1.a. **Full Title:** Changes in weight and body composition following smoking cessation

**Abbreviated Title:** Smoking and body weight

2. **Writing Group:** Patricia M. Dubbert, Mark Vander Weg, Cecil M. Burcfield
   Mary Lou Gutierrez-Mohamed, Nimr Fahmy and Edward F. Meydrech

   **Lead:** Patricia M. Dubbert, Ph.D.
   **Address:** Chief, Department of Psychology
               Jackson Veterans Affairs Medical Center
               Veterans Affairs Medical Center 116B
               Jackson, MS 39216
   **Phone:** (601) 364-1350
   **Email:** pdubb@netdoor.com

3. **Timeline:** Data analysis will begin following approval of Publications Committee.

4. **Rationale:**

The inverse relationship between smoking and body weight is very well documented. Smokers tend to weigh less than nonsmokers, and people who quit smoking typically gain weight\(^1\)\(^-\)\(^8\). While the health risks associated with post cessation weight gain may be minimal for most people, some individuals experience major weight gains that may put them at risk for a variety of health problems. Furthermore, the weight controlling properties of smoking are often reported as reason for smoking initiation and maintenance, as well as relapse following smoking cessation, particularly among women\(^9\)\(^-\)\(^17\). Thus, the relationship between smoking and body weight has important health implications.

Despite the growing literature on the association between smoking and body weight, much less is known about the mechanisms responsible for this relationship. Additionally, there is considerable variability in the amount of weight that is gained. Currently, little is known about factors which distinguish those who are at risk for major weight gain following smoking cessation, or about group differences in post cessation weight gain. While there is some evidence that post cessation weight gain may vary across racial and ethnic groups, only one published study has examined these differences\(^8\).

The proposed study will examine the relationship between smoking status and body composition in a biethnic sample using both cross-sectional and prospective analyses. Baseline comparisons between
smokers and nonsmokers on various measures of body composition will be conducted. The relationship between smoking cessation and changes in body composition will then be investigated among those who quit smoking during the follow up period. Moderators of the relationship between smoking and body composition, such as gender and ethnicity, will also be examined. Finally, predictors of post cessation weight gain such as demographics and variables related to energy balance (viz., energy intake and energy expenditure). It is hoped that by examining changes in body weight and body composition by smoking status in a large, diverse sample, it will be possible to identify those who are at most risk of experiencing major weight gains following smoking cessation, and that a better understanding of the mechanisms that may be responsible for post cessation weight gain will be obtained.

5. Main Hypotheses:

Based on previous studies examining the smoking and body weight, the following results are expected from cross sectional comparisons between smokers and nonsmokers: 1) smokers will weigh less than nonsmokers, with greater differences being observed in women than in men, 2) smokers will have greater abdominal adiposity despite their lower body weight, 3) the relationship between smoking rate and body weight will differ by gender. Among men, it is predicted that moderate smokers will weigh less than light and heavy smokers. In women, an L-shaped distribution is expected, with moderate and heavy smoking women weighing less than light smokers.

It is also predicted that smoking cessation will lead to weight gain and increased body fat. Greater gains are expected in women than in men, and in African-Americans than European-Americans. Variables expected to be associated with post cessation weight gain include smoking rate (with heavy smokers gaining more than light smokers), lower baseline physical activity levels, higher levels of energy intake, and greater alcohol consumption.

6. Data Requirements:

The primary variables of interest for the study include those related to tobacco use (smoking status, smoking rate, other tobacco use), body composition (body weight, BMI, waist-to-hip ratio, skinfold measurements), dietary intake (total energy intake, dietary fat, sucrose, complex carbohydrates, alcohol intake), physical activity (total physical activity level, leisure physical activity, and work-related physical activity), and other potential moderators of the smoking and body weight relationship including hormone use, oral contraceptive use, and menopausal status.
REFERENCES


