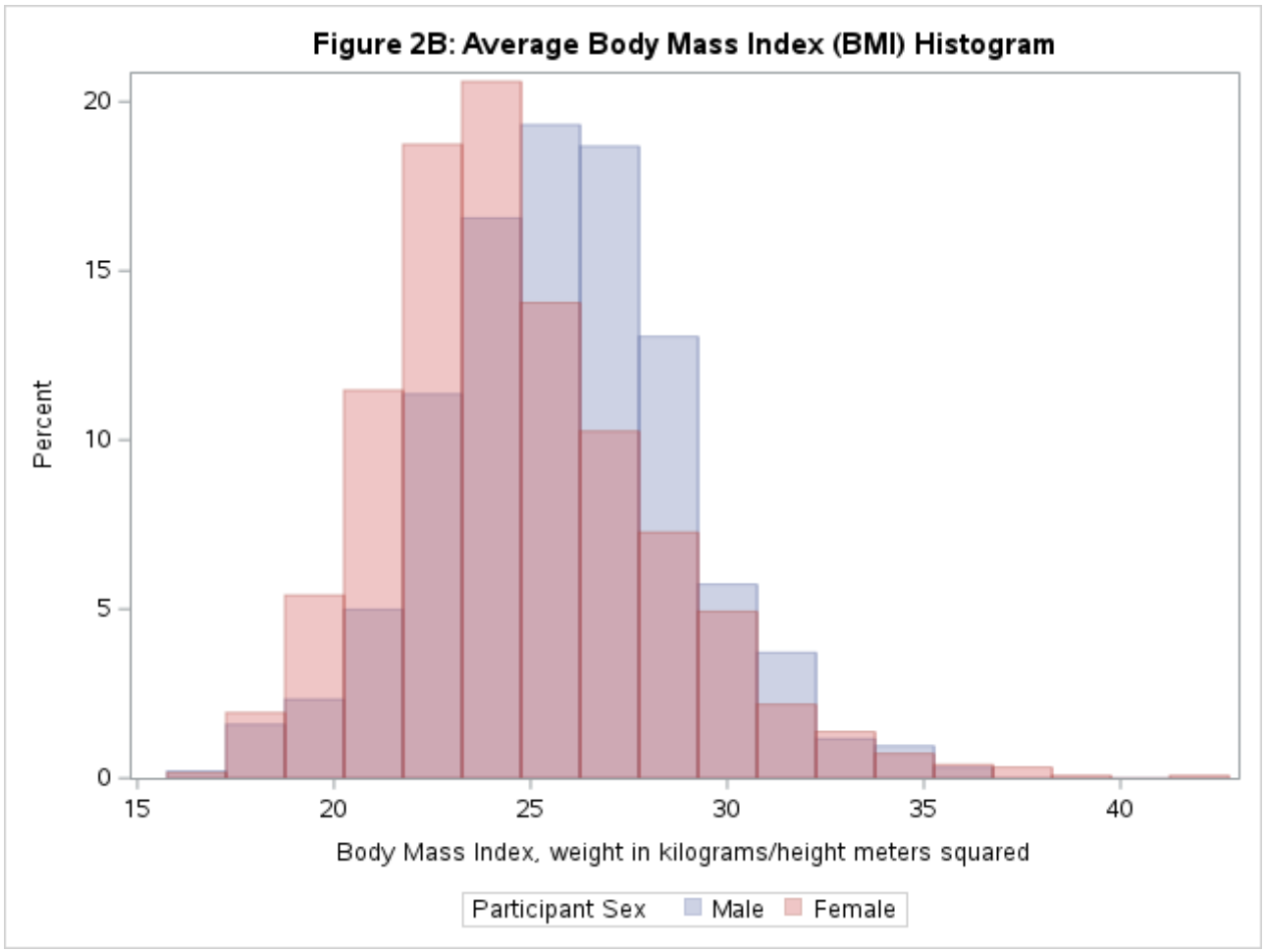


Figure 2B: Average Body Mass Index (BMI) Histogram
Percent
0
5
10
15
20
15
20
25
30
35
40
Body Mass Index, weight in kilograms/height meters squared
Participant Sex
Male
Female

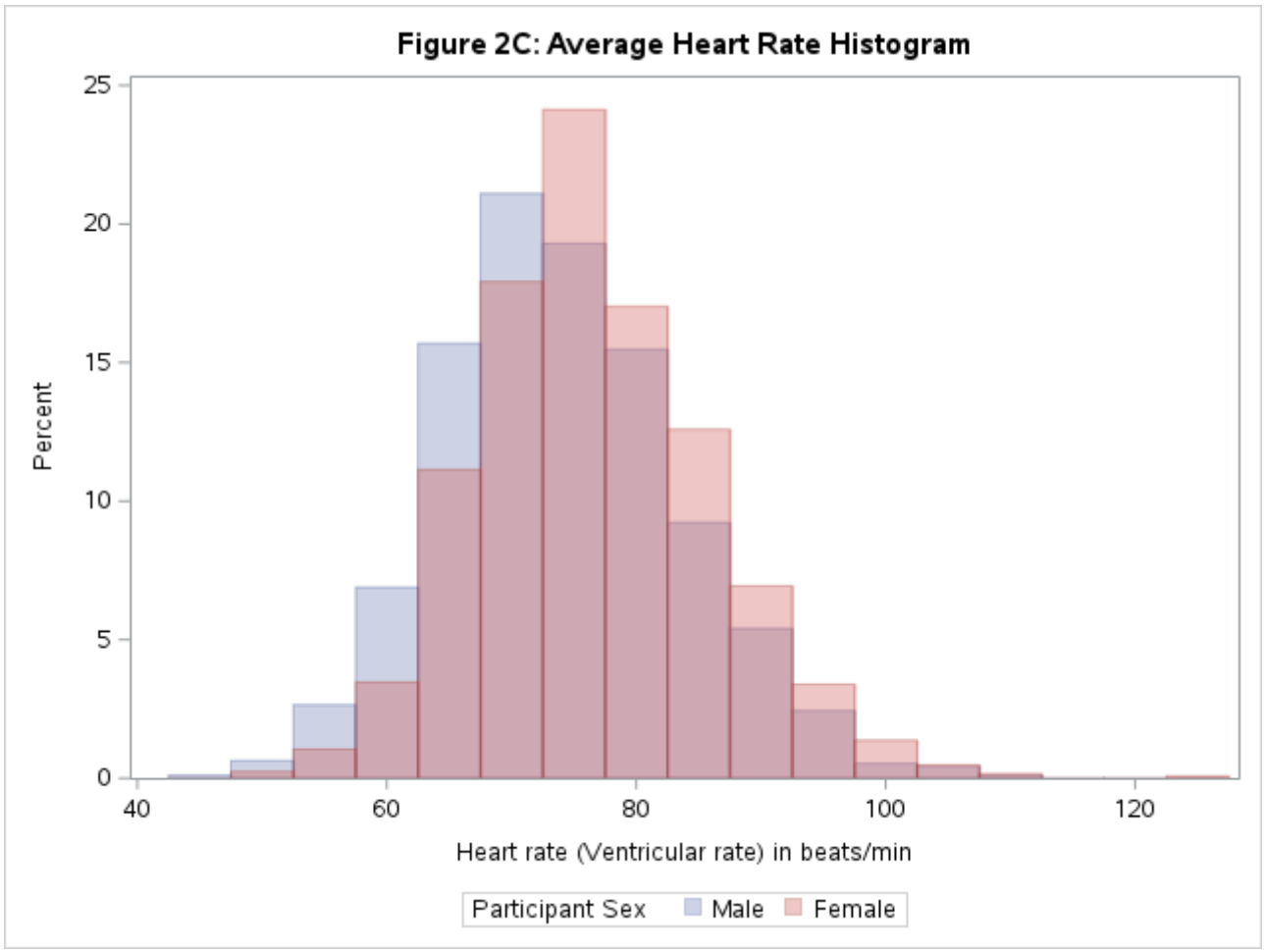


Figure 2C: Average Heart Rate Histogram
Percent
25
20
15
10
5
0
40
60
80
100
120
Heart rate (Ventricular rate) in beats/min
Participant Sex
Male
Female

