

**BIOGRAPHICAL SKETCH**

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NAME: April-Sanders, Ayana K.

eRA COMMONS USER NAME (credential, e.g., agency login): akapril

POSITION TITLE: Instructor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Rutgers University, New Brunswick, NJ	BS	05/2008	Public Health
Columbia University, New York, NY	MPH	05/2011	Sociomedical Sciences
Columbia University, New York, NY	MPHIL	05/2019	Epidemiology
Columbia University, New York, NY	PHD	10/2020	Epidemiology
Albert Einstein College of Medicine, Bronx, NY	Fellowship	07/2022	Cardiovascular Disease Epidemiology

**A. Personal Statement**

I am a core faculty member and Instructor at the Rutgers School of Public Health (SPH). I received my PhD in Epidemiology with a focus on health disparities in both cancer and cardiovascular disease epidemiology. I am expertly trained in utilizing clinical data to investigate social determinants of health factors contributing to cardiovascular disease and subclinical heart failure among diverse population-based US cohorts.

My program of research focuses on understanding disparities in cardiometabolic disease across the life course. This work is informed by etiologic research on risk and protective factors relevant to minoritized communities of color that impact the development of cardiovascular and metabolic diseases. My long-term career goal is to become an independent investigator in the field of cardiovascular and social epidemiology, with a focus on improving cardiovascular and metabolic health outcomes across the life course for minoritized individuals and their families. I have established a significant foundation towards this goal by acquiring training in a broad range of epidemiologic research methodology, developing close mentorship relationships and pursuing research experiences in applied and translational research. My early research focused on early life factors (i.e., childhood adversities, sleep disturbances, pubertal timing) related to risk for cardiometabolic disease among Hispanic/Latino and Caribbean adolescents, young adults, and women of reproductive age. As part of this work, I gained extensive training in integrative longitudinal and life course data analysis and established evidence for examining psychosocial and biological mechanisms linking stress with physical health at critical periods of development. I also trained with research cardiologists to investigate early life adversities and social determinants of health as key risk factors for subclinical heart failure for communities with diverse ethnic backgrounds. As part of this line of study, I identified latent class profiles of early life adversity associated with cardiometabolic risk factors and parameters of cardiac structure and function; conducted a real-world evidence study using electronic medical records to quantify the prevalence of hypertension treatment control and extent of health inequities a predominantly black and Hispanic patient population; and analyzed a targeted population-based cohort of US Hispanics/Latinos to assess e-cigarette use and correlates with cardiometabolic health – evidence that will serve as the basis for future research in this area and may inform the Food and Drug Administration in the regulation of e-cigarettes to protect public health.

- a) **April-Sanders AK**, Golestaneh L, Zhang L, Swett K, Meissner P, Rodriguez CJ. Hypertension Treatment and Control in a New York City Health Care System. *J Am Heart Assoc.* 2022 Jul 19;11(14):e026077. doi: 10.1161/JAHA.122.026077. Epub 2022 Jul 15. PMID: 35861846.
- b) **April-Sanders AK**, Rodriguez CJ. Metabolically Healthy Obesity Redefined. *JAMA Netw Open.* 2021 May 3;4(5):e218860. doi: 10.1001/jamanetworkopen.2021.8860. PMID: 33961041.

- c) Suglia SF, Chen C, Wang S, Cammack AL, **April-Sanders AK**, McGlinchey EL, Kubo A, Bird H, Canino G, Duarte CS. Childhood Adversity and Pubertal Development Among Puerto Rican Boys and Girls. *Psychosom Med*. 2020 Jun;82(5):487-494. PubMed PMID: 32515925.
- d) **April-Sanders A**, Duarte CS, Wang S, McGlinchey E, Alcántara C, Bird H, Canino G, Suglia SF. Childhood Adversity and Sleep Disturbances: Longitudinal Results in Puerto Rican Children. *Int J Behav Med*. 2020 Apr 7; PubMed PMID: 32266589.
- e) Tehranifar P, Rodriguez CB, **April-Sanders AK**, Desperito E, Schmitt KM. Migration History, Language Acculturation, and Mammographic Breast Density. *Cancer Epidemiol Biomarkers Prev*. 2018 May;27(5):566-574. PubMed PMID: 29475965.
- f) **April-Sanders A**, Oskar S, Shelton RC, Schmitt KM, Desperito E, Protacio A, Tehranifar P. Predictors of Breast Cancer Worry in a Hispanic and Predominantly Immigrant Mammography Screening Population. *Womens Health Issues*. 2017 Mar - Apr;27(2):237-244. PubMed PMID: 27863982.

