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PHC 6053 – Assignment 8

Part 1: SAS outputs (for each question

Part 2: SAS and R code

Part 3: Full SAS output

*Note: I used R as a supplement to SAS for this assignment. I did the entirety of the assignment in both, and code is side by side. Because I have find certain dataset manipulations to be hard in SAS (subsetting, dealing with categorical data, etc.), I relied largely on R for number 5. I'm worse at SAS than I am at R, and make a note of when I know my SAS output is incorrect (but my R output is correct)

PART 1: SAS OUTPUT FOR HOMEWORK

1. NA

2. **AGE**

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-5.4506	0.7277	56.0984	<.0001
AGE	1	0.0877	0.0119	54.0266	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
AGE	1.092	1.066	1.118

BMI

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-2.0949	0.7054	8.8191	0.0030
BMI	1	0.0745	0.0268	7.7077	0.0055

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
BMI	1.077	1.022	1.136

BMIGROUP

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-0.4875	0.1439	11.4827	0.0007
BMIGROUP	3	1	0.5323	0.1966	7.3334	0.0068
BMIGROUP	4	1	0.6698	0.2860	5.4840	0.0192

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
BMIGROUP 3 vs 2	1.703	1.158	2.503
BMIGROUP 4 vs 2	1.954	1.115	3.423

Given my initial difficulty with this one, I wanted to confirm my answer in R.

Category	Estimate	Std. Error	Z	P	OR	95% CI
Intercept	-0.4875	0.1439	-3.389	0.0007	0.614	0.462-0.812
Overweight	0.5323	0.1966	2.708	0.006768	1.703	1.160-2.509
Obese	0.6698	0.2860	2.342	0.0192	1.954	1.117-3.440

SEX

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.0382	0.2990	0.0163	0.8983
SEX	1	-0.0740	0.1821	0.1651	0.6845

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
SEX	0.929	0.650	1.327

BPMEDS

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.3995	0.1000	15.9502	<.0001
BPMEDS	1	1.6771	0.2919	33.0049	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
BPMEDS	5.350	3.019	9.481

PREVSTRK

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.2138	0.0919	5.4094	0.0200
PREVSTRK	1	2.8526	1.0391	7.5368	0.0060

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
PREVSTRK	17.332	2.262	132.832

3.

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-2.4486	0.7671	10.1885	0.0014
BMI		1	0.0791	0.0293	7.3009	0.0069
BPMEDS	1	1	7.4604	2.7204	7.5207	0.0061
intBMI_BPMEDS		1	-0.2158	0.0984	4.8141	0.0282

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
BMI	1.082	1.022	1.146
BPMEDS 1 vs 0	>999.999	8.402	>999.999
intBMI_BPMEDS	0.806	0.665	0.977

4.

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-8.5994	1.2702	45.8354	<.0001
AGE		1	0.0884	0.0129	47.0424	<.0001
SEX	2	1	-0.1323	0.2070	0.4085	0.5227
PREVSTRK	1	1	1.9337	1.0817	3.1959	0.0738
BMI		1	0.1124	0.0324	12.0083	0.0005
BPMEDS	1	1	8.1861	2.6862	9.2868	0.0023
intBMI_BPMEDS		1	-0.2479	0.0974	6.4735	0.0109

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
AGE	1.092	1.065	1.120
SEX 2 vs 1	0.876	0.584	1.314
PREVSTRK 1 vs 0	6.915	0.830	57.610
BMI	1.119	1.050	1.192
BPMEDS 1 vs 0	>999.999	18.563	>999.999
intBMI_BPMEDS	0.780	0.645	0.945

5.

Variable	**Unadjusted OR (95% CI)**	**Adjusted OR (95% CI)**
AGE	1.092 (1.066-1.118)	1.092 (1.066-1.121)
SEX	0.929 (0.650-1.327)	0.876 (0.583-1.314)
PREVSTRK	17.332 (2.262-132.832)	6.923 (0.583-1.314)
BMI (BPMEDS=No)	1.082 (1.022-1.470)	1.116 (1.048-1.190)
BMI (BPMEDS=Yes)	0.872 (0.719-1.044)	0.866 (0.713-1.037)

(The following table uses values obtained from the models from question 2 only)

Variable	**Unadjusted OR (95% CI)**
BMI (single variable model)	1.077 (1.023-1.136)
BPMEDS (single variable model)	5.350 (3.084-9.746)
Obese vs. Normal	1.954 (1.117-3.344)
Overweight vs. Normal	1.703 (1.160-2.509)