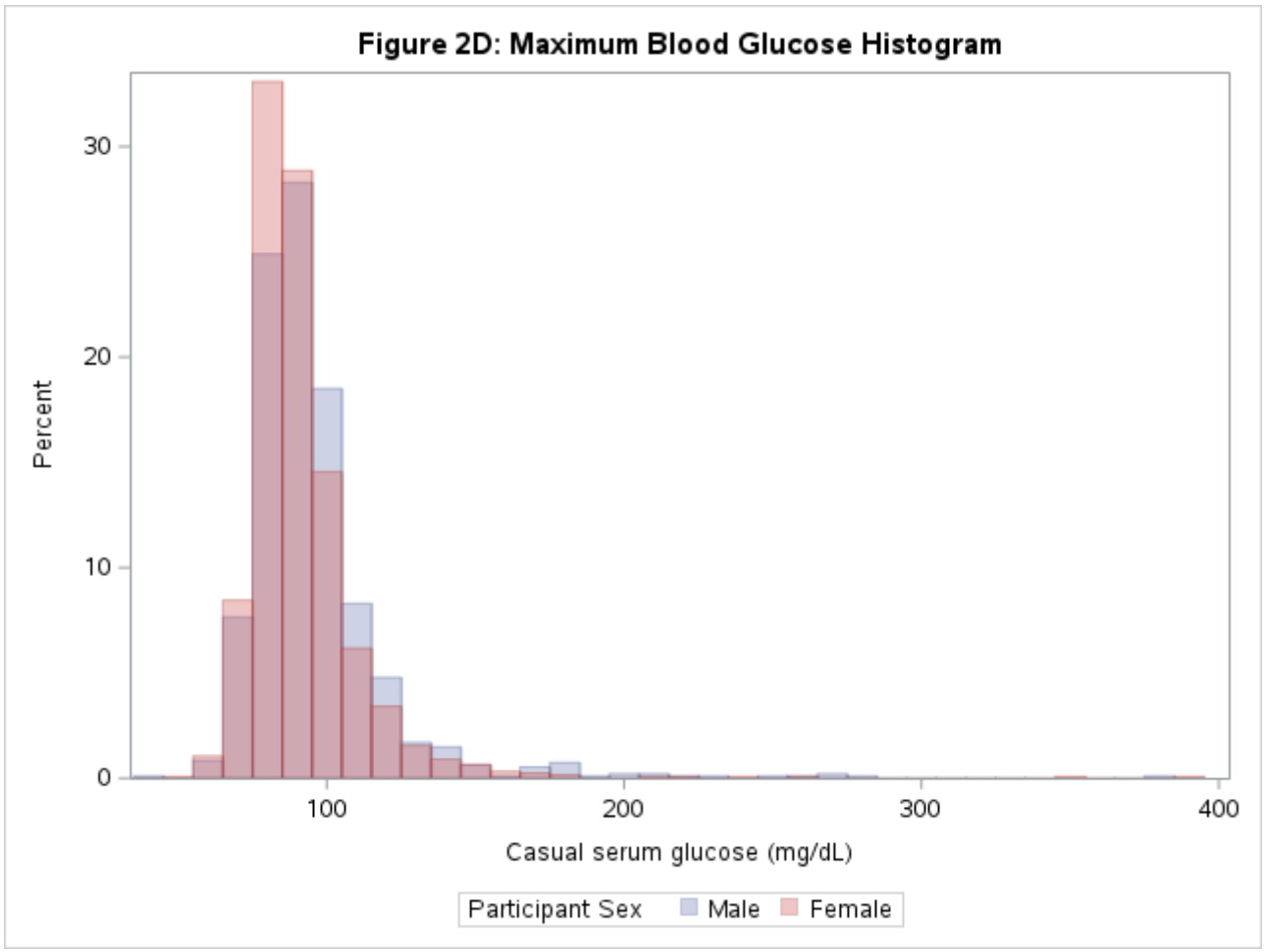


Figure 2D: Maximum Blood Glucose Histogram
Percent
30
20
10
0
100
200
300
400
Casual serum glucose (mg/dL)
Participant Sex
Male
Female

