

Comparative characteristics between older African-Americans in the Greater Newark, NJ area and Yoruba Nigerians in Ibadan, Nigeria

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Background

- African Americans and West Africans share common ancestry, making both groups valuable for understanding cognitive aging and dementia risk across populations with shared lineage (Jackson et al., 2020).
- Differences in environmental exposures and lifestyle factors may contribute to variations in cognitive aging across different populations in the African diaspora despite common ancestry.
- Comparative research in aging and cognitive health remains understudied in African-American And Nigerians populations.

Objectives

- Objective #1:** To investigate how differences in health, lifestyle, and environmental factors may contribute to variation in cognitive aging outcomes among populations with shared West African ancestry (Newark and Ibadan cohorts).
- Objective #2:** To compare the Newark and Ibadan cohorts on the genotype prevalence, social network size and level of composition, sleep quality, physical fitness and function measures, and cognitive function.

Methods

Participants (N = 409)	Newark, African Americans Cohort (N=285)		Ibadan, Nigeria Yoruba Cohort (N=124)	
Variable	Mean (N)	SD (%)	Mean (N)	SD (%)
Age (years)	70.89	6.51	70.06	0.41
Sex (female)	(186)	(69.7%)	(73)	(58.9%)
Systolic Pressure	139.68	20.35	142.99	22.61
Diastolic Pressure	78.41	10.12	84.72	13.26
VO ₂ Peak	12.91	1.54	11.77	1.33
Global PSQI	7.80	3.33	6.22	2.89
ABCA7-50 Risk Genotype	(99)	(41.6%)	(58)	(47.9%)
ABCA7-80 Risk Genotype	(25)	(10.3%)	(25)	(20.5%)

Methods (continued)

Measures

Physical

Physical health was assessed using measures of cardiovascular function and fitness, including systolic and diastolic blood pressure, resting heart rate, and VO₂peak.

Sleep

Sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), which measured global sleep quality, sleep latency, daytime dysfunction, and other sleep-related outcomes. (Image 1)

Image 1: Pittsburgh Sleep Quality Index (PSQI) testing form

Social

Social engagement was assessed using the Social Network Index (SNI), which examined participants' social network size and level of social connectedness. (Image 2)

Image 2: Social Network Index (SNI) assessment sheet

Cognitive

Cognitive function was assessed through a battery of neuropsychological tests measuring memory, executive function, verbal fluency, attention, and global cognition, including the Rey Auditory Verbal Learning Test (RAVLT) and the Montreal Cognitive Assessment (MoCA). (Image 3)

Image 3: Montreal Cognitive Assessment (MoCA)

Genetics

Genetic risk factors associated with cognitive aging were examined through analysis of ABCA7 genotype prevalence across cohorts.

Analyses

- Descriptive statistics were calculated to characterize the Newark and Ibadan cohorts.
- Independent t-tests and chi-square analyses were conducted to examine differences between cohorts including genotype prevalence and other demographic characteristics.
- Statistical significance was set at $p < .05$.

Results

- Nigerian participants exhibited significantly higher systolic and diastolic blood pressure, and resting heart rate ($ps < .001$). See Figure 1 below.

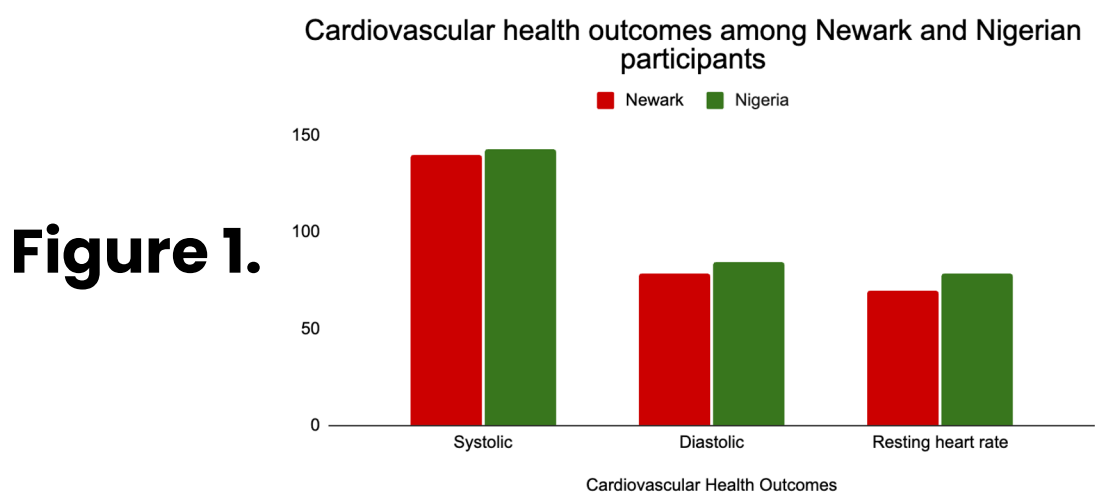


Figure 1.

