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EDUCATION

- 2014 **Post-doctoral training** in genetic epidemiology
University of Michigan, Ann Arbor, MI
Supervisor: Dr. Sharon Kardia
- 2014 **Ph.D.** in Epidemiological Sciences
University of Michigan, Ann Arbor, MI
Dissertation: Genes, the environment, and depressive symptom scores in the Multi-Ethnic Study of Atherosclerosis
Advanced to Candidacy: Summer 2009
Oral defense: November 15, 2013
Advisor: Dr. Ana Diez-Roux, Previously: Dr. Sandro Galea
- 2013 **M.A.** in Statistics
University of Michigan, Ann Arbor, MI
Advisor: Dr. Ji Zhu
- 2008 **M.P.H.** in Public Health
University of Michigan, Ann Arbor, MI
Area of concentration: Epidemiology, mental health epidemiology
Advisor: Drs. Katherine Hoggatt, Sandro Galea
- 2006 **B.S.** in Mathematics, Sociology (*Cum Laude* and honors)
Minor: Religious Studies
Northern Michigan University, Marquette, MI

PROFESSIONAL APPOINTMENTS – Research, Teaching, Service, Peer Review

I. Academic Research:

August 2018 – Present **Research Assistant Professor**
University of Michigan, Institute of Social Research

Survey Research Center
Population, Neurodevelopment, and Genetics

Nov 2016 – Aug 2018 **Research Investigator**
University of Michigan, Institute of Social Research
Survey Research Center
Population, Neurodevelopment, and Genetics

Nov 2014 – Oct 2016 **Research Investigator**
University of Michigan, Institute of Social Research
Research Center for Group Dynamics
Biosocial Methods Collaborative

March 2014 – March 2015 **Research Analyst**
University of Michigan, Institute of Social Research
Army Study to Assess Risk and Resilience in Service members

January 2014 – Oct. 2014 **Research Area Specialist**
University of Michigan, Department of Epidemiology
Genomics, Life Science, and Community Collaborative
Supervisor: Dr. Sharon Kardia

Summer 2012 and 2013 **Graduate Student Research Assistant, *University of Michigan***
May 2010 – August 2011 *School of Public Health, Center for Social Epidemiology and Population*
Health, Ann Arbor, MI
Advisor: Ana Diez-Roux, MD, DrPH
*Robert Woods Johnson Foundation Health & Society Scholars Small
Grant Award, August 2010-August 2011

September 2008 – **Graduate Student Research Assistant, *University of Michigan***
December 2009 *School of Public Health, Center for Social Epidemiology and Population*
Health, Ann Arbor, MI
Advisor: Sandro Galea, MD, DrPH

2006 – September 2008 **Research Assistant, *University of Michigan School of Public Health,***
Center for Social Epidemiology and Population Health, Ann Arbor, MI
Advisor: George Kaplan, PhD

Summer 2007 **Research Intern, *University of Michigan School of Public Health,*** Center
for Social Epidemiology and Population Health, Ann Arbor, MI
Advisors: Sandro Galea, MD, DrPH; George Kaplan, PhD

Summer 2005 **Research Analyst Intern, *College of Lake County,*** Institutional
Effectiveness, Research and Planning, Grayslake, IL
Supervisor: Nancy McNerny, PhD

II. Teaching and Mentoring:

Summer 2019 **Course Developer**
University of Michigan, School of Information, University of Michigan
Develop *Math Methods for Data Scientists* course for online Master's
program

Summer 2017,2018 **Lead Instructor**

University of Michigan, Institute for Social Research, Genomics for Social Scientists (R25, PI: Mitchell/Faul/Kardia)
Lab instructor, 30 professional/graduate students/professors/scientists

Summer 2017

Instructor

University of Michigan, Department of Epidemiology, Summer Session
EPID 759 – Introduction to SAS
6 professional/graduate students

Winter 2016 –
Summer 2018

Part-time Teaching Faculty

Wayne State University, School of Medicine,
FPH7350 – Programming for the Public Health Professional, Detroit, MI
Three courses of ~20 graduate students; three semesters
FPH7240 – Introductory Epidemiology, Detroit, MI
One course of ~80 graduate students; one semester; flipped classroom

Winter 2013 –
Summer 2016

Instructor

Washtenaw Community College, Department of Mathematics,
MTH160 – Basic Statistics, Ann Arbor, MI
Dean: Kris Good
16 classes of ~30 undergraduate students; twelve total semesters

Fall 2012
Fall 2013

Instructor of Record

University of Michigan, School of Information, SI544 - Introduction to statistics and data management, Ann Arbor, MI
One course of ~80 graduate students; two semesters

2007 – 2015

Individual Private Tutor

University of Michigan, Statistics courses, Ann Arbor, MI
Tutoring introductory statistics courses, primarily for non-traditional students and students with learning disabilities
Approximately 100 individual students over eight years

Summer 2012

Graduate Student Instructor

University of Michigan, Department of Epidemiology, Summer session,
EPID 759 - Introduction to SAS; EPID 791 - Intermediate SAS, Ann Arbor, MI
Instructor: Kathy Welch
~15 professionals/graduate students

Fall 2011

Graduate Student Instructor

University of Michigan, School of Information,
SI544 - Introduction to statistics and data management, Ann Arbor, MI
Instructor: Dr. Qiaozhu Mei
One course of ~80 graduate students; one semester

Winter 2011
Winter 2012
Winter 2013

Graduate Student Instructor

University of Michigan, Department of Epidemiology,
EPID640 - Introduction to SAS programming, Ann Arbor, MI
Instructor: Dr. Sara Adar
Two labs of 26 graduate/medical students, three semesters

Summer, 2010

Graduate Student Instructional Aide

University of Michigan, Epidemiology Summer Institute,
EPID 759 – Introduction to SAS programming, Ann Arbor, MI

Instructor: Kathy Welch
~15 professionals/graduate students

Winter 2010
Spring 2010

Graduate Student Instructor

University of Michigan, Department of Statistics, STAT350 – Introduction to statistics and data analysis, Ann Arbor, MI
Instructor: Drs. Brenda Gunderson, Tom Venable
Three labs of 30 undergraduate students; over two semesters

2005 – 2006

Individual Tutor for Special Needs – TRIO program, *Northern Michigan University*, Student Support Services, Marquette, MI

2005 – 2006

Study Group Facilitator/Walk-in Tutor, Concentrating in Mathematics and Sociology. *Northern Michigan University*, All Campus Tutoring Center, Marquette, MI

III. Service

2019

HackerSpace host, *University of Michigan*, Institute for Social Research, Ann Arbor, MI

2009

Doctoral Seminar Organizing Committee for EPID 890, *University of Michigan*, Department of Epidemiology, Ann Arbor, MI
Advisor: Dr. Sharon Kardia

2009

PhD Student Representative to the Admissions Committee
University of Michigan, Department of Epidemiology, Ann Arbor, MI
Chair: Dr. Carl Marrs

Mentoring of Graduate Students, Post-Doctoral Fellow

Post-Doc level

Current Lauren Schmitz, Ph.D (The New School, Post-Doc at University of Michigan)
Current Lauren Brown, Ph.D (University of Southern California, Post-Doc at University of Michigan)
Current Asta Breinholt, Ph.D (University of Copenhagen, Post-Doc at University of Michigan)
2018 Olesya Ajnakina, Ph.D. (Kings College London, Post-Doc at University College London)

Ph.D. level

2014 Neha Sheth, PharmD, Ph.D (University of Michigan)
2014 Paul Christine, M.D./Ph.D. (University of Michigan)
2017 Kristen Brown, Ph.D. (University of Michigan)
2017 David Braudt, Ph.D. candidate (University of North Carolina, Chapel Hill)
2017/2018 MJ Kho, Ph.D. (University of Michigan)
Current Arianna Gard, Ph.D. candidate (University of Michigan)
Current Katherine Brieger, M.D./Ph.D. candidate (University of Michigan), Committee member