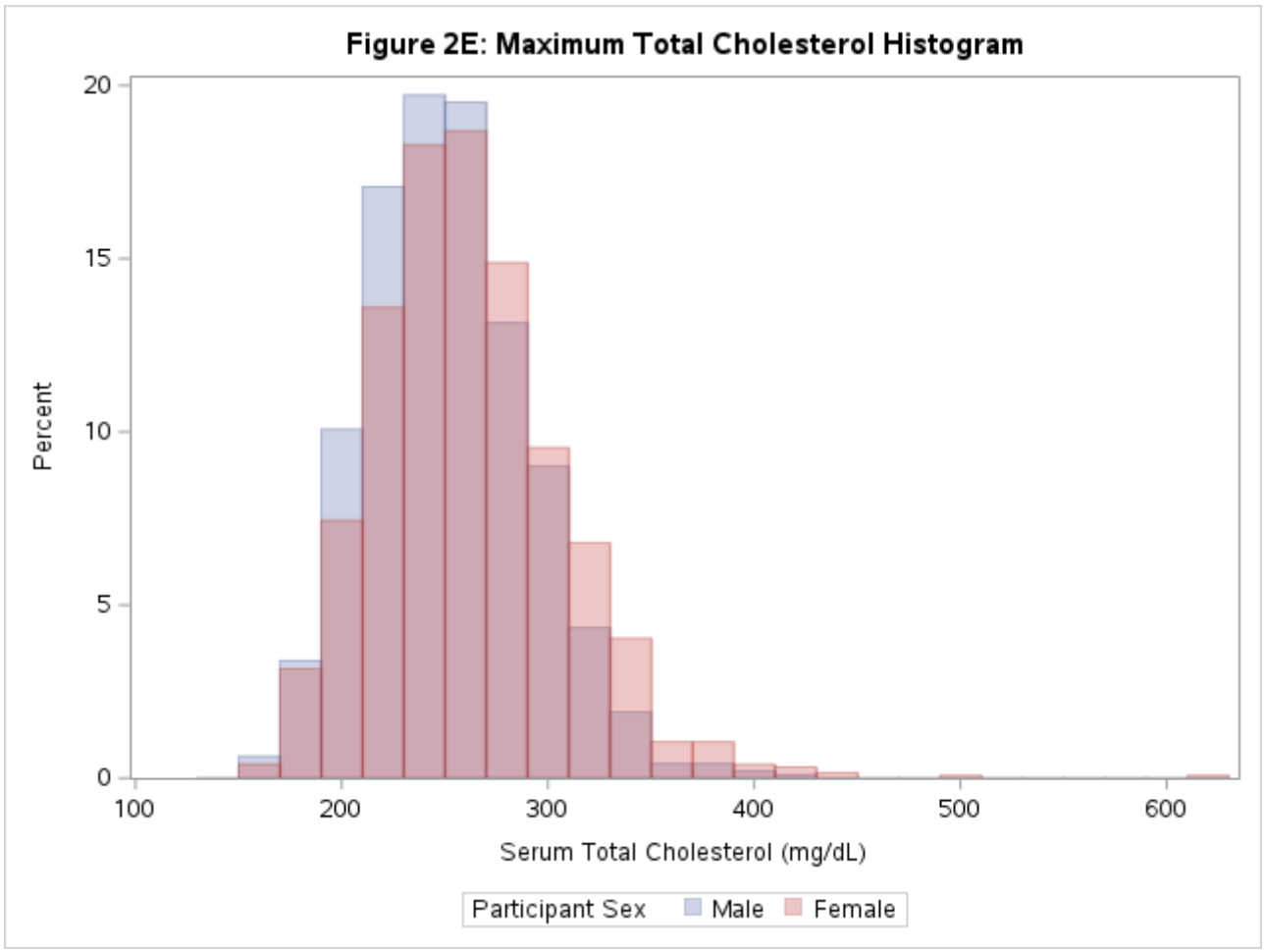
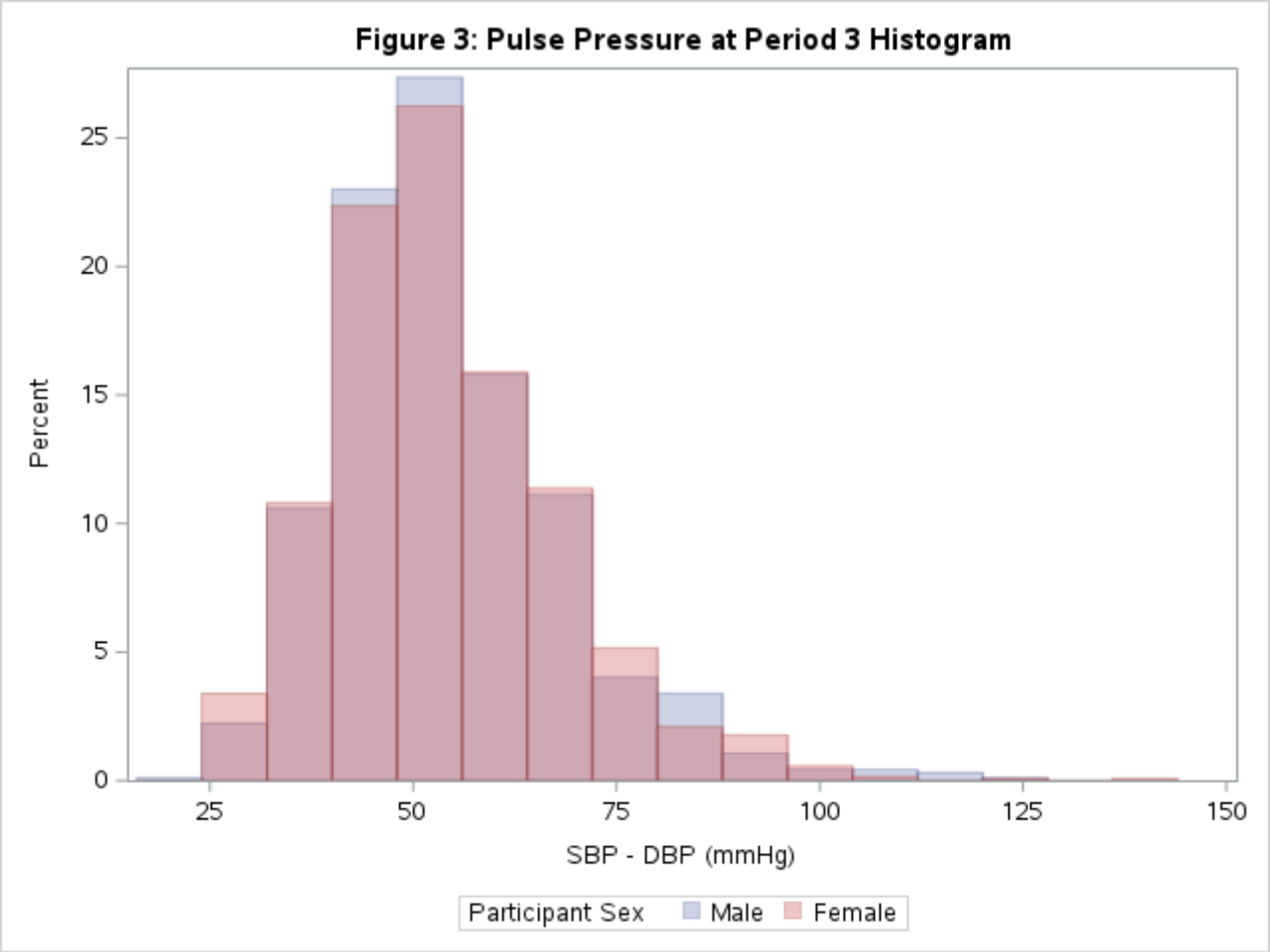


Figure 2E: Maximum Total Cholesterol Histogram
Percent
20
15
10
5
0
100
200
300
400
500
600
Serum Total Cholesterol (mg/dL)
Participant Sex
Male
Female



Question 6: Regression of Pulse Pressure and FRS

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)

Number of Observations Read	2182
Number of Observations Used	2030
Number of Observations with Missing Values	152

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	76583	76583	471.19	<.0001
Error	2028	329612	162.53034		
Corrected Total	2029	406195			

Root MSE	12.74874	**R-Square**	0.1885
Dependent Mean	53.19187	**Adj R-Sq**	0.1881
Coeff Var	23.96746		

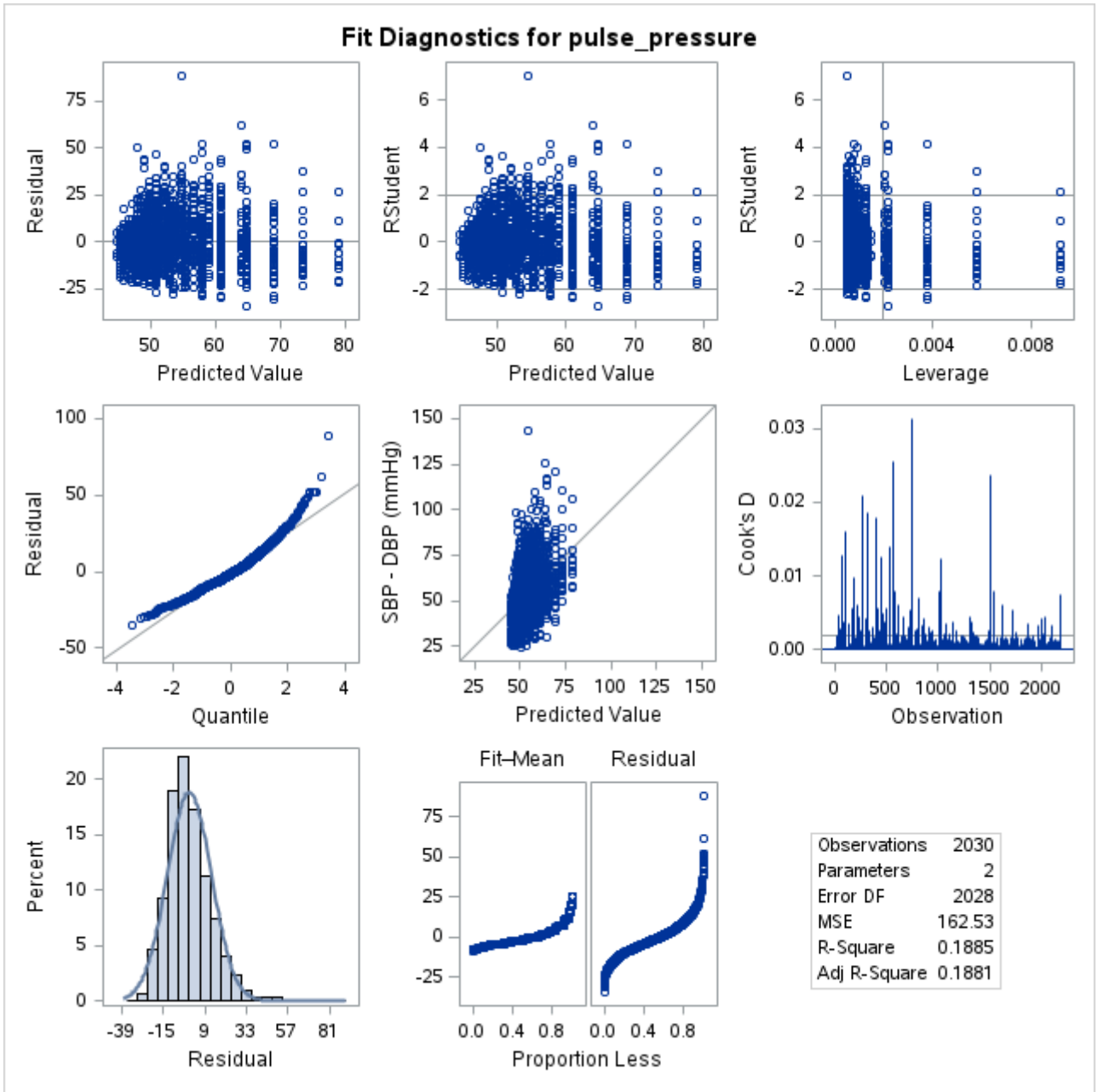
Parameter Estimates

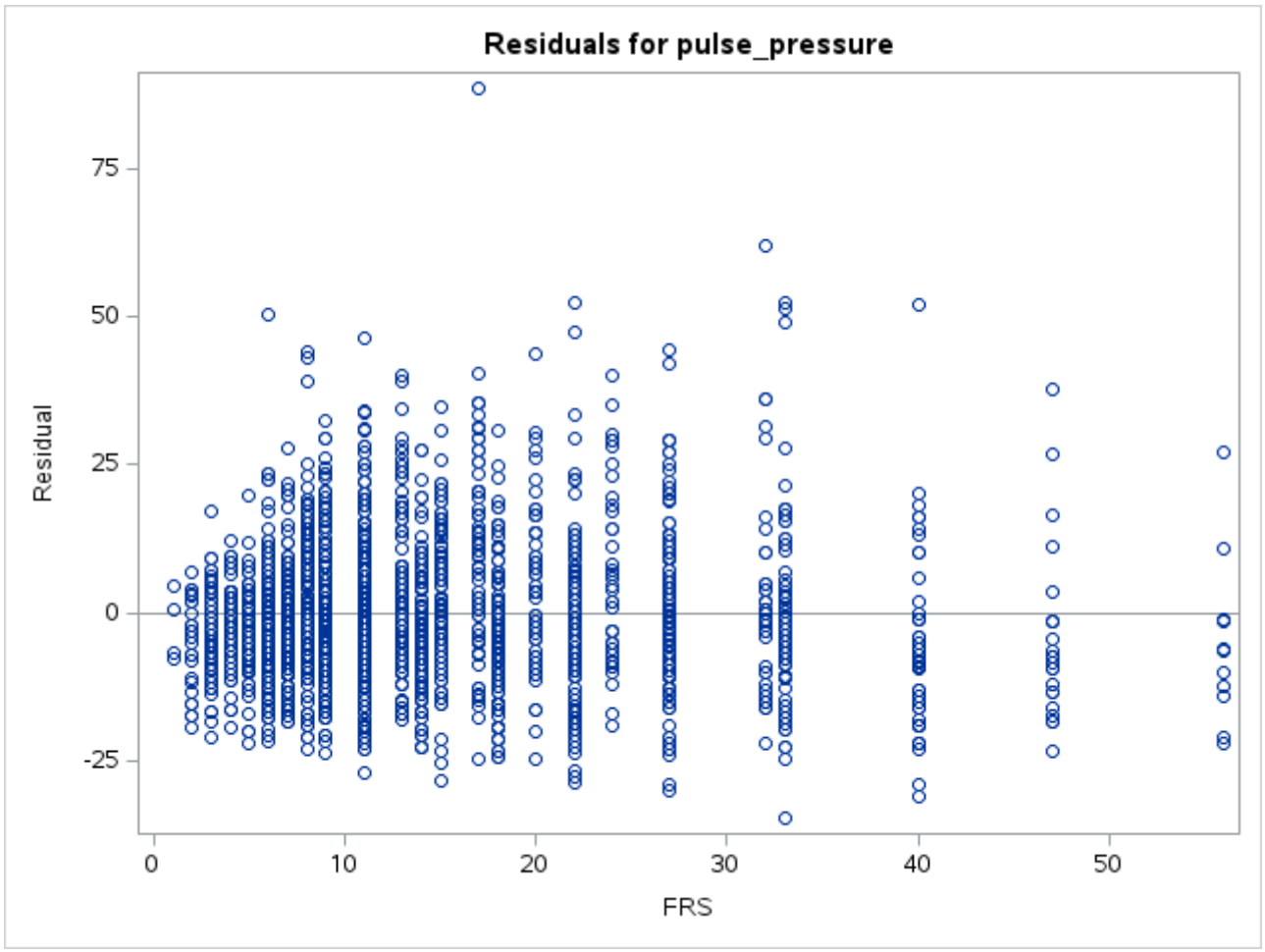
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	43.89972	0.51314	85.55	<.0001

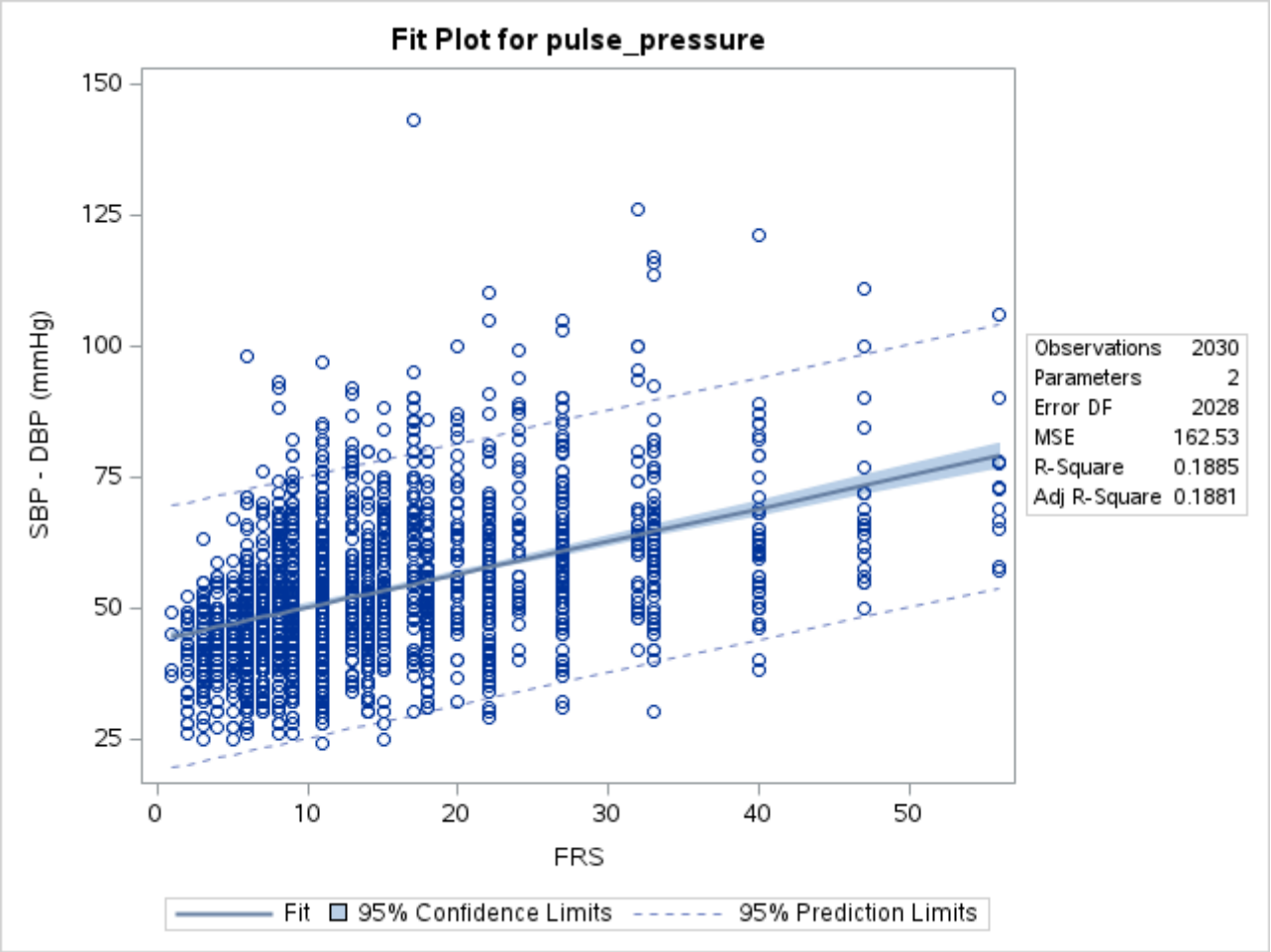
Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
FRS		1	0.62616	0.02885	21.71	<.0001

