

Noonan, D., Bice-Wigington, T., Huddleston-Casas, C. A., Sloan, R., & Simmons, L. A., (2014). Multiple behavioral risk for chronic disease in rural women. *Annals of Behavioral Medicine*, 47, S222.

**Objective:** Rural Americans engage in multiple unhealthy behaviors that increase their risk for chronic diseases including cardiovascular disease, diabetes and cancer. Rural women in particular have higher rates of chronic disease and tend to engage in more risky lifestyle behaviors compared to their urban counterparts. While there is an understanding of these lifestyle behaviors individually, the co-occurrence or bundling of these risk factors has not been studied among rural women in the U.S. The purpose of this study was to examine demographic and health related factors associated with the bundling of unhealthy lifestyle behaviors including smoking, BMI as a proxy for nutrition, and low levels of physical activity (PA).

**Data and Methods:** Data were from Rural Families Speak about Health, a multi-state, epidemiologic study of rural American women and their families living in 11 states (N=444) that utilized computer-assisted interviewer-administered questionnaires. Multinomial logit analysis was conducted to examine the association between the demographic and health variables and the dependent ordinal risk factor variable with three levels (no risk factors, one risk factor, two plus risk factors). Bivariate associations between individual lifestyle risk factors and bundles of risk factors with demographic and health variables were explored.

**Results:** Twenty-five percent of the sample engaged in two or more unhealthy behaviors. The combination of smoking and low levels of PA was most prevalent (12%), followed by high BMI and low levels of PA (7%) and high BMI and smoking (6%). A set of 10 candidate demographic and health variables were evaluated with the risk factor score as the dependent variable, and

older age (OR=1.03, CI=1.003-1.04) and lower income (OR= 0.732, CI=0.545, 0.983) were significantly associated with odds of having a risk factor step increase (0 to 1, or 1 to 2+).

Among participants with one risk factor, compared to those with low levels of PA smokers were more likely to be younger, report greater financial distress, and have higher self-rated health, but they were less likely to report White ethnicity. Compared to those with high BMI, those with low PA were more likely to report less financial distress, better self-reported health, be a high school graduate, and report White race. Among those with two risk factors, higher income was associated with a reduced likelihood of having high BMI and smoking vs. having a high BMI and low PA.

**Conclusions:** Understanding combinations of risk factors can assist both clinicians and public health professionals in tailoring interventions for multiple health behavior change initiatives to prevent chronic disease among rural women.