Master's level

2013 Ellen Riehle, M.P.H. (University of Michigan) – Truven Health Analytics
2014 Pritika Dasgupta, M.P.H. (University of Michigan)
2015 Farnaz Malik, M.P.H. (University of Michigan)
2015 Jillian Schrager, M.P.H. (University of Michigan) Michigan Dept. of Com Health
2015/2016 Kalyn Yatsutake, M.P.H. (University of Michigan)
2016 Jacob Hillman, M.P.H. (University of Michigan)
2016 Jiaxuan Li, M.P.H. (University of Michigan)

2017 Ameen Masoodi, M.P.H. Candidate (Wayne State University)
 2017/2018 Harita Vadari, M.P.H. (University of Michigan)
 2017/2018 Bradly Petrowitz, M.P.H. (University of Michigan)
 2018 Daniel Brandt, M.P.H. Candidate (University of Michigan)
 2018 Allyson Gregoire, M.P.H. Candidate (University of Michigan)
 2018 Mingzhou Fu, M.P.H. Candidate (University of Michigan)

Undergrad level

2017 Nicholas Miller (University of Michigan)
 2017 Isabelle Williams (University of Michigan)
 2018 Jonah Fisher (University of Michigan)

IV. Peer Reviewer for Professional Journals

2008 – *Journal of Traumatic Stress*
 2009 – *Depression and Anxiety*
 2019 – *Biodemography and Social Biology*

GRANTS

Submitted or in progress:

National Institute on Mental Health
 R01 MH121079

Monk, Mitchell, Hyde (PI's)

Computational examination of RDoC threat and reward constructs in a representative, predominantly low-income, longitudinal sample at increased risk for internalizing disorders

By deeply phenotyping a large cohort enriched for low income and African American participants, the project will determine the validity of Threat/Reward constructs and findings will generalize to a population underrepresented in research and disproportionately affected by adversity.

Role: Co-Investigator Submitted: 1/2019 Status: In Review

Eunice Kennedy Shriver National Institute of Child Health and Human Development
 R01 HD076592

Notterman & Mitchell (PIs)

Biological and social mediators of child wellbeing among ethnic groups in Fragile Families

we plan to develop a portfolio of relatively new measures based on data acquired during the current funding period (multiple polygenetic scores, including several that exploit gene expression or experimental data to enhance the predictive power for particular phenotypes.

Role: Co-Investigator Submitted: 11/2018 Status: In Review

National Institute on Alcohol Abuse and Alcoholism
 R01 AA026687-01

Birditt (PI)

Alcohol consumption and cardiovascular health among older couples: The roles of genetics and marital quality

The goals of this project are to understand longitudinal patterns of alcohol use among older couples and the effects of alcohol use on cardiovascular health. The project will also determine the genetic and psychosocial factors that exacerbate the effects of alcohol use on cardiovascular health.

Role: Co-Investigator Submitted: 11/2018 Status: In Review

Eunice Kennedy Shriver National Institute of Child Health and Human Development
 R01 HD099135

Axinn (PI)

Intergenerational Influences on Marriage, Divorce, Contraception and Childbearing

This project is a multi-level intergenerational study of the relationship between parental mental disorders and their children's subsequent experiences of marriage, divorce, contraceptive use and childbearing.

Role: Co-Investigator

Submitted: 11/2018

Status: In Review

National Institute on Aging

R01 AG064770

Faul, Bakulski (MPI)

Social epigenomics of health in a multi-ethnic, nationally representative sample of older adults

To identify and characterize life course social experiences that influence DNA methylation and influence health trajectories among a large, representative, population-based sample of older adults and determine whether race/ethnicity modifies these relationships.

Role: Co-Investigator

Submitted: 11/2018

Status: In Review

Current research is supported by the following funding sources:

R01 MD011716

Mitchell (PI)

08/01/18-05/31/22

National Institute on Minority Health and Health Disparities

Epigenetic Mediation of Adverse Social Context on Stress Response, Socioemotional Development, and Health in a Population-based Study of Minority and Low SES Children and Adolescents

Building on an existing representative study of children, this project will directly respond to PAR-16-355 by: 1) assembling epigenome-wide data on 2,000 children at two points in time, 2) describing methylation patterns in 3 race/ethnic groups and across SES levels, and 3) explicating epigenetic associations with social adversity, biological processes, and socioemotional development.