Question 6: Regression of Pulse Pressure and FRS

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)




Residuals for pulse_pressure
Residual
75
50
25
0
-25
0
10
20
30
40
50
FRS



Question 6: Simple Linear Regression Fit Metrics

The GLMSELECT Procedure

Data Set	WORK.FRM_PERIOD3
Dependent Variable	pulse_pressure
Selection Method	Stepwise
Select Criterion	SBC
Stop Criterion	SBC
Effect Hierarchy Enforced	None

Number of Observations Read	2182
Number of Observations Used	2030

Class Level Information		
Class	**Levels**	**Values**
SEX	2	Female Male

Dimensions	
Number of Effects	2
Number of Parameters	2

Question 6: Simple Linear Regression Fit Metrics

The GLMSELECT Procedure

Stepwise Selection Summary					
Step	Effect Entered	Effect Removed	Number Effects In	BIC	SBC
0	Intercept		1	10760.1106	10764.1724
1	FRS		2	10338.4583*	10347.6859*
* Optimal Value of Criterion					

Selection stopped because all effects are in the final model.

Question 6: Simple Linear Regression Fit Metrics

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 1).

Effects:	Intercept FRS

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	1	76583	76583	471.19
Error	2028	329612	162.53034	
Corrected Total	2029	406195		

Root MSE	12.74874
Dependent Mean	53.19187
R-Square	0.1885
Adj R-Sq	0.1881
AIC	12368
AICC	12368
BIC	10338
C(p)	2.00000
SBC	10348

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	43.899725	0.513138	85.55
FRS	1	0.626160	0.028846	21.71

Question 7: Full Model

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)

Number of Observations Read	2182
Number of Observations Used	2167
Number of Observations with Missing Values	15

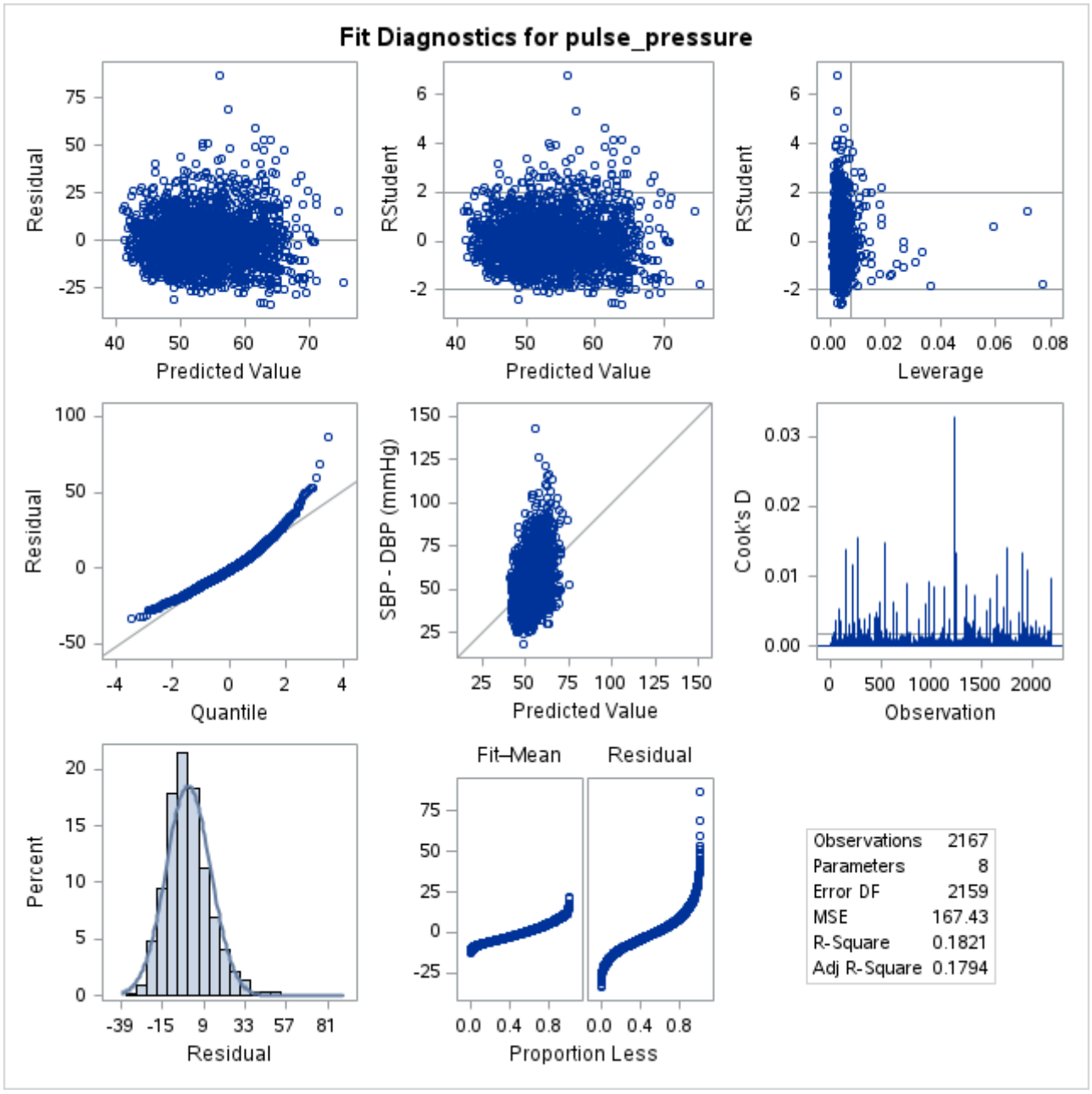
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	80457	11494	68.65	<.0001
Error	2159	361485	167.43181		
Corrected Total	2166	441943			

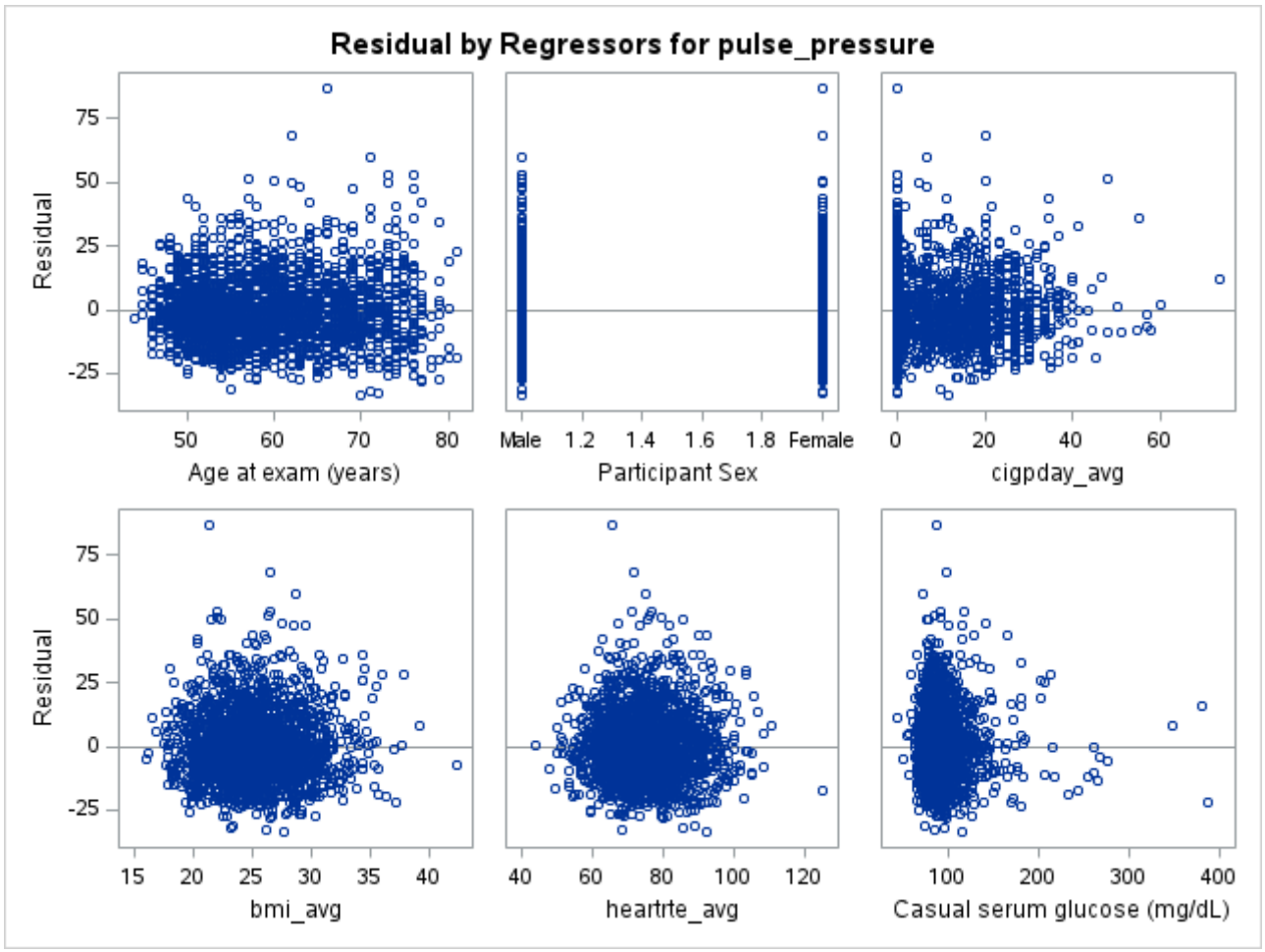
Root MSE	12.93954	R-Square	0.1821
Dependent Mean	53.29488	Adj R-Sq	0.1794
Coeff Var	24.27915		

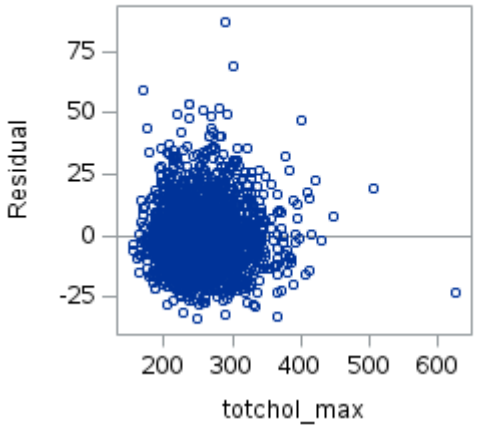
Parameter Estimates									
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate	Squared Semi-partial Corr Type II	Variance Inflation
Intercept	Intercept	1	-12.84582	4.13967	-3.10	0.0019	0	.	0
AGE	Age at exam (years)	1	0.73322	0.03680	19.93	<.0001	0.41035	0.15043	1.11935
SEX	Participant Sex	1	1.42027	0.61421	2.31	0.0209	0.04928	0.00203	1.19894
cigpday_avg	Number of Cigarettes Smoked per Day	1	0.05650	0.02708	2.09	0.0371	0.04407	0.00165	1.17811
bmi_avg	Body Mass Index, weight in kilograms/height meters squared	1	0.40639	0.08464	4.80	<.0001	0.09586	0.00873	1.05202
heartrte_avg	Heart rate (Ventricular rate) in beats/min	1	0.07212	0.03020	2.39	0.0170	0.04830	0.00216	1.07948
glucose_max	Casual serum glucose (mg/dL)	1	0.04020	0.01211	3.32	0.0009	0.06598	0.00418	1.04252
totchol_max	Serum Total Cholesterol (mg/dL)	1	0.00269	0.00660	0.41	0.6836	0.00818	0.00006296	1.06327

Question 7: Full Model

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)


Fit Diagnostics for pulse_pressure
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
SBP - DBP (mmHg)
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 2167
Parameters 8
Error DF 2159
MSE 167.43
R-Square 0.1821
Adj R-Square 0.1794


Residual by Regressors for pulse_pressure
Residual
75
50
25
0
-25
50
60
70
80
Age at exam (years)
Male
1.2
1.4
1.6
1.8
Female
Participant Sex
0
20
40
60
cigpday_avg
Residual
75
50
25
0
-25
15
20
25
30
35
40
bmi_avg
40
60
80
100
120
heartrte_avg
100
200
300
400
Casual serum glucose (mg/dL)



Question 7: Model Selection Using AIC

The GLMSELECT Procedure

Data Set	WORK.Q7
Dependent Variable	pulse_pressure
Selection Method	Stepwise
Select Criterion	AIC
Stop Criterion	AIC
Effect Hierarchy Enforced	None

Number of Observations Read	2182
Number of Observations Used	2167

Class Level Information		
Class	**Levels**	**Values**
SEX	2	Female Male

Dimensions	
Number of Effects	8
Number of Parameters	9

Question 7: Model Selection Using AIC

The GLMSELECT Procedure

Stepwise Selection Summary					
Step	Effect Entered	Effect Removed	Number Effects In	Number Parms In	AIC
0	Intercept		1	1	13694.7511
1	AGE		2	2	13309.8695
2	bmi_avg		3	3	13293.0501
3	heartrte_avg		4	4	13282.5082
4	glucose_max		5	5	13275.3096
5	SEX		6	6	13273.8740
6	cigpday_avg		7	7	13271.4405*
* Optimal Value of Criterion					

Selection stopped at a local minimum of the AIC criterion.

Stop Details				
Candidate For	Effect	Candidate AIC		Compare AIC
Entry	totchol_max	13273.2737	>	13271.4405
Removal	cigpday_avg	13273.8740	>	13271.4405

Question 7: Model Selection Using AIC

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 6).

Effects:	Intercept AGE SEX cigpday_avg bmi_avg heartrte_avg glucose_max

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	6	80429	13405	80.09
Error	2160	361513	167.36717	
Corrected Total	2166	441943		

Root MSE	12.93705
Dependent Mean	53.29488
R-Square	0.1820
Adj R-Sq	0.1797
AIC	13271
AICC	13272
SBC	11142

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-11.046751	3.883897	-2.84
AGE	1	0.736087	0.036110	20.38
SEX Female	1	1.456599	0.607592	2.40

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
SEX Male	0	0	.	.
cigpday_avg	1	0.056913	0.027059	2.10
bmi_avg	1	0.408736	0.084424	4.84
heartrte_avg	1	0.072831	0.030145	2.42
glucose_max	1	0.040266	0.012106	3.33

Question 7: Model Selection Using BIC

The GLMSELECT Procedure

Data Set	WORK.Q7
Dependent Variable	pulse_pressure
Selection Method	Stepwise
Select Criterion	BIC
Stop Criterion	BIC
Effect Hierarchy Enforced	None

Number of Observations Read	2182
Number of Observations Used	2167

Class Level Information		
Class	Levels	Values
SEX	2	Female Male

Dimensions	
Number of Effects	8
Number of Parameters	9

Question 7: Model Selection Using BIC

The GLMSELECT Procedure

Stepwise Selection Summary					
Step	Effect Entered	Effect Removed	Number Effects In	Number Parms In	BIC
0	Intercept		1	1	11527.3290
1	AGE		2	2	11142.7946
2	bmi_avg		3	3	11125.9900
3	heartrte_avg		4	4	11115.4742
4	glucose_max		5	5	11108.3095
5	SEX		6	6	11106.8929
6	cigpday_avg		7	7	11104.4913*
* Optimal Value of Criterion					

Selection stopped at a local minimum of the BIC criterion.

