Philip Morris USA
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THE EFFECT OF DEMOGRAPHIC FACTORS AND SMOKING ON THE RISK FACTORS OF CARDIOVASCULAR DISEASE IN THE TOTAL EXPOSURE STUDY – LOGISTIC STEPWISE REGRESSION ANALYSIS

DRAFT STATISTICAL REPORT

Philip Morris Clinical Evaluation
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1. Introduction

The Total Exposure Study was a multi-center study designed to determine the exposure of adult U.S. smokers to cigarette smoke. The main objective of the study was to estimate the exposure of U.S. adult cigarette smokers, males and females, 21 years of age and older, to cigarette smoke constituents using selected biomarkers. Using a cross-sectional design, subjects who were in generally good health were enrolled in 39 research sites across the U.S.

Another objective of the Total Exposure Study was to investigate the relationship between selected biomarkers of potential harm (BOPH) and cigarette smoking. While cigarette smoking is obviously an important factor to consider for biomarkers of potential harm, there are other demographic factors that may be affecting the variability within the biomarkers of potential harm. Thus, the objective of this analysis was to investigate the relationship between selected biomarkers of potential harm and cigarette smoking and selected demographic factors.

2. Study Objectives

The primary objective of this analysis was to determine whether the demographic variables, in addition to cigarette smoking, are predictive of the change in BOPS that are associated with the increase in risk of cardiovascular disease (CVD). The analysis will be done for each individual biomarker.

3. Statistical Methods

A logistic regression model was used to examine the effects of cigarette smoking and various demographic factors on the selected biomarkers of potential harm and to determine the odds ratios for each of the estimated variable parameters. The dependent variable was the probability of CVD risk, which was set as 0 for low risk and 1 for high risk. The independent variables were gender, age, BMI, race, number of cigarettes smoked per day or nicotine equivalents (mg/24h), and number of years smoking.

A stepwise selection method was used in the analysis in order to find the 'best' model. As the variables were added in to the model they had to be significant at the 0.15 level, while after the variable was added any variables which are not significant at the 0.10 level were removed.

There were some categorical variables within the model and they were coded individually. Gender was categorized as 1 for males and 0 for females. For the age categories, middle age subjects or category 2 (35-49 years) was coded as 1 0, older age subjects or category 3 (50+ years) was coded as 0 1, and younger age subjects or category 1 (21-34 years) was coded as 0 0. Race was classified as 1 for whites and 0 for blacks.

Finally, BMI was categorized as 1 for subjects with a BMI ≥ 25 and a 0 for subjects with a BMI < 25. Number of cigarettes smoked per day, nicotine equivalents (mg/24h), and number of years smoking were all continuous variables. The effect of smoking is described by either the number of cigarettes butts returned per day or 24 hours urinary excretion of nicotine equivalents. Both smokers and nonsmokers were included in the models. SAS (Version 9.1.3) was used to perform the statistical analysis.

The biomarkers of potential harm considered in the logistic regression model were total cholesterol (mg/dL), hs C-reactive protein (mg/L), diastolic blood pressure (mmHg), fibrinogen (mg/dL), HDL cholesterol (mg/dL), LDL cholesterol (mg/dL), heart rate (bpm), systolic blood pressure (mmHg), and triglycerides (mg/dL). These biomarkers were chosen because a cutoff level for risk of CVD has been established in the medical literature. Each biomarker of potential harm has a different 'cutoff' level which determines whether a subject is at higher risk for cardiovascular disease; the following cutoff levels were used within the logistic regression analysis, based on published medical literature:

	Cut-off Level	
Biomarker	**1 = High Risk**	**0 = Low Risk**
Total Cholesterol	≥ 240 mg/dL	< 240 mg/dL
hs C-Reactive Protein	> 3 mg/dL	≤ 3 mg/dL
Diastolic Blood Pressure	≥ 90 mmHg	< 90 mmHg
Fibrinogen	≥ 300 mg/dL	< 300 mg/dL
HDL Cholesterol	< 40 mg/dL	≥ 40 mg/dL
LDL Cholesterol	≥ 160 mg/dL	< 160 mg/dL
Heart Rate	≥ 100 bpm	< 100 bpm
Systolic Blood Pressure	≥ 140 mmHg	< 140 mmHg
Triglycerides	≥ 200 mg/dL	< 200 mg/dL