## B. Positions and Honors

### Positions and Employment

2007 - 2008	Research Trainee, Rutgers University, Institute for Health, Health Care Policy, and Aging Research, New Brunswick, NJ
2007 - 2008	Research Associate, Coalition Against Trafficking in Women, New York, NY
2008 - 2008	Teaching Assistant, Rutgers University, Institute for Health, Health Care Policy, and Aging Research, New Brunswick, NJ
2008 - 2009	Project Coordinator, Rutgers University, The Center for the Study of Health Beliefs and Behaviors, New Brunswick, NJ
2009 - 2011	Graduate Research Assistant, Columbia University, Sociomedical Sciences, New York, NY
2009 - 2012	Research Associate, Basic Health International, New York, NY
2010 - 2010	Teaching Assistant, Columbia University, Sociomedical Sciences, New York, NY
2011 - 2012	Senior Grants Associate, Good Shepherd Services, New York, NY
2012 - 2013	Contracts Manager, Good Shepherd Services, New York, NY
2013 - 2015	NIGMS T32 Predoctoral Fellow, Columbia University, Epidemiology, New York, NY
2014 - 2018	Teaching Assistant, Columbia University, Epidemiology, New York, NY
2015 - 2018	Graduate Research Assistant, Columbia University, Epidemiology, New York, NY
2018 - 2018	Teaching Assistant, Ecole des Hautes Études en Santé Publique, Epidemiology, Paris
2018 - 2019	PhD Intern, Sanofi, Real-World Evidence, Bridgewater, NJ
2020 - 2022	NHLBI Postdoctoral Research Fellow, Albert Einstein College of Medicine, Department of Cardiology, Bronx, NY
2022 -	Instructor, Rutgers School of Public Health, Department of Biostatistics and Epidemiology, Piscataway, NJ

### Other Experience and Professional Memberships

#### *Scientific Council Memberships*

2020 –	American Heart Association Council on Lifestyle and Cardiometabolic Health
2020 –	American Heart Association Tobacco Center for Regulatory Science
2020 –	American Heart Association Early Career Blogging Program
2020 –	American Heart Association Council on Epidemiology and Prevention

#### *Ad Hoc Reviewer*

Present	International Journal of Behavioral Medicine
Present	Pediatrics
Present	JAMA
Present	Sleep Medicine Review

#### *Professional Organization Memberships*

2007 –	Member, Caribbean Studies Association
2013 –	Member, American Public Health Association

- 2015 – Member, Society of Epidemiologic Research
- 2020 – American Heart Association
- 2021 – International Epidemiology Association

## **Honors & Awards**

- 2004 - 2008 Rutgers University Scholarships for New Jersey Residents, Rutgers University
- 2009 - 2010 Hedwig Hass Turkenkopf Fellowship, Douglass Alumnae Award, Rutgers University
- 2009 - 2011 Harriet and Robert H. Heilbrunn Scholars Program, Mailman School of Public Health, Columbia University
- 2009 - 2018 Travel Awards, Columbia University
- 2017 - 2018 Academic Excellence Award, Department of Epidemiology, Mailman School of Public Health, Columbia University
- 2021 The William Jenkins Award in Epidemiology & Social Justice, Mailman School of Public Health, Columbia University
- 2021 – 2022 National Institutes of Health Loan Repayment Program Award, Health Disparities, National Heart, Lung, and Blood Institute

## **C. Contribution to Science**

1. **IDENTIFYING CHRONIC DISEASE RISK FACTORS IN HISPANIC/LATINA WOMEN.** As an extension of my early work investigating psychosocial determinants associated with reproductive cancers, I have pursued examinations of whether such variables predict greater breast cancer risk among Latinas from the Caribbean. My research found that Latina women were more likely to base their cancer worry on perceptions of risk rather than objective risk factors. In addition to psychosocial factors, I have also contributed to the literature supporting the role of acculturation and migration status as factors contributing to mammographic breast density, a significant risk factor for breast cancer. The results from this research suggested that cancer worry was largely influenced by risk perception over objective risk, and that foreign-born Latinas had less dense breast than US-born Latinas. This series of research raised questions about how early life factors may support the biological mechanisms of these social relationships and lay a trajectory for cancer and cardiometabolic disease among racial/ethnic minorities. Specifically, I began investigating the relationship between childhood adversities with pubertal timing, both prominent components attributed to influencing cancer and cardiometabolic disease outcomes in the midlife.
  - a. Tehranifar P, Rodriguez CB, **April-Sanders AK**, Desperito E, Schmitt KM. Migration History, Language Acculturation, and Mammographic Breast Density. *Cancer Epidemiol Biomarkers Prev.* 2018 May;27(5):566-574. PubMed PMID: 29475965.
  - b. **April-Sanders A**, Oskar S, Shelton RC, Schmitt KM, Desperito E, Protacio A, Tehranifar P. Predictors of Breast Cancer Worry in a Hispanic and Predominantly Immigrant Mammography Screening Population. *Womens Health Issues.* 2017 Mar - Apr;27(2):237-244. PubMed PMID: 27863982.
  