Stop Details				
Candidate For	Effect	Candidate BIC		Compare BIC
Entry	totchol_max	11106.3330	>	11104.4913
Removal	cigpday_avg	11106.8929	>	11104.4913

Question 7: Model Selection Using BIC

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 6).

Effects:	Intercept AGE SEX cigpday_avg bmi_avg heartrte_avg glucose_max

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	6	80429	13405	80.09
Error	2160	361513	167.36717	
Corrected Total	2166	441943		

Root MSE	12.93705
Dependent Mean	53.29488
R-Square	0.1820
Adj R-Sq	0.1797
AIC	13271
AICC	13272
BIC	11104
C(p)	6.16618
SBC	11142

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-11.046751	3.883897	-2.84
AGE	1	0.736087	0.036110	20.38
SEX Female	1	1.456599	0.607592	2.40
SEX Male	0	0	.	.
cigpday_avg	1	0.056913	0.027059	2.10
bmi_avg	1	0.408736	0.084424	4.84
heartrte_avg	1	0.072831	0.030145	2.42
glucose_max	1	0.040266	0.012106	3.33

Question 7: Model Selection Using Mallows C(p)

The GLMSELECT Procedure

Data Set	WORK.Q7
Dependent Variable	pulse_pressure
Selection Method	Stepwise
Select Criterion	C(p)

Stop Criterion	C(p)
Effect Hierarchy Enforced	None

Number of Observations Read	2182
Number of Observations Used	2167

Class Level Information		
Class	Levels	Values
SEX	2	Female Male

Dimensions	
Number of Effects	8
Number of Parameters	9

Question 7: Model Selection Using Mallows C(p)

The GLMSELECT Procedure

Stepwise Selection Summary					
Step	Effect Entered	Effect Removed	Number Effects In	Number Parms In	CP
0	Intercept		1	1	474.5377
1	AGE		2	2	44.9633
2	bmi_avg		3	3	27.8713
3	heartrte_avg		4	4	17.2393
4	glucose_max		5	5	10.0211
5	SEX		6	6	8.5882
6	cigpday_avg		7	7	6.1662*
* Optimal Value of Criterion					

Selection stopped at a local minimum of the C(p) criterion.

Stop Details				
Candidate For	Effect	Candidate C(p)		Compare C(p)
Entry	totchol_max	8.0000	>	6.1662
Removal	cigpday_avg	8.5882	>	6.1662

Question 7: Model Selection Using Mallows C(p)

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 6).

Effects:	Intercept AGE SEX cigpday_avg bmi_avg heartrte_avg glucose_max

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	6	80429	13405	80.09
Error	2160	361513	167.36717	

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Corrected Total	2166	441943		

Root MSE	12.93705
Dependent Mean	53.29488
R-Square	0.1820
Adj R-Sq	0.1797
AIC	13271
AICC	13272
BIC	11104
C(p)	6.16618
SBC	11142

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-11.046751	3.883897	-2.84
AGE	1	0.736087	0.036110	20.38
SEX Female	1	1.456599	0.607592	2.40
SEX Male	0	0	.	.
cigpday_avg	1	0.056913	0.027059	2.10
bmi_avg	1	0.408736	0.084424	4.84
heartrte_avg	1	0.072831	0.030145	2.42
glucose_max	1	0.040266	0.012106	3.33

Question 7: Model Selection Using Adjusted R-Squared

The GLMSELECT Procedure

Data Set	WORK.Q7
Dependent Variable	pulse_pressure
Selection Method	Stepwise
Select Criterion	Adj R-Sq
Stop Criterion	Adj R-Sq
Effect Hierarchy Enforced	None

Number of Observations Read	2182
Number of Observations Used	2167

Class Level Information		
Class	Levels	Values
SEX	2	Female Male

Dimensions	
Number of Effects	8
Number of Parameters	9

Question 7: Model Selection Using Adjusted R-Squared

The GLMSELECT Procedure

Stepwise Selection Summary					
Step	Effect Entered	Effect Removed	Number Effects In	Number Parms In	Adjusted R-Square
0	Intercept		1	1	0.0000
1	AGE		2	2	0.1631
2	bmi_avg		3	3	0.1700
3	heartrte_avg		4	4	0.1744
4	glucose_max		5	5	0.1775
5	SEX		6	6	0.1784
6	cigpday_avg		7	7	0.1797*
* Optimal Value of Criterion					

Selection stopped at a local maximum of the AdjRSq criterion.

Stop Details				
Candidate For	Effect	Candidate Adj-RSq		Compare Adj-RSq
Entry	totchol_max	0.1794	<	0.1797
Removal	cigpday_avg	0.1784	<	0.1797

Question 7: Model Selection Using Adjusted R-Squared

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 6).

Effects:	Intercept AGE SEX cigpday_avg bmi_avg heartrte_avg glucose_max

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	6	80429	13405	80.09
Error	2160	361513	167.36717	
Corrected Total	2166	441943		

Root MSE	12.93705
Dependent Mean	53.29488
R-Square	0.1820
Adj R-Sq	0.1797
AIC	13271
AICC	13272
SBC	11142

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-11.046751	3.883897	-2.84
AGE	1	0.736087	0.036110	20.38
SEX Female	1	1.456599	0.607592	2.40

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
SEX Male	0	0	.	.
cigpday_avg	1	0.056913	0.027059	2.10
bmi_avg	1	0.408736	0.084424	4.84
heartrte_avg	1	0.072831	0.030145	2.42
glucose_max	1	0.040266	0.012106	3.33

Question 7: Final Model

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)

Number of Observations Read	2182
Number of Observations Used	2168
Number of Observations with Missing Values	14