R01 MD011716-S1

Mitchell (PI)

08/01/18-05/31/22

National Institute on Minority Health and Health Disparities

Epigenetic Mediation of Adverse Social Context on Stress Response, Socioemotional Development, and Health in a Population-based Study of Minority and Low SES Children and Adolescents - Supplement

The central purpose of this administrative supplement is to test the application of polygenic scores (PGS) and genomic regions derived from GWAS of ADRD in adults on cognitive development in childhood and adolescence

P30 ES017885

Richardson (PI)

04/01/18-03/31/19

Pilot Award

Mitchell (PI)

Cell type reference for saliva DNA methylation studies in children for environmental epidemiology

This proposal aims to (1) identify DNA methylation signatures of salivary cell types, (2) adapt a deconvolution algorithm for estimating relative cell proportions from composite tissue DNA methylation measures for saliva, and (3) compare cellular distribution methods in the Fragile Families and Child Wellbeing Study.

R01 AG055406

Ware & Bakulski (MPI)

09/01/17 – 05/31/21

National Institute on Aging

Characterizing disparities in late-onset Alzheimer's disease risk through polygenic risk and epidemiologic factors in the Health and Retirement Survey

Our aims are to (1) determine the cumulative genetic risk of LOAD by testing the association between cognitive polygenic scores and risk of dementia phenotype in European and African ancestries; (2)

determine the polygenic effect of LOAD risk covariates from behavioral, physiological, and psychosocial domains on dementia phenotypes in European and African ancestries; and (3) test for effect modification of the association between polygenic risk and dementia phenotype in European and African ancestries by health disparities factors (sex, education, urban/rural residence).

National Institute on Aging

U01 AG009740-29

Weir (PI)

09/13/17-05/31/21

Health and Retirement Study Yrs 29-34

The Health and Retirement Study is the nation's pre-eminent resource for publicly-available data on the economic well-being and physical and mental health of its older population. This proposal seeks continuation of core data collection for three more waves, including the introduction of a new younger cohort in 2022 to refresh the sample following the steady state sampling design. It will also build the repository of biosamples, maintain the expanded representation of minorities, and further expand data access to maintain the study as the premier source of data on public health of the older population.

RF1 AG055654

Galama & Faul (MPI)

09/15/17-06/30/22

National Institute on Aging

Identifying modifiable aspects of gene-by-SES and gene-by-work interplay in later-life cognitive decline

This project aims to use significant and replicated results from existing genome-wide association studies to develop novel gene-based (burden scores) and genome-wide (polygenic scores) methods to better capture genetic risk and to examine whether SES and work characteristics moderate the effect of genes on the development of dementia and cognitive decline in later life

R25 AG053227

Faul/Kardia/Mitchell (MPI)

09/15/16 - 04/30/21

National Institute on Aging

Genomic Analysis for Social-Behavioral Scientists

This R25 Research Education Program creates an annual week-long summer workshop and series of online modules and web-based resources to build the capacity of social and behavioral scientists to understand, collaborate on, and conduct genomic research using NIH-funded resources, such as the Health and Retirement Study.

Previous research was supported by the following grants:

P30 AG012846

Bound (PI)

07/01/16 - 06/30/18

National Institute on Aging / Michigan Center on the Demography of Aging Pilot Grant

Pilot Award

(Ware & Schmitz, MPI)

Demographic and socioeconomic differences in polygenic risk of cardiovascular health in the Health and Retirement Study

We propose to examine the extent to which these PRSs are associated with cardiovascular risk factors (i.e. systolic and diastolic blood pressure, body mass index (BMI), smoking, and alcohol use), and how these associations are modified by key demographic (i.e. sex, age) and socioeconomic factors (i.e. child socioeconomic status (SES) measured by parental education or occupation, and adult SES measured by education, income, or occupation), across the life course.

U01 AG009740

Weir (PI)

01/01/98-12/31/17

National Institute on Aging

Health and Retirement Study Yrs 23-28

The Health and Retirement Study is the nation's pre-eminent resource for publicly-available data on

the economic well-being and physical and mental health of its older population. Its longitudinal design allows rigorous examination of causal pathways among social, psychological, economic, and health variables and the impact of policy changes on these relationships.

