Hypertension & Physical Activity

Rebecca Campbell,
Jacqueline De La Cruz,
Valentina Fandino,
Leili Moradi,
& Brianna Scott

INTRODUCTION

Significance of problem, research question, & hypothesis

METHODS

Procedures, measures, & proposed analysis

RESULTS

Description of sample & statistical tests

DISCUSSION

Summary and interpretation of results, broader literature connection, & implications

Introduction

- Hypertension is the greatest modifiable risk factor for all different cardiovascular diseases (Kjeldsen, 2017)
- Physical activity plays an important role in cardiovascular disease and hypertension
  - Modify hypertension positively (U.S. Department of Health and Human Services, 1996)
  - Physical activity plays a role in the prevention of hypertension (Diaz and Shimbo, 2013).
- U.S. Minority Adults
  - Race/ethnicity: African Americans, Alaskan Natives, American Indians, Asians, and Hispanics
  - Hypertension
- Limited Data
- Prevention

Research Question

Does participating in light/moderate-intensity activity and the length of participation have an effect on preventing the development of hypertension in U.S. minority adults?

Methods

- **Data Source & Collection**
  - Secondary data analysis
  - 2018 National Health Interview Survey (NHIS, 2019)
    - Cross-sectional
    - Non-institutionalized civilians
    - Self- or proxy-reporting
    - U.S. Census Bureau field representatives
  - Family & Sample Adult questionnaires
- **Sampling Procedure**
  - Area probability design with ***stratification*** and ***clustering*** techniques (NHIS, 2019)
    - All states & District of Columbia
    - States are stratified
    - **Clusters of addresses** derived from statistically metropolitan regions
  - **No use of oversampling techniques** of minority populations

MEASURES & OPERATIONAL DEFINITIONS

Noninstitutionalized U.S. population, 18+, Black or African American, Asian, Hispanic origin, American Indian & Alaska Native

U.S. Minority Adults

Adults participating in at least 10 minutes of LMPA per week

Light-Moderate Physical Activity

Respondents provided a positive response to the question: "*Have you ever been told by a physician that you have hypertension?*"

Hypertension

Methods

- **Proposed Analysis**
  - Secondary data analysis
    - Self-reported health indicator data
  - SAS (statistical analysis software)
    - Logistic Procedure
  - Logistic Regression
    - Two continuous independent variables = Light- Moderate Physical Activity
    - Single dichotomous dependent variable = Hypertension
  - Respondents compared by
    - Race/ Ethnicity

Results

15,582
Sample Population

12.51%
Hispanic Origin

79.37%
White

11.70%
Black or African American

5.31%
Asian American

1.16%
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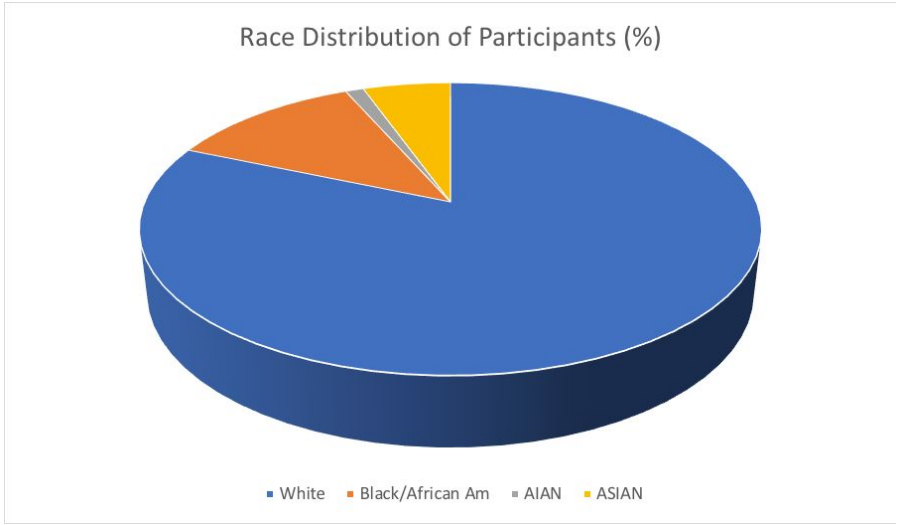

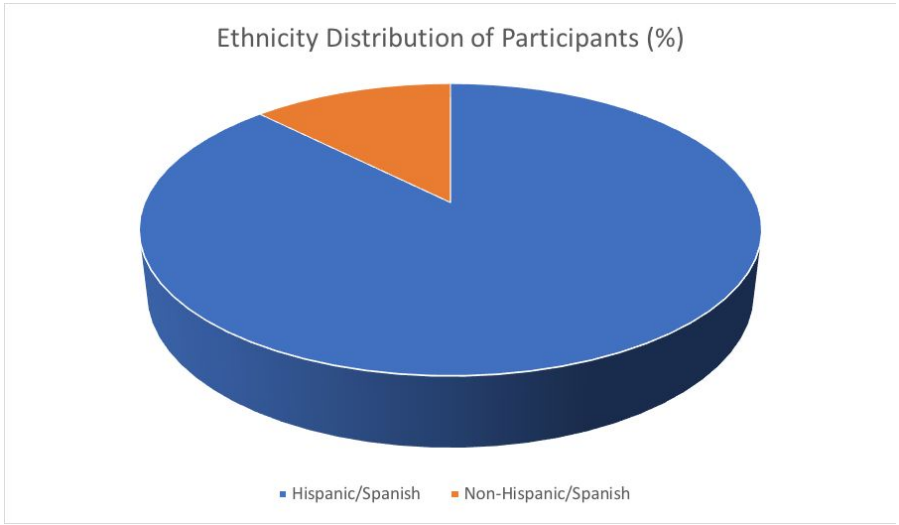

Results

*All values recorded in percent (%)