2. **IDENTIFYING THE ROLE OF CHILDHOOD ADVERSITIES AND OFF-TIME (EARLY/LATE) PUBERTY IN LATINOS.** With my interest in early life determinants of health, I directed my research agenda to understanding the pathways to early evidence of cardiometabolic disease among adolescent and young adult Latinos. Specifically, I contributed to research aimed at identifying the prevalence of childhood adversities, off-time pubertal maturation, and sleep disturbances in Puerto Rican youth – a largely understudied ethnic group in the literature.
  - a. Suglia SF, Chen C, Wang S, Cammack AL, **April-Sanders AK**, McGlinchey EL, Kubo A, Bird H, Canino G, Duarte CS. Childhood Adversity and Pubertal Development Among Puerto Rican Boys and Girls. *Psychosom Med.* 2020 Jun;82(5):487-494. PubMed PMID: 32515925.
  - b. **April-Sanders A**, Duarte CS, Wang S, McGlinchey E, Alcántara C, Bird H, Canino G, Suglia SF. Childhood Adversity and Sleep Disturbances: Longitudinal Results in Puerto Rican Children. *Int J Behav Med.* 2020 Apr 7; PubMed PMID: 32266589.

c. **April-Sanders AK**, Tehranifar P, Argov EL, Suglia SF, Rodriguez CB, McDonald JA. Influence of Childhood Adversity and Infection on Timing of Menarche in a Multiethnic Sample of Women. *Int J Environ Res Public Health*. 2021 Apr 13;18(8):4080. doi: 10.3390/ijerph18084080. PMID: 33924338

3. **IDENTIFYING MODIFIABLE FACTORS THAT INFLUENCE TRAJECTORIES OF CARDIOVASCULAR AND CARDIOMETABOLIC DISEASE IN CHILDREN, ADOLESCENTS, YOUNG ADULTS, AND ADULTS IN MIDLIFE.** I am interested in critical periods for developing obesity, diabetes, and other cardiometabolic outcomes, beginning in pregnancy through early childhood and adolescence. Building on my dissertation research titled 'Cardiometabolic consequences of pubertal maturation and childhood adversity in young Latino men and women,' I seek to connect the behavioral, psychological, and biological mechanisms identified to explain how life course factors may increase the risk of cardiometabolic diseases and the sociocultural variations of these risks. My work integrates epidemiologic methods, electronic medical records and claims data, cardiac imaging, and laboratory biomarkers to address my research questions. My dissertation research, presently one chapter under peer review and another in preparation for journal submission, indicates that childhood adversities is associated with later pubertal timing among Latino boys and girls and is independent of other well-established risk factors like childhood adiposity and childhood socioeconomic factors. My work is also among the first to examine the association between off-time pubertal maturation and metabolic syndrome and cardiometabolic traits among Puerto Rican young adult men and women. We noted higher prevalence for metabolic syndrome, and cardiometabolic traits like elevated triglycerides, hypertension, and C-reactive protein in a Puerto Rican cohort compared with reports of non-Hispanic White and Mexican-American young adults from nationally reported data. These findings suggest that early childhood events may influence reproductive development and the potential for increase CVD risks in later life. Also, where studies among people of color or men are limited, these findings suggest that off-time pubertal maturation may be a marker for higher risk profiles among Latino young adults.
- a) **April-Sanders AK**, Tehranifar P, Terry M, et al. (Under Review). Family dysfunction and timing of pubertal maturation among Latino boys and girl from the Hispanic Community Health Study/Study of Latinos Youth.
- b) **April-Sanders AK**, Terry M, Tehranifar P, Suglia SF. (In Preparation). Timing of pubertal maturation and metabolic syndrome in young Puerto Rican men and women from the Boricua Youth Study
4. **INVESTIGATING FACTORS CONTRIBUTING TO SUBCLINICAL HEART FAILURE AMONG A DIVERSE COHORT OF US HISPANICS/LATINOS.** Heart failure (HF) is a leading cause of morbidity and mortality in the United States, and its prevalence continues to rise despite the overall decline in CVD-related outcomes. Hispanics/Latinos are known to have significantly higher heart disease and stroke mortality rates than Whites. The epidemiology for increased CVD mortality among minoritized populations has been inadequately defined and does not appear to be fully explained by traditional risk factors (e.g., smoking, hypertension, hypercholesterolemia, diabetes). Evidence highlights the significance of stress across the life course in shaping trajectories of CVD. We examine the role of adverse life factors (i.e., childhood socioeconomic and psychosocial adversity) on attributing risk of abnormal cardiac structure and function in adulthood to consider behavioral mechanisms at work in these relationships.
- a) **April-Sanders AK**, Gallo L, Lee UJ, et al. (In Preparation). Patterns of early life adversities and cardiac structure and function among Hispanics/Latinos in the midlife: The Echocardiographic Study of Latinos.
- b) **April-Sanders AK**, Golestaneh L, Zhang L, Swett K, Meissner P, Rodriguez CJ. Hypertension Treatment and Control in a New York City Health Care System. *Journal of the American Heart Association*. 2022 Jul 19;11(14):e026077.
- c) Hirsch E, Lee U, **April-Sanders AK**, et al. (In Preparation). Impact of Chronic Stress on Cardiac Structure and Function: A Prospective Analysis of the ECHO-SOL Cohort
- d) **April-Sanders AK**, Alvarez, L, Meykler M, et al. (In Preparation). The role of acculturation and genetic ancestry in the association between perceived discrimination and hypertension risk among Hispanics/Latinos in the Hispanic Community Health Study/Study of Latinos.