4. Results

4.1 Number of cigarettes smoked per day as a factor for daily cigarette consumption

Total Cholesterol (mg/dL) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and number of cigarettes smoked per day were included in the final model. Age category 2 vs. 1, age category 3 vs. 1, and BMI were highly significant (p-value <.0001) while gender, race, and number of cigarettes smoked per day had corresponding p-values of 0.0954, 0.0011, and 0.0006. The model accounts for 9% of the total variability in total cholesterol. Middle age subjects are 2.55 times more likely to have a high risk level of total cholesterol than

younger aged subjects. Older aged subjects are 4.05 times more likely to have a high risk level of total cholesterol than younger aged subjects. Males are 0.86 times less likely to have a high risk level of hs C-reactive protein than females. Subjects with BMI > 25 are 1.87 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 1.58 times more likely to have a high risk level of total cholesterol as subjects who are black. Also, the effect of daily cigarette consumption is statistically significant while the effect of number of years smoking is not statistically significant (Table 1).

hs C-Reactive Protein (mg/L) – Age category 3 vs. 1, gender, BMI, race, number of cigarettes smoked per day, and number of years smoking were included in the final model. Of these factors, age category 3 vs. 1, gender, and BMI were highly significant (p-value <.0001) while the remaining factors had p-values from 0.0002 to 0.0266. The model accounts for 14% of the total variability in hs C-reactive protein. Older aged subjects are 1.43 times more likely to have a high risk level of hs C-reactive protein than younger aged subjects. Males are 0.52 times less likely to have a high risk level of hs C-reactive protein than females. Subjects with BMI > 25 are 3.45 times more likely to have a high risk level of total hs C-reactive protein than subjects with BMI ≤ 25. Subjects who are white are 0.70 times less likely to have a high risk level of hs C-reactive protein than subjects who are black. The effect of daily cigarette consumption is statistically significant and the effect of number of years smoking is statistically significant (Table 2).

Diastolic Blood Pressure (mmHg) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, and race were included in the final model. Of these factors, all were highly significant (p-value <.0001). The model accounts for 13% of the total variability in diastolic blood pressure. Middle age subjects are 3.27 times more likely to have a high risk level of diastolic blood pressure than younger aged subjects. Older aged subjects are 3.65 times more likely to have a high risk level of diastolic blood pressure than younger aged subjects. Males are 2.07 times more likely to have a high risk level of diastolic blood pressure than females. Subjects with BMI > 25 are 2.75 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Also, subjects who are white are 0.49 less likely to have a high risk level of diastolic blood pressure than subjects who are black. The effect of daily cigarette consumption is not statistically significant and the effect of number of years smoking is not statistically significant (Table 3).

Fibrinogen (mg/dL) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, number of cigarettes smoked per day, and number of years smoking were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for age category 2 vs. 1 and race which had p-values 0.0008 and 0.0018, respectively. The model accounts for 17% of the total variability in fibrinogen. Middle age subjects are 1.32 times more likely to have a high risk level of fibrinogen than younger aged subjects. Older aged subjects are 2.50 times more likely to have a high risk level of fibrinogen than younger aged subjects. Males are 0.50 times less likely to have a high risk level of fibrinogen than females. Subjects with BMI > 25 are 2.31 times more likely to have a high risk

level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 0.75 less likely to have a high risk level of fibrinogen than subjects who are black. The effect of daily cigarette consumption is statistically significant and the effect of number of years smoking is statistically significant (Table 4).

HDL Cholesterol (mg/dL) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and number of cigarettes smoked per day were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for age category 2 vs. 1 which had a p-value of 0.0855. The model accounts for 17% of the total variability in HDL cholesterol. Middle age subjects are 0.85 times less likely to have a high risk level of HDL cholesterol than younger aged subjects. Older aged subjects are 0.60 times less more likely to have a high risk level of HDL cholesterol than younger aged subjects. Males are 2.95 times more likely to have a high risk level of HDL cholesterol than females. Subjects with BMI > 25 are 3.29 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 1.94 times more likely to have a high risk level of HDL cholesterol than subjects who are black. Also, the effect of daily cigarette consumption is statistically significant and the effect of number of years smoking is not statistically significant (Table 5).