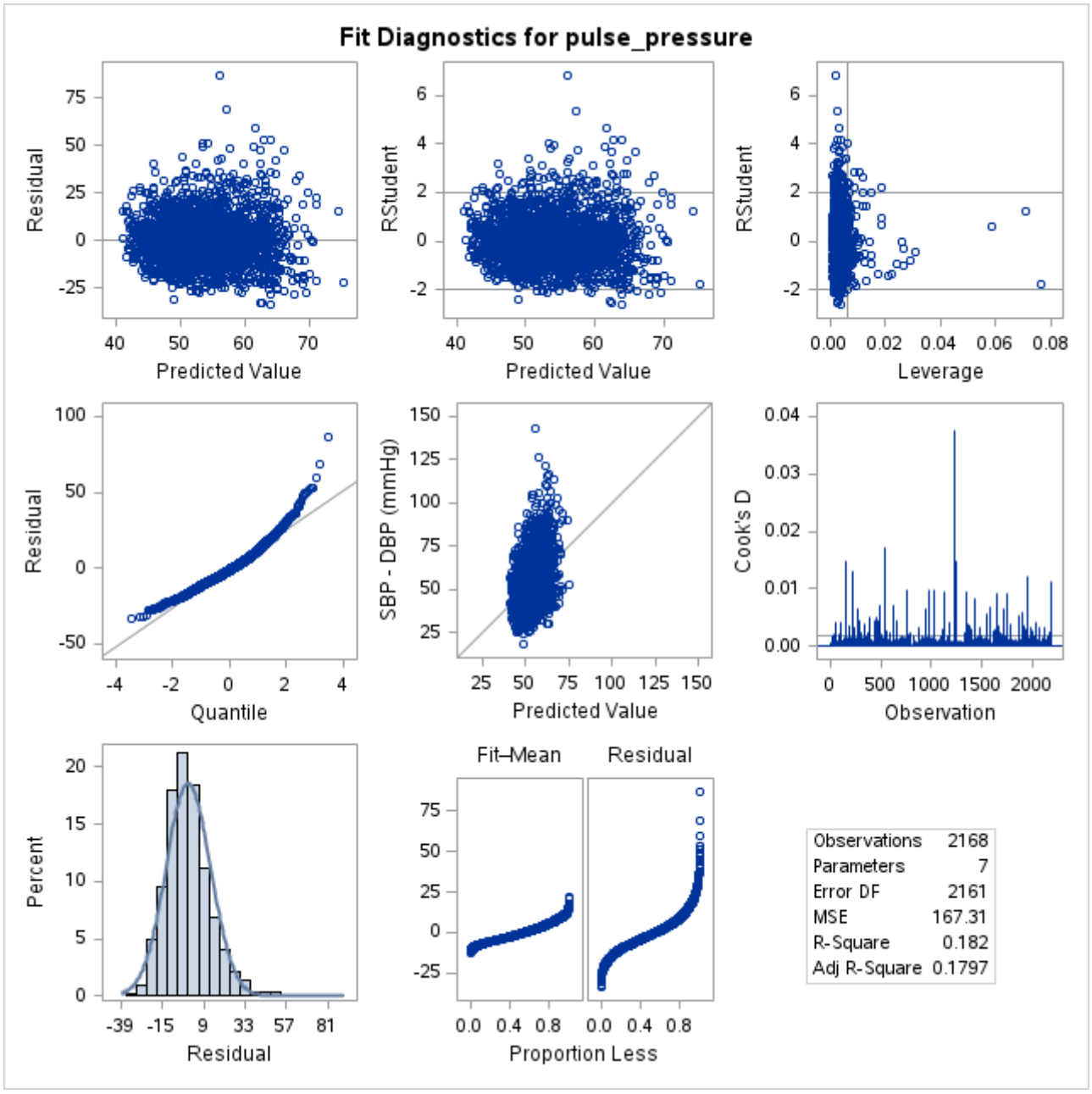
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	80422	13404	80.11	<.0001
Error	2161	361560	167.31137		
Corrected Total	2167	441982			

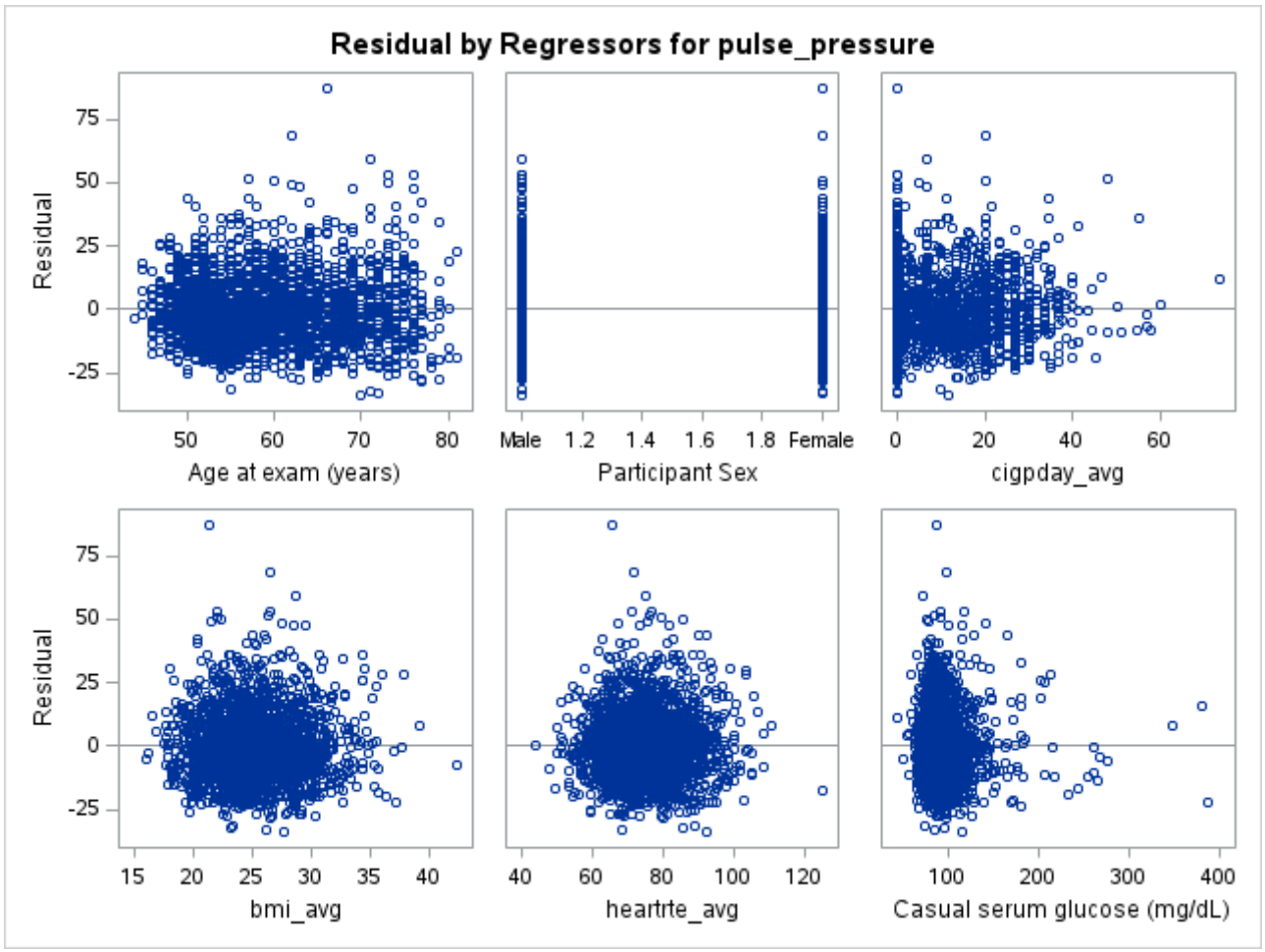
Root MSE	12.93489	R-Square	0.1820
Dependent Mean	53.29197	Adj R-Sq	0.1797
Coeff Var	24.27174		

Parameter Estimates									
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate	Squared Semi-partial Corr Type II	Variance Inflation
Intercept	Intercept	1	-12.51556	4.05200	-3.09	0.0020	0	.	0
AGE	Age at exam (years)	1	0.73589	0.03610	20.38	<.0001	0.41183	0.15728	1.07834
SEX	Participant Sex	1	1.45074	0.60739	2.39	0.0170	0.05035	0.00216	1.17373
cigpday_avg	Number of Cigarettes Smoked per Day	1	0.05661	0.02705	2.09	0.0365	0.04416	0.00166	1.17632
bmi_avg	Body Mass Index, weight in kilograms/height meters squared	1	0.41030	0.08436	4.86	<.0001	0.09686	0.00896	1.04758
heartrte_avg	Heart rate (Ventricular rate) in beats/min	1	0.07282	0.03014	2.42	0.0158	0.04876	0.00221	1.07599
glucose_max	Casual serum glucose (mg/dL)	1	0.04020	0.01210	3.32	0.0009	0.06598	0.00418	1.04231

Question 7: Final Model

The REG Procedure
Model: MODEL1
Dependent Variable: pulse_pressure SBP - DBP (mmHg)


Fit Diagnostics for pulse_pressure
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
SBP - DBP (mmHg)
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 2168
Parameters 7
Error DF 2161
MSE 167.31
R-Square 0.182
Adj R-Square 0.1797


Residual by Regressors for pulse_pressure
Residual
75
50
25
0
-25
50
60
70
80
Age at exam (years)
Male
1.2
1.4
1.6
1.8
Female
Participant Sex
0
20
40
60
cigpday_avg
15
20
25
30
35
40
bmi_avg
40
60
80
100
120
heartrte_avg
100
200
300
400
Casual serum glucose (mg/dL)