Additionally, I am mentoring several medical students and cardiology residents through projects that assess how specific clinical characteristics (i.e., hypertension, diabetes mellitus, chronic kidney

disease, pulmonary disease, ASCVD risk scores) and psychosocial and acculturative stress may contribute to changes in left and right ventricular structure and function. For example, in a study assessing change in HF risk factors and its association with longitudinal change in left ventricular (LV) echocardiographic parameters among Hispanics, we found that Hispanics exhibit worsening LV remodeling and function over time, in which HbA1c and systolic blood pressure were positively correlated with worsening LV diastolic function. These observed changes demonstrate an increased risk for incident HF in this population. Collectively, these works highlight and address a gap in the literature on research focused on effectively explaining the Hispanic Paradox and identifying protective factors against CVD and related mortality.

- e) Vasquez N, **April-Sanders A**, Swett K, et al. Association of heart failure risk factors with left ventricle longitudinal change in Hispanics: The echocardiographic study of Latinos (ECHO-SOL). *Journal of the American College of Cardiology*. 2021;77(18\_Supplement\_1):3380-3380.
- f) Kuno T, Vasquez N, **April-Sanders AK**, et al. (Under Review) Prevalence and Correlates of Pre-Heart Failure Longitudinal Change in a Hispanics/Latino Population-Based Study: Insights from the Echocardiographic Study of Latinos
- g) Chavez P, **April-Sanders AK**, Lee UJ, Elfassy T, et al. (In Preparation). Pooled cohort equation as a predictor of incident hypertension among Hispanics/Latinos: The Hispanic Community Health Study/Study of Latinos (HCHS/SOL).
- h) Chavez P, **April-Sanders AK**, Lee UJ, Cai J, et al. (In Preparation). Longitudinal Impact of glucose regulation on cardiac structure and function: Results from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) and Echocardiographic Study of Latinos-2 (Echo-SOL-2).
- i) McLeod J, Lee UJ, **April-Sanders AK**, Kaplan R, et al. (In Preparation). Blood Pressure and Longitudinal Changes in Cardiac Structure and Function in a Hispanic Population-Based Cohort: Hispanic Community Health Study/Study of Latinos: Echocardiographic Study of Latinos.

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/ayana.april-sanders.1/bibliography/public/>

## **D. Additional Information: Research Support**

### **Current Research Support**

2021-2022 **R01 5T32HL144456-03, NHLBI Training Grant**

Project title: Patterns of early life adversities and cardiac structure and function among Hispanics/Latinos in the midlife: The Echocardiographic Study of Latinos  
PI: Richard Kitsis; Nicholas Sibinga  
Role: Postdoctoral Trainee

### **Completed Research Support**

2016-18 **R01 HL125761-02S1, NHLBI Diversity Supplement**

Project title: Childhood adversity and Cardiovascular Health among Puerto Rican youth  
PI: Shakira F. Suglia  
Role: Graduate Researcher

2013-15 **R25 GM062454-11, NIGMS Initiative for Maximizing Student Development Grant**

PI: Ana Abraido Lanza  
Role: Pre-Doctoral Trainee