LDL Cholesterol (mg/dL) – Age category 2 vs. 1, age category 3 vs. 1, BMI, race, and number of years smoking were included in the final model. Age category 2 vs. 1, age category 3 vs. 1, and BMI were highly significant (p-value <.0001). Race had a p-value of 0.0885 and number of years smoking had a p-value of 0.0081. The model accounts for 5% of the total variability in LDL cholesterol. Middle age subjects are 1.82 times more likely to have a high risk level of LDL cholesterol than younger aged subjects. Older aged subjects are 2.13 times more likely to have a high risk level of LDL cholesterol than younger aged subjects. Subjects with BMI > 25 are 1.97 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 1.28 times more likely to have a high risk level of LDL cholesterol than subjects who are black. The effect of daily cigarette consumption is not statistically significant; yet, the effect of number of years smoking is statistically significant (Table 6).

Heart Rate (bpm) – BMI and number of cigarettes smoked per day were included in the final model. The corresponding p-values for BMI and number of cigarettes smoked per day were 0.0489 and 0.0021. The model accounts for 2% of the total variability in heart rate. Subjects with BMI > 25 are 1.67 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. The effect of daily cigarette consumption is statistically significant, but the effect of number of years smoking is not statistically significant (Table 7).

Systolic Blood Pressure (mmHg) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and number of cigarettes smoked per day were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for number of cigarettes smoked per day which had a p-value of 0.0136. The model accounts for 16% of the total variability in systolic blood pressure. Middle age subjects are 3.00 times more likely to have a high risk level of systolic blood

pressure than younger aged subjects. Older aged subjects are 7.43 times more likely to have a high risk level of systolic blood pressure than younger aged subjects. Males are 1.87 times more likely to have a high risk level of systolic blood pressure than females. Subjects with BMI > 25 are 2.36 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 0.55 times less likely to have a high risk level of systolic blood pressure than subjects who are black. Also, the effect of daily cigarette consumption is statistically significant and the effect of number of years smoking is not statistically significant (Table 8).

Triglycerides (mg/dL) – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and number of cigarettes smoked per day were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for age category 2 vs. 1 and age category 3 vs. 1 which each had a p-value of 0.0001. The model accounts for 16% of the total variability in triglycerides. Middle age subjects are 1.49 times more likely to have a high risk level of triglycerides than younger aged subjects. Older aged subjects are 1.50 times more likely to have a high risk level of triglycerides than younger aged subjects. Males are 1.64 times more likely to have a high risk level of triglycerides than females. Subjects with BMI > 25 are 4.20 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 3.17 times more likely to have a high risk level of triglycerides than subjects who are black. The effect of daily cigarette consumption is statistically significant whereas the effect of number of years smoking is not statistically significant (Table 9).

4.2 Nicotine equivalents (mg/24h) as a factor for cigarette consumption

Total Cholesterol – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and nicotine equivalents were included in the final model. Age category 2 vs. 1, age category 3 vs. 1, and BMI were highly significant (p-value <.0001) while gender, race, and nicotine equivalents had corresponding p-values of 0.0382, 0.0007, and 0.0002. The model accounts for 9% of the total variability in total cholesterol. Middle age subjects are 2.54 times more likely to have a high risk level of total cholesterol than younger aged subjects. Older aged subjects are 4.14 times more likely to have a high risk level of total cholesterol than younger aged subjects. Males are 0.82 times less likely to have a high risk level of total cholesterol than females. Subjects with BMI > 25 are 1.86 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 1.61 times more likely to have a high risk level of total cholesterol than subjects who are black. The effect of nicotine equivalents is statistically significant and the effect of number of years smoking is not statistically significant (Table 10).

hs C-Reactive Protein – Age category 3 vs. 1, gender, BMI, race, nicotine equivalents, and number of years smoking were included in the final model. Of these factors, age category 3 vs. 1, gender, and BMI were highly significant (p-value <.0001) while the remaining factors had p-values from 0.0004 to 0.0094. The model accounts for 14% of the total variability in hs C-reactive protein. Older aged subjects are 1.45 times more likely to have a high risk level of hs C-reactive protein than younger aged subjects. Males are 0.51 times less likely to have a high risk level of hs C-reactive protein than females. Subjects with BMI > 25 are 3.46 times more likely to have a high risk level of total cholesterol than subjects with BMI $\leq$ 25. Also, subjects who are white are 0.72 times less likely to have a high risk level of hs C-reactive protein than subjects who are black. The effect of nicotine equivalents is statistically significant and the effect of number of years smoking is statistically significant (Table 11).

