

ARIC Manuscript Proposal # 1136r

PC Reviewed: 05 / 23 /06

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Priority: 2

SC Reviewed: 05/24/06

Status: A

Priority: 2

1.a. **Full Title:** Relationship between Obesity and Vital Exhaustion

b. **Abbreviated Title (Length 26 characters):** Obesity and vital exhaustion

2. **Writing Group:** Maria Bryant, June Stevens, Kimberly Truesdale, Thomas Mosley, Lloyd Chambless

I, the first author, confirm that all the coauthors have given their approval for this manuscript proposal. MB [please confirm with your initials electronically or in writing]

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Writing group members:

Maria Bryant, PhD, is a postdoctoral fellow in the department of Nutrition in the School of Public Health at the University of North Carolina in Chapel Hill. Dr. June Stevens is her mentor.

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Kimberly Truesdale, PhD, is a research associate in the department of Nutrition in the School of Public Health at the University of North Carolina in Chapel Hill. She is an experienced ARIC investigator.

Thomas Mosley, Jr., PhD is the Associate Director of Geriatric Medicine at the University of Mississippi Medical Center. He is an experience ARIC investigator and has expertise in analysis of cardiovascular.

Lloyd Chambless, PhD is a research professor at the Collaborative Studies Coordinating Center at the School of Public Health, University of North Carolina at Chapel Hill. He is an experienced ARIC investigator with expertise in mathematics and cardiovascular disease.

3. **Timeline:** We plan to complete the analysis and manuscript in one year.

4. **Rationale:**

There is some evidence that obesity is associated with psychopathologies such as depression (1-5). Finding are, however, often inconsistent; due most likely to moderating effects

of race and gender(6). For example, positive relationships have been found in women, but underweight men are more likely to be depressed than overweight men (1, 2, 7). Strauss (8) studied Black, White and Hispanic adolescents from the National Longitudinal Survey of Health. No relationships were observed in any of the boys. A significant relationship was observed in White and Hispanic girls, but not in Black girls. There is no evidence to support why this might occur, but societal influences are probable.

The relationship between obesity and other psychological disorders has not been well studied. This has important implications; since psychopathologies not only impact quality of life (9), they are also likely to influence the success of weight loss interventions. Further, there is growing evidence of a relationship between psychological disorders and physiological conditions which are also related to obesity. For example, depression has been associated with increased risk of diabetes (10), and vital exhaustion (VE) is a strong risk factor for first (11-15) and recurrent (15-19) cardiac events in both men and women.

Vital exhaustion is a mental state experienced when resources for adapting to stress are inadequate. It is characterized by excessive fatigue, irritability and feelings of demoralization. It is possible that rates of VE are greater in the obese, since there is some cross-over between the characteristics of VE and depression. VE may also be greater in the obese because of increased psychological stress. This has huge implications because both obesity (20) and VE (12, 13) increase the risk of CVD. Thus, it is possible that the presence of both obesity and VE further increases the risk of CVD compared to their independent presence. Research in this area is lacking. In their analysis of the association between BMI and personality characteristics, Huijbrechts et al. (18) found that only VE and lack of tension were significantly associated with BMI in 166 survivors of first myocardial infarction. There has been some interest in the relationship of VE and biological systems, including the fibrinolytic system (associated with thrombosis formation) (21) and insulin and glucose metabolism(11, 22). This research is of interest, since it has identified relationships between VE and factors related to BMI. Raikonen et al., found a relationship between BMI and VE in a sample of 64 men, which was dependent upon waist hip ratio (23). However, to our knowledge the relationship between BMI and VE has not been examined in a population based sample. It is possible that BMI is related to general negative psychological states, rather than being specifically associated with VE. Thus, Trait Anger will be added to the model to determine whether any effects are specific to VE, or whether they can be generalized to global distress.

5. Main Hypothesis/Study Questions:

The primary aims of this study are:

- 1) to describe the association between obesity and vital exhaustion
- 2) to examine the relationship between obesity and vital exhaustion differs by gender and ethnicity
- 3) to determine the influence of marital status, age, education and Trait Anger on the relationship between obesity and vital exhaustion

Hypothesis:

There will be a significant positive relationship between vital exhaustion and BMI (kg/m^2), and this will be greater in women compared to men; and in Whites compared to African Americans. The relationship will be stronger in those with a higher level of education, but the influence of age and marital status is not hypothesized. It is possible that marital status interacts with gender

with regards to its influence on the relationship between BMI and VE. Many psychological states tend to be correlated with negative health behaviors, (e.g. smoking, alcohol use).

6. Data (variables, time window, source, inclusions/exclusions):

We will use data from the ARIC visits 1-2

	Visit 1	Visit 2
Identification information		
Patient ID	x	x
Date of visit	x	x
Field center	x	
Medical History		
CHD		x
Stroke		x
Cancer		x
Diabetes		x
Self-rated health		x
Demographics		
Gender	x	
Ethnicity	x	
Age		x
Marital status		x
Education	x	
Employment		x
Income		x
Other		
Smoking status		x
Alcohol status		x
Physical activity	x	
Anthropometrics		
Weight	x	x
Height	x	x
Health		
Vital exhaustion scores (Maastricht Questionnaire)		x
Trait Anger		x

Exclusions:

- Missing weight at visit 2
- Missing VE at visit 2
- Ethnicity other than White or African-American
- African-Americans in Minnesota or Maryland

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 _____ 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.csc.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 following proposals are focused on the relationship between psychological health and cardiovascular outcomes or risk predictors. We did not identify any that intend to examine the moderating effect of obesity.

11. a. Is this manuscript proposal associated with any ARIC ancillary studies or use any ancillary study data? _____ Yes ___X___ No

11.b. If yes, is the proposal

_____ **A. primarily the result of an ancillary study (list number* _____)**

_____ **B. primarily based on ARIC data with ancillary data playing a minor role (usually control variables; list number(s)* _____)**

*ancillary studies are listed by number at <http://www.csc.unc.edu/atic/forms/>

12. 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.

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