

CARDIOMETABOLIC COMPLICATIONS IN WOMEN WITH PCOS: ROLE OF ANDROGENS, RACE/ETHNICITY, AND THE RENIN-ANGIOTENSIN SYSTEM

Poster #

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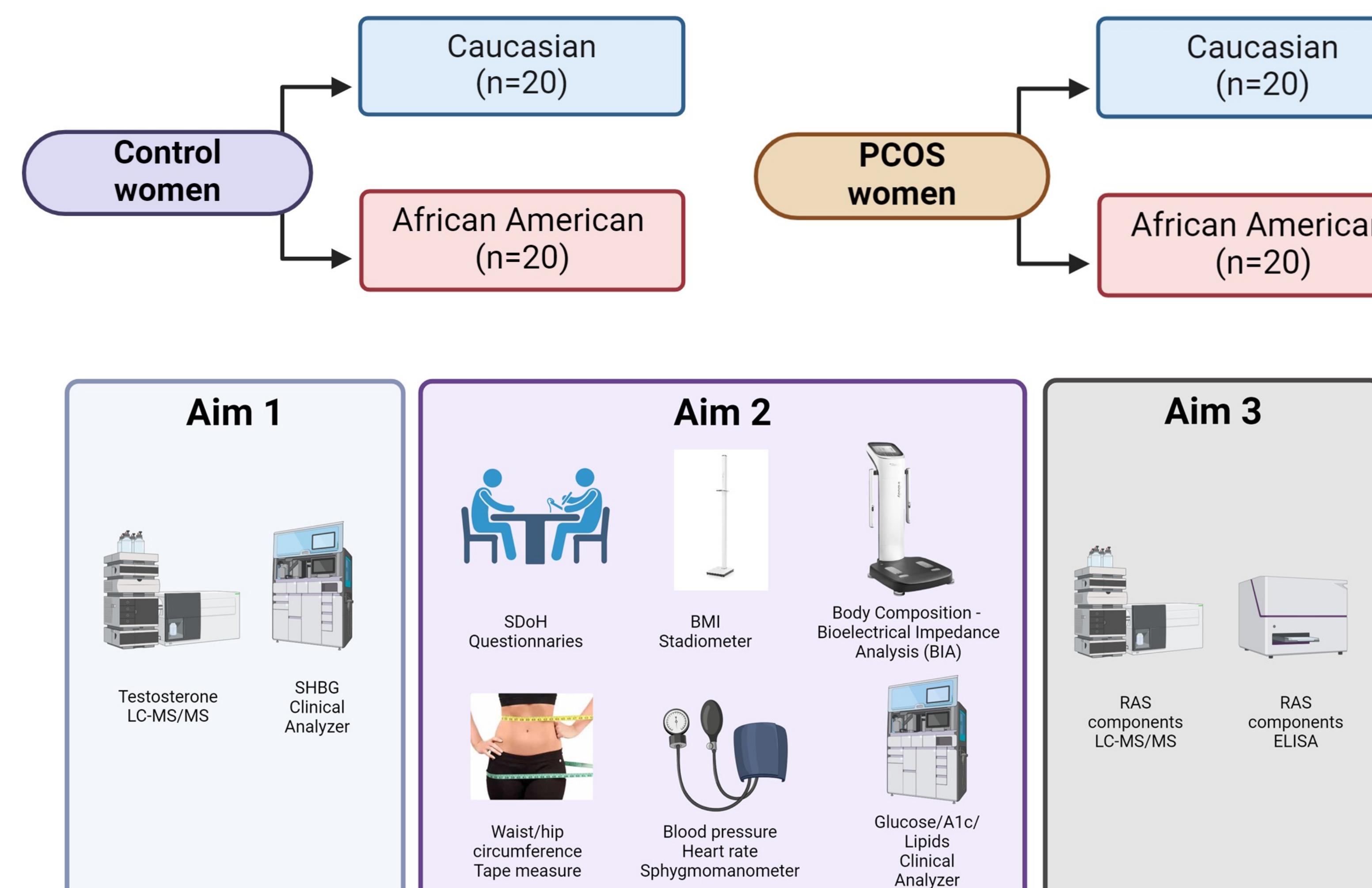
Background

- Unmet Need:** Participants will be enrolled in Endocrinology and Obstetrics/Gynecology clinics at the University of Mississippi Medical Center in Jackson, Mississippi. Recently, we added the Patient Cohort Explorer, a Database of deidentified patients at UMMC, to enhance enrollment.
- Research Setting:** PCOS is the most common endocrine disorder in reproductive-age women with a high prevalence of cardiovascular risk factors (CRF). Cardiovascular disease is the leading cause of mortality in women in the USA. An incomplete understanding of its pathophysiology limits effective therapies for CRF in PCOS. BW with PCOS have increased incidence of CRF than their WW counterparts. The role of social determinants of health (SDoH) in PCOS is poorly understood and may play a significant role in the racial disparities observed in PCOS.