University of Michigan Provost Funds Gonzalez (Director) 01/01/13-12/31/18
BioSocial Methods Collaborative

The goal of the BioSocial Methods Collaborative is to be a catalyst, incubator and educator for new research methodologies that link the social and health sciences in service of promoting health and improved quality of life by identifying more complex and integrated data analyses to support improved decision making for individuals, communities and society.

Role: Research Investigator

I worked closely with the director, co-director, and core staff to incorporate social data with biological data through novel methods and promote the collaborative across campus through collaboration.

R01 HL133221 Smith (PI) 07/01/16 – 06/30/20
Epigenetics of Arteriosclerosis in African American Hypertensive Sibships

The goal of this project is to examine the association between epigenome-wide DNA methylation and arteriosclerotic damage to organ systems affected by hypertension (heart, brain, kidneys, peripheral arteries), both cross-sectionally and longitudinally. Genomic, epigenomic, and transcriptomic data will then be integrated to explore whether gene expression mediates the effects of DNA methylation and/or genetic factors on target organ damage and arteriosclerosis risk factors.

Role: Research Investigator

My role on this grant involved working with the PI and other staff scientists to assist in obtaining DNA methylation samples and performing quality control on those samples.

R01 HL119443 Kardia (PI) 09/01/14 - 08/31/18
NIH/NHLBI

Genetic Mechanisms of Arteriosclerosis in Hypertensive Sibships

The goal of this project is to use rich family data to discover which functional alleles in which genes in which families in which populations are giving rising to the risk of arteriosclerosis in a particular organ system or peripheral arteries

Role: Research Investigator

On this project, I was responsible for analyzing family-based genetic data as it relates to the risk of arteriosclerosis and the outcomes of hypertension and obesity. Analyses included cross-ethnicity meta-analysis of gene region and SNP-level associations, and interactions with known risk factors for BP and BMI. I also worked with a team of collaborators in writing and editing the manuscripts for publication and present findings at national scientific meetings.

1U01MH08798101 Heeringa (PI) 07/16/09 – 06/30/15
National Institutes of Health

Modifiable Risk and Protective Factors for Suicidal Behaviors in the US Army

The University of Michigan is collaborating with several organizations – Uniformed Services University of the Health Sciences, Harvard Medical School, and University of California San Diego – to conduct a study of the risk factors for suicide, suicide attempts, and other mental health issues among members of the US Army.

Role: Research Investigator

My role on this grant was to combine high-dimensional biological and social data from cohorts of active service members. Primarily, I performed genome-wide association studies, genetic risk score

analyses, genome-wide complex trait analyses, and epigenetic investigation in the context of psychiatric disorders including suicide attempt, suicidal ideation, post-traumatic stress disorder, and generalized anxiety disorder.

R03 AG046389
NIH/NIA

Kardia (PI)

09/30/13 – 08/31/15

Genetic and Psychosocial Predictors of Blood Pressure and Body Mass Index

The overall goal of this project is to use the rich combination of genomic and psychosocial data of the Health Retirement Study (HRS) to investigate the contribution of genetic, socioeconomic, and psychosocial factors to blood pressure and BMI in a nationally-representative cohort study.

Role: Key Personnel Research Investigator

My role on this grant includes completing cross-ethnicity meta-analysis of gene region and SNP-level associations, gene-level and SNP-level interaction with socioeconomic and psychosocial factors analyses, as well as exome chip-wide heritability estimates for African- and European-Americans for BMI and BP. I also work with a team of collaborators in writing and editing the manuscripts for publication and present findings at national scientific meetings.

R01 HL086694
NIH/NHLBI

Chakravarti (PI)
Kardia (PI of UM subcontract)

08/05/11 – 5/30/15

Genome-Wide Association Analysis in Essential Hypertension

The goal of this project is to identify all polymorphic variants that modulate blood pressure and hypertension through genome-wide association study meta-analysis of ~145,000 European Americans and African Americans in the ARIC cohort, conduct an exome-wide association study to identify rare genetic variants associated with these traits, and assess gene-gene and gene-environment interactions in blood pressure and hypertension variability.

Role: Staff scientist

I was responsible for all grant-related analysis of the Genetic Epidemiology Network of Arteriopathy study (GENOA) including genome-wide association studies, gene-based analyses (SKAT), and specific requests from the consortium.