- Sleep outcomes differed, with Newark participants showing significantly poorer overall sleep quality ($p < .001$), while Nigerian participants reported greater daytime dysfunction and longer sleep latency ($ps < .001$). See Figure 2 below.

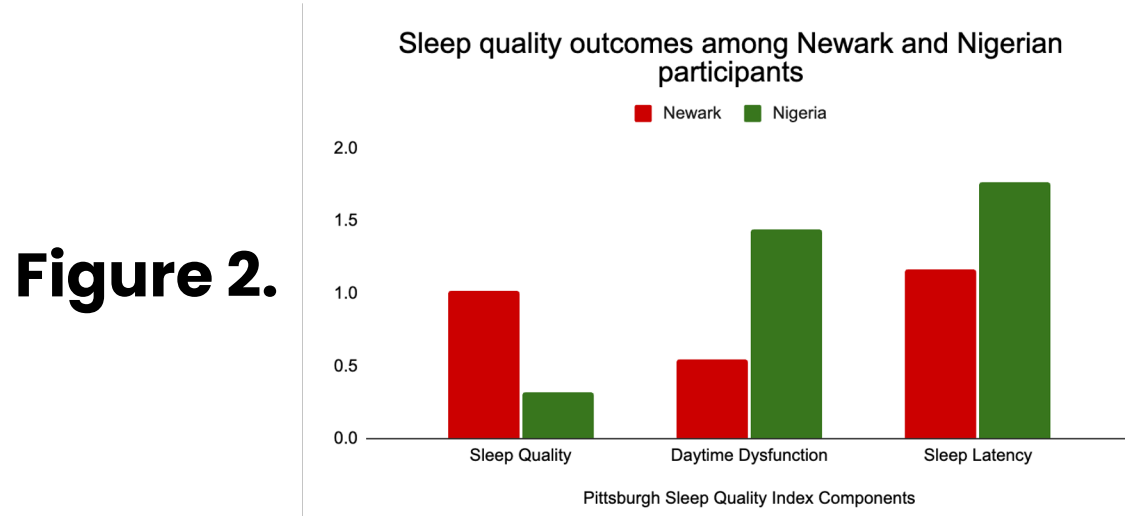


Figure 2.

- Cognitive function favored Newark, including significantly better performance on generalization of prior learning, delayed recall, and attention ($ps < .001$). See Figure 3 below.

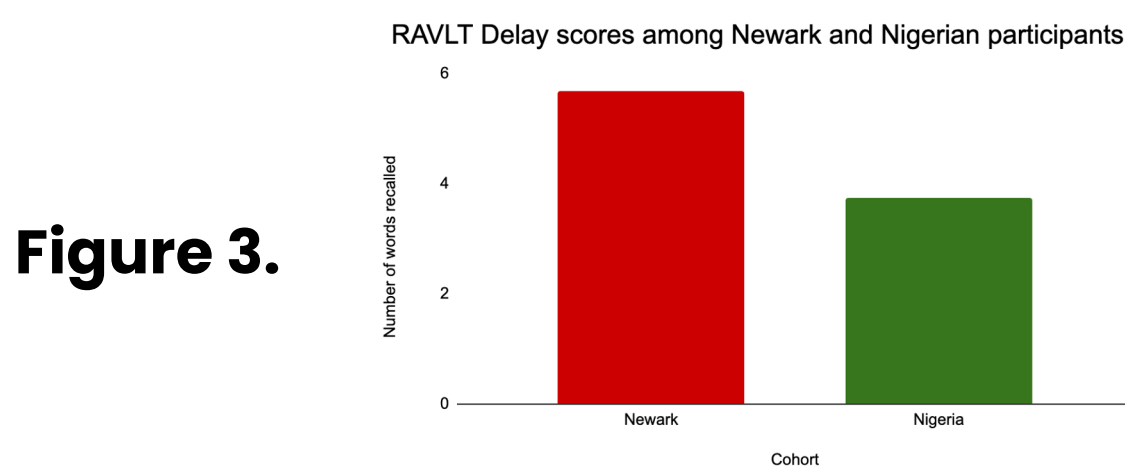


Figure 3.

Discussion

- Despite shared ancestry, meaningful differences were observed across physical health, sleep, cognitive performance, and social engagement between cohorts.
- These findings suggest that environmental, socioeconomic, and lifestyle factors may play a critical role in shaping cognitive aging outcomes across populations of the African diaspora.
- Future research should explore these measures in similar populations to further investigate similarities and differences in populations with shared West African ancestry.

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