**A STUDY OF THE CONFOUNDING RELATIONSHIP OF FOOD, ALCOHOL, COFFEE AND CIGARETTE CONSUMPTION ON SUBSEQUENT BLOOD PRESSURE READINGS IN AMERICAN POPULATION**

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*Introduction*: Blood pressure readings can be impacted by daily habits. The relationship of food, alcohol, and coffee and cigarette consumption on subsequent blood pressure readings is unclear.

*Methods*: Data from the 2007-2008 National Health and Nutritional Examination Survey (NHANES) were used. Participants included individuals who responded to blood pressure related standard questionnaire and had systolic blood pressure (SBP) measured subsequently. Questionnaire included inquiry into consumption of food, alcohol, coffee and cigarettes within 30 minutes period prior to blood pressure measurement (N=7,146). Procedures for blood pressure measurement were standardized for NHANES; values were mm Hg. Multinomial regression analyses examined relationship of food, alcohol, coffee and cigarette consumption on blood pressure measurement. Further models were adopted to analyze relationship across gender, age, as well as categorical blood pressure readings.

*Results*: Unadjusted analyses revealed that food intake in the proceeding 30 minutes was associated with elevated risk of increased blood pressure measurement (OR=1.18, P <0.01), while alcohol consumption and cigarette smoking were associated with reduced risk (OR=0.09, P=0.01)(OR=0.53, P<0.01). Subset analysis revealed that this relationship was more at higher levels of SBPs than lower. The relationship for coffee intake was not statistically significant (OR=0.72 P=0.19). Similar relationship was seen in our model for categorical blood pressure readings. In adjusted analyses for gender and age, significant relationship persisted in all models for cigarette use.

*Conclusion*: Blood pressure readings may be confounded by food, alcohol, and smoking cigarettes prior to measurements.

Table 2. Unadjusted and adjusted odds ratio and 95% confidence intervals of association between blood pressure and food, alcohol, coffee and cigarette use

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Continuous Blood pressure | | Categorical blood pressure | | | | | | | |
| Unadjusted Model | | Unadjusted Model | | Adjusted Model1 | | Adjusted Model2 | | Adjusted Model3 | |
| OR (95%CI) | *P* value | OR (95%CI) | *P* value | OR (95%CI) | *P* value | OR (95%CI) | *P* value | OR (95%CI) | *P* value |
| Food | 1.18 (1.06-1.29) | <0.01 | 1.19 (1.07-1.32) | <0.01 | 1.02 (0.92-1.14) | 0.68 | 1.18 (1.07-1.31) | <0.01 | 1.01 (0.90-1.12) | 0.91 |
| Alcohol | 0.09 (0.02-0.53) | 0.01 | 0.12 (0.02-0.71) | 0.02 | 0.21 (0.03-1.38) | 0.10 | 0.11 (0.02-0.65) | 0.01 | 0.23 (0.04-1.44) | 0.11 |
| Coffee | 0.72 (0.44-1.18) | 0.193 | 0.60 (0.36-1.01) | 0.06 | 1.00 (0.57-1.75) | 0.10 | 0.67 (0.40-1.12) | 0.13 | 1.01 (0.58-1.76) | 0.98 |
| Cigarettes | 0.53 (0.40-0.71) | <0.  01 | 0.58 (0.43-0.79) | <0.01 | 0.53 (0.38-0.74) | <0.01 | 0.64 (0.47-0.86) | <0.01 | 0.58 (0.42-0.81) | <0.01 |

1 adjusted model for age

2 adjusted model for gender

3 adjusted model for age and gender