R01 HL101161
NIH/NHLBI

Diez Roux (PI)

06/15/10 – 6/30/15

Stress, Gene-Environment Interaction and Cardiovascular Disease

The goals of this study are to investigate long-term associations of the stress response (as characterized by multiple measures of stress hormones) with social/psychosocial antecedents and cardiovascular-related outcomes, as well as modifications of the stress response by variations in selected candidate genes, and links between epigenetic changes, social/psychosocial exposures, and the stress response. The Multiethnic Study of Atherosclerosis (MESA) will be used to execute the specific aims.

Role: Graduate Student Research Assistant

N012549-399788
RWJF

Bakshis (Ware) (PI)

05/15/10-08/31/10

Gene X social environment interactions and depressive symptom scores

The goal of this project is to investigate gene x environment, defined as individual-level social support or chronic burden or neighborhood-level insults scores, in a multi-ethnic study.

Role: PI

AWARDS AND HONORS

2017-2019 *National Institutes of Health Loan Repayment Awardee – Health Disparities*
2017 *National Institute on Aging Butler-Williams Scholar*
2016 *A. Regula Herzog Young Investigator Award*
2016 *PRIDE -- The Programs to Increase Diversity among Individuals Engaged in Health-Related Research (declined, due to timing conflict)*
2016 *Fragile Families Data Workshop Selectee*
2016 *MiCDA Small grant awardee*
2015 *Michigan Road Scholar*
2013 *Michigan SAS Users Group Student Scholarship*
2012 *SAS Global Forum Student Scholarship Award*
2011 *Michigan SAS Users Group Student Scholarship*
2010-2011 *Robert Wood Johnson Foundation Health & Society Scholars Grant Winner*
2010 *Dolores Zohrab Liebmann Fellowship, National Competition, Finalist*
2009 *Shapiro/Malik Award*
2009-2010 *Elected PhD Student Representative to the Admissions Committee*
2009 *Rackham Travel Grant*
2009 *Epidemiology Travel Block Grant*
2003-2006 *NMU Scholars Award*
2003-2006 *National Academic Award*
2005-2006 *Mary L. Campbell Scholarship Winner*
2005 *Honors Program Leadership Award*
2003-2006 *Dean's list, Northern Michigan University, 8 Semesters*

SERVICE

2018- *Multiethnic Study of Atherosclerosis – Cognition working group (member)*
2017 *NIH Behavior Genetic Epidemiology Section (Early Career Reviewer)*
2015 *Integrating Neuroscience Theory, Data & Methods into Demographic Research (seminar participant)*
2014- *Population Neurodevelopment and Genetics (member)*
2014- *Army Study to Assess Risk and Resilience in Service members – data (member)*
2014- *Army Study to Assess Risk and Resilience in Service members – biomarkers (member)*
2014-2016 *RCGD – Biosocial Methods Collaborative (key faculty)*
2014-2019 *Genetic Determinants of Urinary Lithogenicity monthly meeting (organizer/secretary)*
2014- *Gene-Lifestyle Interactions Working Group (member)*
2014-2015 *FEGHAS – Family Blood Pressure Program (member)*
2013-2014 *Kardia Science Lab – (co-organizer)*
2012- *Multiethnic Study of Atherosclerosis - Psychosocial Factors working group (member)*
2011-2013 *Multiethnic Study of Atherosclerosis – STRESS meeting (member, assistant organizer)*
2009-2010 *Elected PhD Student Representative to the Admissions Committee*

CERTIFICATES

Responsible Conduct of Research (RCR) – National Institutes of Health
HIPAA for Researchers
PEERS-University of Michigan

PROFESSIONAL MEMBERSHIPS

2019–	<i>Women in High Power Computing</i>
2018–	<i>Society for Research in Child Development</i>
2016–	<i>Population Association of America</i>
2016–	<i>European Survey Research Association</i>
2016–	<i>American Society of Human Genetics</i>
2015– 2019	<i>American Heart Association</i>
2010–	<i>American Statistical Association (ASA)</i>
2009–	<i>International Genetics and Epidemiology Society (IGES)</i>
2008–	<i>Society for Epidemiological Research (SER)</i>
2006–	<i>American Public Health Association (APHA)</i>
2004– 2006	<i>Mathematics Association of America (MAA)</i>
2005– 2006	<i>Upper Midwest Honors Council</i>

PUBLICATIONS

Books and book chapters

Faul JD, **Ware EB** (In preparation, 2019). *Handbook of Aging in the Social Sciences: Aging, social science, and genetics*.