Diastolic Blood Pressure – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, and race were included in the final model. Of these factors, all were highly significant (p-value <.0001). The model accounts for 13% of the total variability in diastolic blood pressure. Middle age subjects are 3.19 times more likely to have a high risk level of diastolic blood pressure than younger aged subjects. Older aged subjects are 3.57 times more likely to have a high risk level of diastolic blood pressure than younger aged subjects. Males are 2.08 times more likely to have a high risk level of diastolic blood pressure than females. Subjects with BMI > 25 are 2.81 times more likely to have a high risk level of total cholesterol than subjects with BMI $\leq$ 25. Also, subjects who are white are 0.47 times less likely to have a high risk level of diastolic blood pressure than subjects who are black. The effect of nicotine equivalents is not statistically significant and the effect of number of years smoking is not statistically significant (Table 12).

Fibrinogen – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, nicotine equivalents, and number of years smoking were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for age category 2 vs. 1, race, and number of years smoking which had p-values of 0.0003, 0.0034, and 0.0001, respectively. The model accounts for 17% of the total variability in fibrinogen. Middle age subjects are 1.35 times more likely to have a high risk level of fibrinogen than younger aged subjects. Older aged subjects are 2.64 times more likely to have a high risk level of fibrinogen than younger aged subjects. Males are 0.49 times less likely to have a high risk level of fibrinogen than females. Subjects with BMI > 25 are 2.29 times more likely to have a high risk level of total cholesterol than subjects with BMI $\leq$ 25. Subjects who are white are 0.76 times less likely to have a high risk level of fibrinogen than subjects who are black. The effect of nicotine equivalents is statically significant and the effect of number of years smoking is statistically significant (Table 13).

HDL Cholesterol – Age category 3 vs. 1, gender, BMI, race, and nicotine equivalents were included in the final model. Of these factors, all were highly significant (p-value <.0001). The model accounts for 17% of the total variability in HDL cholesterol. Older aged subjects are 0.69 times less likely to have a high risk level of HDL cholesterol than younger aged subjects. Males are 2.87 times

more likely to have a high risk level of HDL cholesterol than females. Subjects with BMI > 25 are 3.29 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 2.04 times more likely to have a high risk level of HDL cholesterol than subjects who are black. The effect of nicotine equivalents is statistically significant. The effect of number of years smoking is not statistically significant (Table 14).

LDL Cholesterol – Age category 2 vs. 1, age category 3 vs. 1, BMI, and nicotine equivalents were included in the final model. Age category 2 vs. 1, age category 3 vs. 1, and BMI were highly significant (p-value <.0001). Nicotine equivalents had a p-value of 0.0002. The model accounts for 5% of the total variability in LDL cholesterol. Middle age subjects are 1.86 times more likely to have a high risk level of LDL cholesterol than younger aged subjects. Older aged subjects are 2.48 times more likely to have a high risk level of LDL cholesterol than younger aged subjects. Subjects with BMI > 25 are 1.90 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. The effect of nicotine equivalents is statistically significant and the effect of number of years smoking is not statistically significant (Table 15).

Heart Rate – BMI and number of years smoking were included in the final model. BMI had a p-value of 0.0679 and number of years smoking had a p-value of 0.0984. The model accounts for 1% of the total variability in heart rate. Subjects with BMI > 25 are 1.59 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. The effect of nicotine equivalents is not statistically significant and the effect of number of years smoking is marginally significant (Table 16).

Systolic Blood Pressure – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and number of years smoking were included in the final model. Of these factors, all were highly significant (p-value <.0001) except for number of years smoking which had a p-value of 0.0492. The model accounts for 16% of the total variability in systolic blood pressure. Middle age subjects are 2.81 times more likely to have a high risk level of systolic blood pressure than younger aged subjects. Older aged subjects are 6.60 times more likely to have a high risk level of systolic blood pressure than younger aged subjects. Males are 1.86 times more likely to have a high risk level of systolic blood pressure than females. Subjects with BMI > 25 are 2.40 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 0.57 times less likely to have a high risk level of systolic blood pressure than subjects who are black. The effect of nicotine equivalents is not statistically significant; yet, the effect of number of years smoking is statistically significant (Table 17).

Triglycerides – Age category 2 vs. 1, age category 3 vs. 1, gender, BMI, race, and nicotine equivalents were included in the final model. Of these factors, all were highly significant (p-value <.0001). The model accounts for 15% of the total variability in triglycerides. Middle age subjects are 1.51 times more likely to have a high risk level of triglycerides than younger aged subjects. Older aged subjects are 1.56 times more likely to have a high risk level of triglycerides than younger

aged subjects. Males are 1.60 times more likely to have a high risk level of triglycerides than females. Subjects with BMI > 25 are 4.23 times more likely to have a high risk level of total cholesterol than subjects with BMI ≤ 25. Subjects who are white are 3.33 times more likely to have a high risk level of triglycerides than subjects who are black. The effect of nicotine equivalents is statistically significant, but the effect of number of years smoking is not statistically significant (Table 18).

5. Discussion and Conclusions

The effect of daily cigarette consumption, as measured by daily cigarette consumption or daily urinary nicotine equivalents, duration of smoking and the selected demographic variables on the risk of CVD was examined.

The effect of daily cigarette consumption is statistically significant on the risk of CVD as measured by each of the biomarkers including total cholesterol, hs C-reactive protein, fibrinogen, HDL cholesterol, heart rate, systolic blood pressure, and triglycerides in the models where number of cigarettes smoked per day was a factor for daily cigarette consumption.

Similarly, when nicotine equivalents (mg/24h) was a factor for daily cigarette consumption, the effect of daily cigarette consumption is statistically significant in total cholesterol, hs C-reactive protein, fibrinogen, HDL cholesterol, LDL cholesterol, and triglycerides.

Overall, cigarette smoking has a statistically significant effect on CVD risk as measured by each of the biomarkers of potential harm. However, cigarette smoking and the demographic variables together only account for a small proportion of the variability of CVD risk.

Appendix A. Tables

Table 1. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for total cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.09)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.63	.	369.39	<.0001
Age Category 2 vs 1	0.94	2.55	46.60	<.0001
Age Category 3 vs 1	1.40	4.05	106.17	<.0001
Gender	-0.15	0.86	2.78	0.0954
BMI	0.62	1.87	38.40	<.0001
Race	0.46	1.58	10.64	0.0011
Number of Cigarettes Smoked per Day	0.01	1.01	11.74	0.0006

Total Cholesterol: 1 = >= 240 mg/dL, 0 = < 240 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 2. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for hs C-reactive protein for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.14)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-1.37	.	146.58	<.0001
Age Category 3 vs 1	0.36	1.43	16.81	<.0001
Gender	-0.65	0.52	77.56	<.0001
BMI	1.24	3.45	246.00	<.0001
Race	-0.35	0.70	13.46	0.0002
Number of Cigarettes Smoked per Day	0.02	1.02	12.41	0.0004
Number of Years Smoking	0.01	1.01	4.91	0.0266

hs C-Reactive Protein: 1 = > 3 mg/dL, 0 = <= 3 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 3. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for diastolic blood pressure for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.13)

Variable	Estimate	Odds-Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.55	.	346.79	<.0001
Age Category 2 vs 1	1.18	3.27	61.22	<.0001
Age Category 3 vs 1	1.29	3.65	68.53	<.0001
Gender	0.73	2.07	51.51	<.0001
BMI	1.01	2.75	66.34	<.0001
Race	-0.71	0.49	37.06	<.0001

Diastolic Blood Pressure: 1 = >= 90mmHg, 0 = < 90mmHg
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
a level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 4. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for fibrinogen for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.17)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-0.45	.	16.96	<.0001
Age Category 2 vs 1	0.28	1.32	11.33	0.0008
Age Category 3 vs 1	0.92	2.50	79.90	<.0001
Gender	-0.69	0.50	100.38	<.0001
BMI	0.84	2.31	144.35	<.0001
Race	-0.29	0.75	9.78	0.0018
Number of Cigarettes Smoked per Day	0.02	1.02	29.75	<.0001
Number of Years Smoking	0.01	1.01	15.70	<.0001