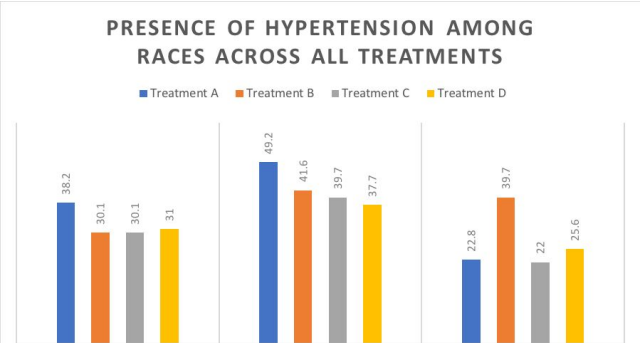

Figure B

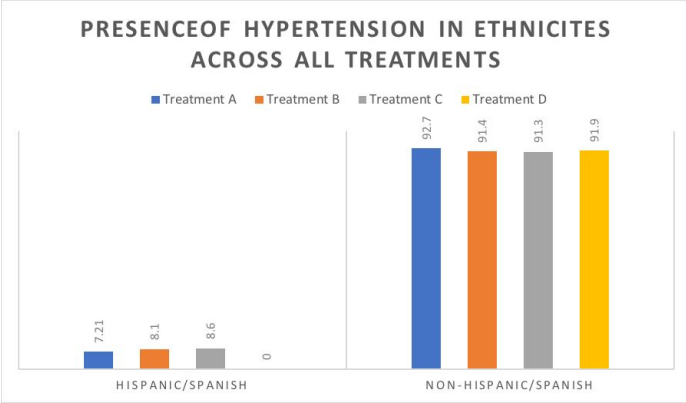

Figure C

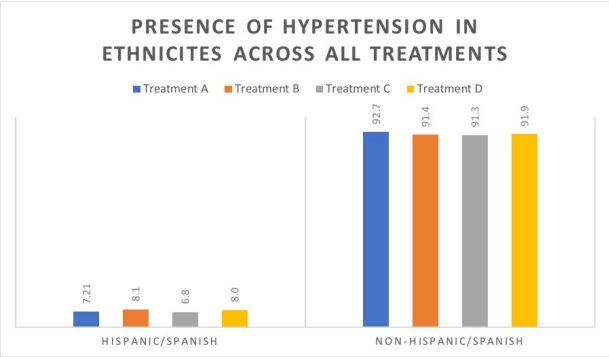

Figure D

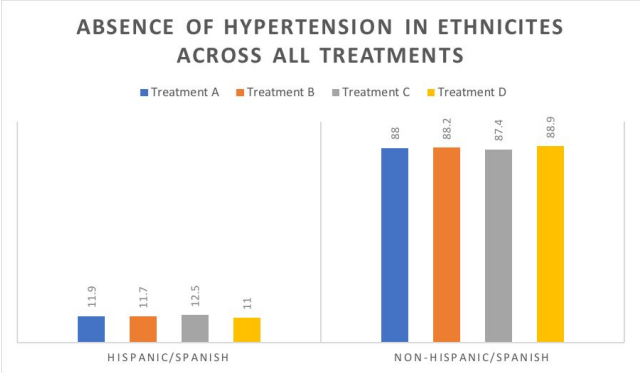

Figure E

Discussion

Summary and interpretation of statistical test results:

For each 1 minute increase in low-moderate physical activity, then we see a 0.001% decrease in odds of having hypertension. For each 1 session increase in low-moderate physical activity, then we see a 0.003% decrease in odds of having hypertension.

Connection to broader literature:

The results enhance existing literature in this area in which it is consistent with other findings. Broader literature concludes that increase in low-moderate physical activity has an inverse relationship with having hypertension. The findings suggest for every increase in physical activity there is a decrease in the prevalence of hypertension. However, there is still limited research on how low-moderate physical activity may impact the prevalence of hypertension in minority groups, but there is sufficient research on the impacts of vigorous activity.

Limitations:

The data set was missing around 9,314 observations, this is 36.64% of respondents. It is possible that the data and results are influenced by the exclusion of institutionalized civilians (e.g., long-term care facilities). Finally, physical activity and hypertension data may be subject to recall bias due to self- and proxy-reporting.

Discussion (cont.)

Implications:

There seems to be a weak association between light-moderate physical activity and hypertension. However, with more than 30% of the data missing, further analysis should be conducted with higher data retention.

Alternative Approaches:

Future research designs with the purpose of exploring the association between physical activity and hypertension as a risk factor for developing cardiovascular disease should employ a larger variety of variables for physical activity levels beyond low-moderate. An additional moderate-high physical activity level would provide further analysis of the association between physical activity and hypertension. In addition, data set organization and participant follow up should be reinforced to avoid the loss of important observations.

Thank you!

Any Questions?

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