Project Aims

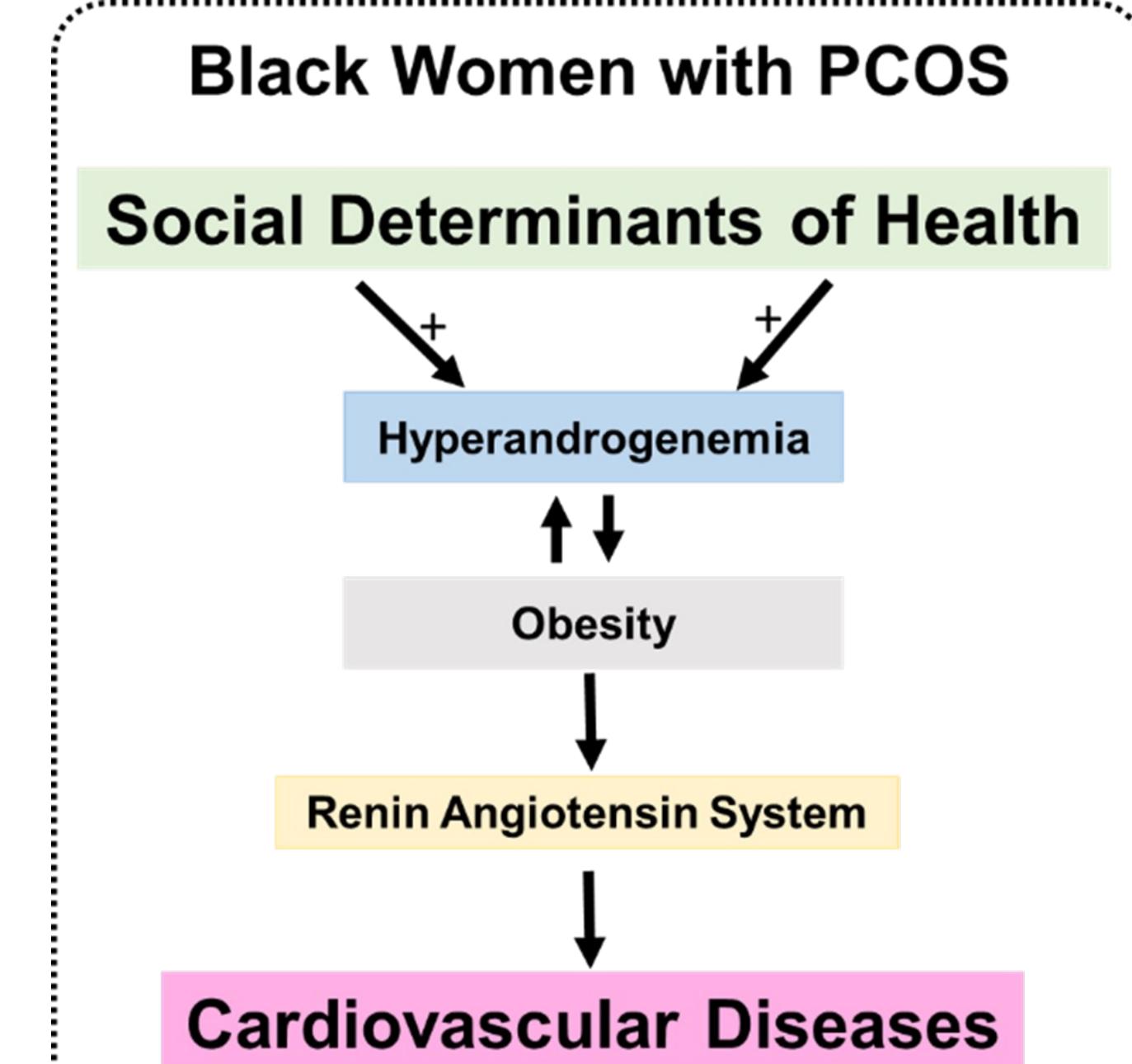
- Aim 1:** To test the hypothesis that SDoH play a significant role in racial disparities in CRF and are associated with high levels of plasma-free testosterone in BW with PCOS
- Aim 2:** To test the hypothesis that BW with PCOS present with SDoH-mediated high levels of androgens, which lead to a worsened cardiometabolic profile
- Aim 3:** To test the hypothesis that the renin-angiotensin system (RAS) components are upregulated in BW with PCOS due to SDoH-mediated high levels of androgens

Study Design



Theoretical Framework

- Social determinants of health (SDoH) play a significant role in the racial disparities observed in the cardiovascular risk factors present in Black women with PCOS.
- Higher levels of androgens and activation of the systemic renin-angiotensin system play a significant role in SDoH-mediated high prevalence of cardiovascular risk factors in Black women with PCOS.



Outcomes

Social Determinants of Health

Annual Family Income	Birthplace	Education	Health care access / experiences
Current Address		Employment	Health Literacy
Current Age		Ethnicity and Race	Health Insurance Coverage
		Food Insecurity	Marital Status

Main outcomes

Aim 1	Aim 2	Aim 3
Plasma total testosterone	Body weight and height	Angiotensinogen
Plasma free testosterone	Body Mass Index (BMI)	Angiotensin-Converting Enzyme
Plasma SHBG	Waist and hip circumference	Angiotensin-Converting Enzyme 2
	Blood pressure	Angiotensin II (All)
	Heart rate	Angiotensin (1-7)
	Hemoglobin A1c	Plasma Renin Activity
	Glucose	Urinary angiotensinogen
	Lipid panel	Urinary ACE2

Key Messages

- The evaluation of SDoH has not been routinely assessed in the clinical care for women with PCOS.
- The present study will demonstrate the fundamental importance of evaluating and addressing SDoH in the clinical care of women with PCOS.
- Data from this project will highlight the fundamental role of SDoH in mediating increased CRF among BW with PCOS.
- SDoH such as food insecurity, healthcare access, education, etc. will need to be addressed to eliminate racial disparities.

Community Impact

Community Partners

- Mayo Clinic
- University of Mississippi Medical Center Pharmacology Clinical Research Core
- Jackson Free Clinic
- Grace Place

Community & Public Health Potential Benefits

- Health education: Provide community-based education to increase awareness of PCOS
- Health care delivery: Provide improved quality of care for patients with PCOS, by incorporating a focus on relevant SDoH

References