Fibrinogen: 1 = >= 300 mg/dL, 0 = < 300 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 5. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for HDL cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.17)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.34	.	476.84	<.0001
Age Category 2 vs 1	-0.16	0.85	2.96	0.0855
Age Category 3 vs 1	-0.51	0.60	24.11	<.0001
Gender	1.08	2.95	180.77	<.0001
BMI	1.19	3.29	165.14	<.0001
Race	0.66	1.94	31.62	<.0001
Number of Cigarettes Smoked per Day	0.03	1.03	50.24	<.0001

HDL Cholesterol: 1 = < 40 mg/dL, 0 = >= 40 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 6. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for LDL cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.05)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.49	.	320.18	<.0001
Age Category 2 vs 1	0.60	1.82	16.02	<.0001
Age Category 3 vs 1	0.76	2.13	21.40	<.0001
BMI	0.68	1.97	33.88	<.0001
Race	0.25	1.28	2.90	0.0885
Number of Years Smoking	0.01	1.01	7.02	0.0081

LDL Cholesterol: 1 = >= 160 mg/dL, 0 = < 160 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 7. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for heart rate for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.02)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-4.79	.	318.22	<0001
BMI	0.51	1.67	3.88	0 0489
Number of Cigarettes Smoked per Day	0.03	1.03	9.42	0 0021

Heart Rate: 1 = >= 100 bpm, 0 = < 100 bpm
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 8. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for systolic blood pressure for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.16)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.80	.	355.00	<.0001
Age Category 2 vs 1	1.10	3.00	42.91	<.0001
Age Category 3 vs 1	2.00	7.43	150.13	<.0001
Gender	0.62	1.87	39.90	<.0001
BMI	0.86	2.36	53.85	<.0001
Race	-0.60	0.55	23.26	<.0001
Number of Cigarettes Smoked per Day	0.01	1.01	6.08	0.0136

Systolic Blood Pressure: 1 = >= 140 mmHg, 0 = < 140 mmHg
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 9. Results of stepwise logistic regression model, including Number of Cigarettes Smoked per Day, for triglycerides for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.16)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-4.19	.	540.72	<.0001
Age Category 2 vs 1	0.40	1.49	14.50	0.0001
Age Category 3 vs 1	0.41	1.50	14.38	0.0001
Gender	0.49	1.64	37.14	<.0001
BMI	1.44	4.20	203.30	<.0001
Race	1.15	3.17	68.28	<.0001
Number of Cigarettes Smoked per Day	0.02	1.02	25.68	<.0001

Triglycerides: 1 = >= 200 mg/dL, 0 = < 200 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Number of Cigarettes Smoked per Day and Number of Years Smoking are continuous variables
a level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 10. Results of stepwise logistic regression model, including Nicotine Equivalents, for total cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.09)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.64	.	358.43	<.0001
Age Category 2 vs 1	0.93	2.54	45.64	<.0001
Age Category 3 vs 1	1.42	4.14	109.57	<.0001
Gender	-0.19	0.82	4.30	0.0382
BMI	0.62	1.86	37.73	<.0001
Race	0.48	1.61	11.41	0.0007
Nicotine Equivalents	0.02	1.02	14.34	0.0002

Total Cholesterol: 1 = >= 240 mg/dL, 0 = < 240 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
a level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 11. Results of stepwise logistic regression model, including Nicotine Equivalents, for hs C-reactive protein for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.14)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-1.39	.	144.37	<.0001
Age Category 3 vs 1	0.37	1.45	17.74	<.0001
Gender	-0.67	0.51	78.91	<.0001
BMI	1.24	3.46	245.02	<.0001
Race	-0.33	0.72	11.30	0.0008
Nicotine Equivalents	0.02	1.02	12.37	0.0004
Number of Years Smoking	0.01	1.01	6.74	0.0094

hs C-Reactive Protein: 1 = > 3 mg/dL, 0 = <= 3 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 12. Results of stepwise logistic regression model, including Nicotine Equivalents, for diastolic blood pressure for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.13)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.50	.	334.60	<.0001
Age Category 2 vs 1	1.16	3.19	58.54	<.0001
Age Category 3 vs 1	1.27	3.57	65.90	<.0001
Gender	0.73	2.08	51.88	<.0001
BMI	1.03	2.81	68.32	<.0001
Race	-0.75	0.47	41.39	<.0001

Diastolic Blood Pressure: 1 = >= 90mmHg, 0 = < 90mmHg
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 13. Results of stepwise logistic regression model, including Nicotine Equivalents, for fibrinogen for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.17)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-0.49	.	19.06	<.0001
Age Category 2 vs 1	0.30	1.35	12.82	0.0003
Age Category 3 vs 1	0.97	2.64	87.74	<.0001
Gender	-0.71	0.49	103.12	<.0001
BMI	0.83	2.29	139.19	<.0001
Race	-0.27	0.76	8.57	0.0034
Nicotine Equivalents	0.03	1.03	47.69	<.0001
Number of Years Smoking	0.01	1.01	14.70	0.0001

Fibrinogen: 1 = >= 300 mg/dL, 0 = < 300 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
a level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 14. Results of stepwise logistic regression model, including Nicotine Equivalents, for HDL cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.17)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.44	.	529.71	<.0001
Age Category 3 vs 1	-0.36	0.69	16.50	<.0001
Gender	1.05	2.87	170.29	<.0001
BMI	1.19	3.29	163.98	<.0001
Race	0.71	2.04	35.89	<.0001
Nicotine Equivalents	0.03	1.03	46.96	<.0001

HDL Cholesterol: 1 = < 40 mg/dL, 0 = >= 40 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 15. Results of stepwise logistic regression model, including Nicotine Equivalents, for LDL cholesterol for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.05)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.35	.	478.85	<.0001
Age Category 2 vs 1	0.62	1.86	18.17	<.0001
Age Category 3 vs 1	0.91	2.48	39.28	<.0001
BMI	0.64	1.90	30.97	<.0001
Nicotine Equivalents	0.02	1.02	13.91	0.0002

LDL Cholesterol: 1 = >= 160 mg/dL, 0 = < 160 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
a level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 16. Results of stepwise logistic regression model, including Nicotine Equivalents, for heart rate for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.01)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-4.54	.	302.82	<.0001
BMI	0.47	1.59	3.33	0.0679
Number of Years Smoking	0.01	1.01	2.73	0.0984

Heart Rate: 1 = >= 100 bpm, 0 = < 100 bpm
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 17. Results of stepwise logistic regression model, including Nicotine Equivalents, for systolic blood pressure for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.16)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-3.75	.	342.53	<.0001
Age Category 2 vs 1	1.03	2.81	36.52	<.0001
Age Category 3 vs 1	1.89	6.60	116.25	<.0001
Gender	0.62	1.86	39.22	<.0001
BMI	0.88	2.40	55.39	<.0001
Race	-0.56	0.57	20.37	<.0001
Number of Years Smoking	0.01	1.01	3.87	0.0492

Systolic Blood Pressure: 1 = >= 140 mmHg, 0 = < 140 mmHg
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square

Table 18. Results of stepwise logistic regression model, including Nicotine Equivalents, for triglycerides for smokers and nonsmokers in the Total Exposure Study (R-Square = 0.15)

Variable	Estimate	Odds Ratio	Wald Chi-Square	Pr > Chi-Square
Intercept	-4.19	.	521.08	<.0001
Age Category 2 vs 1	0.41	1.51	15.28	<.0001
Age Category 3 vs 1	0.45	1.56	17.31	<.0001
Gender	0.47	1.60	33.53	<.0001
BMI	1.44	4.23	203.81	<.0001
Race	1.20	3.33	71.67	<.0001
Nicotine Equivalents	0.02	1.02	19.14	<.0001

Triglycerides: 1 = >= 200 mg/dL, 0 = < 200 mg/dL
Age Dummy Variables: 1 0 = Category 2 (35-49 years), 0 1 = Category 3 (50+ years), 0 0 = Category 1 (21-34 years)
Race: 1 = White, 0 = Black
BMI: 1 = BMI > 25, 0 = BMI < 25
Gender: 1 = Male, 0 = Female
Nicotine Equivalents (mg/24h) and Number of Years Smoking are continuous variables
α level for including a variable, SLENTRY = 0.15, and keeping a variable, SLSTAY = 0.10
R-Square is Max-Rescaled R-Square