Monica Uddin, **Erin Bakshis**, Regina de los Santos (2012). Childhood maltreatment and county-level deprivation jointly moderate the relation between serotonin transporter promoter genotype and depressive symptoms in adolescent girls. In *Mental Illness – Book 1*. Rijeka, Croatia: *Intec-Open Access Publisher*.

Refereed articles and abstracts

IN PROGRESS AND UNDER REVIEW

In progress

Ware EB, Vadari H, Bakulski KM. Polygenic risk for Alzheimer’s disease and early life head injury on risk of dementia in the Health and Retirement Study.

Mitchell CM, Faul JD, Kho M, Zhao W, **Ware EB**, Hillman TJ, Smith JA. Genetic burden and early life socioeconomic status jointly influence memory performance and decline in older adults.

Ware EB, Bakulski KM, Miller N, Williams I, Schmitz LL, Gard AM, Mitchell CM, Faul JD. Heterogeneous effects of G x E interactions due to the method of construction.

CHARGE gene x lifestyle working group (incl. **Ware EB**). Gene by alcohol drinking behavior in mean arterial pressure and pulse pressure: discovery and replication.

Mitchell C, **Ware EB**, Stein MB, Chen CY, Gelernter J, Heeringa S, Jain S, Kessler RC, Nock MK, Sun X, Ursano RJ, Smoller JW. Methylation and psychiatric phenotypes in three studies of active duty US army soldiers.

Ware EB, Schmitz LL, Faul JD, Gard AM, Mitchell CM, Smith JA, Zhao W, Weir D, Kardina SLR. Heterogeneous effects of polygenic scores for common human traits due to the method of construction.

West BT, Little R, Boonstra P, **Ware EB**, Pandit A, Andridge R, Alvarado-Leiton F. Measuring non-ignorable selection bias in regression coefficients estimated from non-probability samples: an application to a large genetic study on facebook.

Under review

Ware EB*, Smith JA*, Zhao W, Ganesvoort RT, Curhan G, Pollak M, Mount D, Turner ST, Chen G, Shah RJ, Kardina SLR, Lieske JC. Polymorphisms on chromosome 9 near TRPM6 associate with urinary magnesium excretion. (*Kidney International*).

Gard AM, **Ware EB**, Hyde LW, Schmitz L, Faul JD, Mitchell CM. Assessing the structure and specificity of polygenic scores for psychiatric outcomes in a population-based cohort of older adults. (*Molecular Psychiatry*)

Faul JD, **Ware EB**, Kabeto MU, Langa KM. The effect of childhood socioeconomic position and social mobility on cognitive function and change among older adults: A comparison between the United States and England. (*Journal of Gerontology – B*).

Kho M, Smith JA, Verweij N, Shang L, Ryan KA, Zhao E, **Ware EB**, Gansevoort RT, Irvin MR, Lee JE, Turner ST, Sung J, van der Harst P, Arnett DK, Baylin A, Park SK, Seo YA, Change YPC, Zhou X, Lieske J, Kardina SLR. Genome-wide meta-analysis identifies suggestive loci for sodium intake, potassium intake, and their ratio measured from 24-hour or half-day urine samples. (*American Journal of Clinical Nutrition*)

Brown KM, Diez-Roux AV, Smith JA, Needham BL, Mukherjee B, **Ware EB**, Liu Y, Cole SW, Seeman TE, Kardina SLR. Social regulation of inflammation related gene expression in the Multi-Ethnic Study of Atherosclerosis. (*Brain Behavior and Immunity*).

