**Client**: Ronica Rooks, Health & Behavioral Sciences

**https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2939725/pdf/nihms173306.pdf**

**Background:**

* Alzheimer’s & related dementias (ADRD) are 6th leading cause of death. Population expected to grow from 56 to 88 mill from 2020 & 2050. Aging population boomers
* Older black adults are more likely to have a faster rate of cognitive decline and higher prevalence of ADRD.
* Social & cognitive activities may act as secondary or tertiary prevention & improve life
  + **Question:** discuss primary, secondary, and tertiary prevention
    - Primary: health behaviors prevention
    - Secondary: you have been diagnosed, dealing
    - Tertiary: you have disease, surgical
* Not studied if productive can mitigate racial disparities in ADRD
  + Work & volunteering
  + They may help reduce dementia and decrease cognitive decline
  + **Question:** do social & cognitive activities reduce racial disparities?
* Many physicians do not feel prepared to meet ADRD patients’ needs
* Patient-empowered solutions could meet need to slow dementia
  + **Question:** clarify patient-empowered
* Health Aging and Body Comp (HABC) study
* **Question:** Enrichment Program?
* **Question:** clarify what is “incident dementia”?
  + New cases of dementia
* **Question:** what other factors are known to affect dementia, e.g. socioeconomic class, sex, smoking, genetics, etc.
  + Gender is related to dementia
* <https://pubmed.ncbi.nlm.nih.gov/24355614/>

**Research Goals**

* Explore black vs white racial disparities in dementia over time
* Can disparities be explained by working among HABC older adults?
* **Hypothesis 1**: Working full or part-time vs not working (at baseline) will relate to lower incident dementia by race and decrease racial disparities
* **Hypothesis 2**: Among older adults w dementia, working any hours over time will reduce cognitive decline by race and decrease racial disparities
  + **Question:** clarify theconnection to decreased racial disparities. Is the idea that working will relate to lower dementia, but have a stronger impact on black adults? So in the end the disparity is less?
    - Older black women more likely to work part time
* Research may lead to NIA grant proposal on research to mitigate cognitive declines and ADRD via productive activities
* **Question:** couldadults be engaged in volunteering & other activities e.g. gardening, cooking, child-care, etc?
  + Productive activities not included
* **Question:** research population? All black & white adults over 65?

**Data**

* HABC 17 year prospective cohort study developed by NIA
  + Well-functioning older adults noninstitutionalized
* HABC has N = 3,075, community-dwelling, well-functioning older adults
  + Well-functioning: Self-report no difficulties with activities of daily living and lower-extremity functional limitations
  + **Question:** community-dwelling?
    - Not in institutions, independent functioning
* Black 42%, white 52%, men & women
* In person interviews, surveys, and clinic-based exams
* Attrition due to deaths
  + **Question:** how to include in modeling
* **Outcomes for H1**: incident dementia determined by combo of hospital records, drug prescriptions, or clinically-significant cognitive decline
  + **Question:** if they exhibit cognitive decline, do they get removed from study as they are no longer well-functioning?
    - No
* 6-month check ins
* 3MS survey to assess cognition at years 1,3,5, 8, & 10-13.
  + 0-100 score sensitive to dementia
* Dementia if any of the following

1. Hospital record of dementia as primary or secondary diagnosis & 3MS score of 90 or below completed in each study year
2. Record of a prescription for dementia meds
3. Cognitive decline – 1.5sd race-stratified decline in 3MS score from baseline to the last available visit
   * **Question:** clarify 1.5sd change from original score, or from last visit?
     + Baseline is year one

* Date of dementia onset was date when any of criteria first met
* **Outcomes for H2:** change in 3MS score over time determined by time x1 at dementia onset – time x2 corresponding to available work status year
  + **Question:** clarify this
  + Subtracting 3MS score over time
* Data years 12 & 13 completed on sub study sample w fewer participants.
* Working: defined as participants’ hours working for pay
  + Full time: 35+ hr & 11+ months, and Part-time
* Year 1, 746 (24%) were working
  + 332 (26%) black adults, 414 (23%) white adults (p = 0.065)
  + **Question:** is there data for other racial groups?
    - No
* Work change in hours over time include working in year 1 – time x2 corresponding to…
  + **Question:** clarify this
* **Work Data:** have you worked, hours worked, months out of the year
  + Working or not most complete metric

**Statistical Analysis**

* Descriptive stats to test associations between baseline characteristics, working, race, and dementia using chi-square tests for categorical and ANOVA for continuous
* H1: Kaplan-Meier curves to examine the time to dementia by race
* Cox proportional hazard models and added explanatory variables in covariate blocks to examine the relationships between working and dementia by race
* Several models
  + 1) unadjusted relationship
  + 2) add socio-demographics
  + 3) adding health behaviors
  + 4) adding health conditions
  + Additional model including baseline 3MS
* Excess hazard for each covariate block
* H2: linear mixed effects models to examine relationship between working or work change and 3MS change by race
  + Random effects term for intercept & follow-up time
  + Fixed effects for time, socio-demographic and health behavior variables & interactions of time with prior variables
* **One drive access**: