

**Manuscript Proposal Outline (Upload)**

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1. **Proposal Title:** Association of leisure-time physical activity with chronic kidney disease(CKD) among African Americans in Jackson Heart Study
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1. **Overview**

Physical inactivity is a risk factor for a myriad of chronic ailments. The exploration of the association between physical inactivity and chronic kidney disease(CKD) is in its early stages. Previous cross-sectional (Bowlby et. al 2016, Bharakhada et. al 2012; Hawkins et. al 2011; Robinson et. al 2010) observational cohort studies, (Chen et. al, 2014; Clark et. al 2012, Tsai et. al 2017; Kosmadakis et. al 2012), random controlled trials (Clyne et. al 2019, Hellberg et. al, 2019; Balakrishnan et. al 2010), and longitudinal studies, (Robinson-Cohen et. al 2014) have been done on the association of physical activity with CKD. Collectively, these studies indicated that physical activity has been shown to increase health outcomes in individuals with CKD as demonstrated by an increase in the estimated glomerular filtration rate (eGFR) and lowering of albuminuria levels and mortality rates. However, none of them examined physical activity and CKD among African Americans, a group at high risk for CKD and a myriad of excess CKD risk factors including a high prevalence of physical inactivity. There is a definitive need to examine the association of physical activity and CKD in African Americans.

1. **Background/Rationale**

African Americans account for roughly 13% of the population, but African Americans comprise approximately 37% of the physically inactive population in the state of Mississippi according to the CDCs 2017 report. When compared to the other 49 states and the District of Columbia, African Americans are reportedly the least physically active ethnic group, at 32%. (CDC, 2017). A sedentary lifestyle often contributes to chronic conditions such as obesity which results in further occurrence of other medical conditions (Bopp, et al., 2006). Physical activity is described by the World Health Organization as any bodily movement by the skeletal muscles resulting in a use of energy, including playing, working, household work both indoor and outdoor, traveling and the engaging of recreational pursuits. Exercise and physical activity are not the same because exercise is a component of physical activity which serves as a method of maintaining or improving ones’ physical fitness. Physical activity done at any level has benefits as some activity is notably better than none. It has been found by Nagasawa et al. (2016), that increases in physical activity and reduced sedentary lifestyle may ameliorate the prevalence of proteinuria and kidney dysfunction. The findings further indicated that physical inactivity is strongly associated with incidence of CKD, but may differ depending on gender and BMI. The purpose of this study is to examine the association of physical activity and CKD among participants enrolled in the Jackson Heart Study (JHS), an exclusively African American population-based cohort.

(**<1000 words**).

1. **Research Hypothesis**

Physical activity after adjusting for age, sex, educational attainment, household income, and medication will be associated with a lower prevalence of CKD (as determined by eGFR and albuminuria) compared to those without physical activity. This association will hold true for both men and women but may vary by BMI.

Physical activity will be defined as leisure-time activity.

1. **Inclusions/Exclusions**

Independent Variables: Physical Activity, Frequency of Physical Activity, duration of activity, form of exercise

Dependent Variables: CKD as determined by eGFR and Albuminuria

Covariates: Demographics: Age, Sex -Clinical: BMI, Medication use, history of hypertension, history of diabetes, -Socioeconomic: education, household income – behavioral: alcohol use, smoking

1. **Statistical Analysis Plan and Methods**

PASC Questionnaire

Physical Activity Assessment

Descriptive statistics to characterize study participants

Multivariate logistic regression will be used to evaluate the association between Physical Activity and eGFR

/Albuminuria while controlling covariates

Repeat analyses stratified analysis by BMI

1. **References (maximum 15)**

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