ARIC Manuscript Proposal # 1021r

1a. Full Title:
Segregation and health behaviors: The Atherosclerosis Risk in Communities study

b. Abbreviated Title:
Segregation and health behaviors

2. Writing Group
Lead: Luisa N. Borrell

Address:
Luisa N. Borrell, DDS, PhD
Columbia University
Mailman School of Public Health, Department of Epidemiology
722 West 168th Street, 16th Floor, Room 1611
New York, NY 10032
Phone: 212-305-9339    Fax: 212-342-0148
E-mail: lnb2@columbia.edu

Other writing group members: Ana V. Diez Roux, David R. Williams, Kathryn Rose, Jay S. Kaufman, David Shoham

3. Timeline
Submit proposal to Publications Committee: July 2004
Complete Analysis: October 2004
Submit draft to Publications Committee: January 2005
4. Rationale

Existing research has examined the role of racial/ethnic segregation on health.\(^1\) Specifically, segregation has been found to be associated with higher rates of all-cause and cause-specific morality such as cardiovascular disease-related deaths.\(^2-5\) Furthermore, studies show that segregated areas, specifically for African Americans, tend to promote unhealthy behaviors. However, few studies have focused on the relationship between health risk behaviors and segregation. Although the mechanisms by which residential segregation influence health are not well understood, research shows that perhaps features of the social (i.e., high crime and violence, lack of social support) and physical environments (i.e., exposures to environmental hazards, high number of tobacco and alcohol advertisement billboards) of segregated areas could be associated with poor health and promotion of unhealthy behaviors. For example, Landrine and Klonoff found a positive association between cigarette smoking and a measure of segregation in African Americans’ census tracts in Southern California.\(^6\) In addition, there is evidence that African Americans have been targeted by the tobacco and alcohol industries, and in fact, over 80% of billboards in the US contain advertisements targeted to African Americans with a large majority placed in the neighborhoods in which these groups live.\(^7,8\) Furthermore, Morland et al\(^9,10\) using data from the Atherosclerosis Risk in Communities (ARIC) study, found an increase numbers of fast food restaurants and convenience stores in African-American neighborhoods when compared to white neighborhoods. The ARIC study affords the opportunity to investigate the association between racial segregation and health behaviors associated with CVD (i.e., cigarette smoking, alcohol consumption, diet and physical activity) before and after controlling for age, gender, recruitment center, individual- and neighborhood-level socioeconomic indicators. Specifically, this study will investigate a) whether area racial/ethnic composition, defined as the percentage of African Americans per neighborhood, is related to health risk behaviors and 2) whether this relationship differs by individual-level socioeconomic indicators after controlling for relevant individual characteristics and neighborhood-level SES characteristics.
5. **Main Hypothesis**

a) Racial/ethnic composition will be positively associated with higher levels of risk behaviors after controlling for individual- and neighborhood-level socioeconomic indicators.

b) Association between racial/ethnic composition and risk behaviors will be stronger for individuals with low income and education.

6. **Data**

Individual-level data will be obtained from the baseline interview of the ARIC Study. Health behaviors such as cigarette smoking, alcohol consumption, diet and physical activity will be obtained from the baseline examination (1987-1989) and used as outcomes for this analysis. Other individual demographic information to be included in the analyses are age, gender, race/ethnicity, education and income. Recruitment site will be also included in the analysis.

Block-groups will be used as proxies for neighborhoods. Racial/ethnic composition information will be defined as the percent of African Americans living in a given block-group. The information for this calculation will be derived from the US Census. Neighborhood socioeconomic characteristics that could be influenced by (or correlated with) segregation will be assessed through the following covariates: the median household income; percent of adults 25 years of age or older with a high school diploma; percent of adults with completed college education; percent of employed persons 16 years of age or older in executive, managerial, or professional specialty occupations; proportion of working age adults unemployed and proportion of people living below the poverty level.

Statistical Analysis. The prevalence of health behaviors will be presented by race/ethnicity adjusted for age, gender and recruitment site. Logistic regression analysis will be used to estimate the strength of the association between racial segregation and each health behavior. We will examine the association
between segregation and each health behavior before and after adjusting for individual-level characteristics. Interaction terms between segregation and individual-level SES indicators will be investigated. Residual correlation between outcomes within neighborhoods will be taken into account using appropriate statistical methods, if necessary.

References


7.a. Will the data be used for non-CVD analysis in this manuscript? ____ Yes  _X_ No

b. If Yes, is the author aware that the file ICTDER02 must be used to exclude persons with a value RES_OTH = “CVD Research” for non-DNA analysis, and for DNA analysis RES_DNA = “CVD Research” would be used? ____ Yes  _X_ No

(This file ICTDER02 has been distributed to ARIC PIs, and contains the responses to consent updates related to stored sample use for research.)

8.a. Will the DNA data be used in this manuscript? ____ Yes  _X_ No
8.b. If yes, is the author aware that either DNA data distributed by the Coordinating Center must be used, or the file ICTDER02 must be used to exclude those with value RES_DNA = “No use/storage DNA”?  ____ Yes  ____ No

9. The lead author of this manuscript proposal has reviewed the list of existing ARIC Study manuscript proposals and has found no overlap between this proposal and previously approved manuscript proposals either published or still in active status. ARIC Investigators have access to the publications lists under the Study Members Area of the web site at: http://www.cscc.unc.edu/ARIC/search.php  
  ____ X ____ Yes  ______ No

10. What are the most related manuscript proposals in ARIC (authors are encouraged to contact lead authors of these proposals for comments on the new proposal or collaboration)?


The lead author has been contacted and has stated that there is no overlap between the two studies. In addition, the lead author has joined the writing group.

11. Manuscript preparation is expected to be completed in one to three years. If a manuscript is not submitted for ARIC review at the end of the 3-years from the date of the approval, the manuscript proposal will expire.