REVISE AND RESUBMIT

Deelen J, Evans DS, Arking DE, Tessi N, Nygaard M, Liu X, Wojczynski MK, Biggs ML, van der Spek A, Atzmon G, **Ware EB**, ..., Murabito J. A meta-analysis of genome-wide association studies identifies novel longevity genes (*Nature Communications*)

First author block/Analytic authors

Schmitz LL, Gard AM, **Ware EB**. Examining Sex Differences in Pleiotropic Effects for Depression and Smoking Using Polygenic and Gene-Region Aggregation Techniques. (*Am J Med Genet B Neuropsychiatr Genet*)

PUBLISHED

2019

Sung YJ, de las Fuentes L, Winkler TW, ..., **Ware EB**, ... Morrison, AC. CHARGE gene x lifestyle working group. A multi-ancestry genome-wide study incorporating gene-smoking interactions identifies multiple new loci for pulse pressure and mean arterial pressure. (2019). *Human Molecular Genetics*, <https://doi.org/10.1093/hmg/ddz070>

Gard AM, **Ware EB**, Hyde LW, Schmitz L, FaulJD, Mitchell CM. Assessing the structure and specificity of polygenic scores for psychiatric outcomes in a population-based cohort of older adults. (*bioRxiv*) doi: <https://doi.org/10.1101/601609>

Brown KM, Diez-Roux AV, Smith JA, Needham BL, Mukherjee B, **Ware EB**, Liu Y, Cole SW, Seeman TE, Kardina SLR. Expression of socially sensitive genes: the Multi-Ethnic Study of Atherosclerosis. (2019) *PLoS One*. 2019 Apr 11;14(4):e0214061. doi: 10.1371/journal.pone.0214061.

1. Google Scholar statistics - Erin B. Ware as of 4/2019

Taylor JY*, **Ware EB***, Wright ML, Smith JA, Kardina SLR. Primer in Genetics and Genomics, Article 8 - Multifactorial Concepts: Using Genetic Burden Scores for Gene x Environment Interactions and DNA methylation on Metabolic Syndrome among African Americans. (2019) *Biol Res Nurs*. 2019 May;21(3):279-285. doi: 10.1177/1099800419828486. Epub 2019 Feb 19. PMID: 30781968

*Co-first authors

Kilpelainen TO, Bentley AR, Noordam R,... **Ware EB**, ..., et al., Loos RJJ. Multi-Ancestry Study of Blood Lipid Levels Identifies Four Loci Interacting with Physical Activity. (2019). *Nature Communications*. 10:376 | <https://doi.org/10.1038/s41467-018-08008>

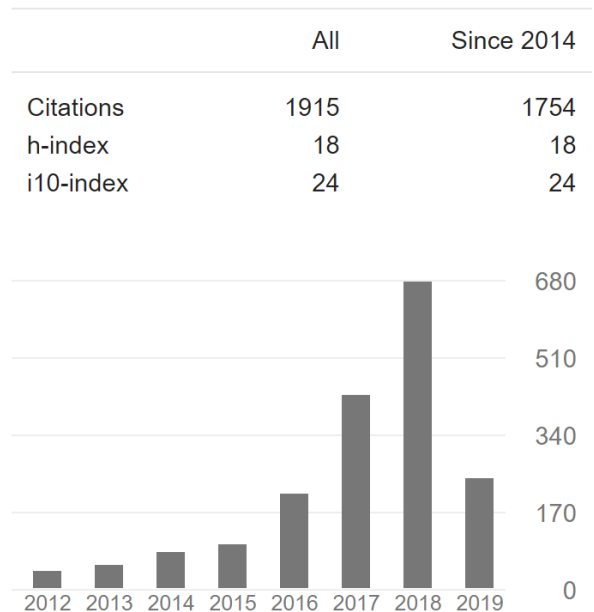
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ORAL AND POSTER PRESENTATIONS (*indicates individual presenting, mentees underlined)

*Woods AD, Gard AM, **Ware EB**, Notterman D, Mitchell C. Using polygenic scores for educational attainment to probe genetic effects on schooling outcomes among fragile families. Paper presentation at the Population Association of America annual meeting, Austin, TX. April 10-13, 2019.

***Ware EB**. Session 142 Genes and Health - Using Polygenic Scores. Discussant. Population Association of America annual meeting, Austin, TX. April 10-13, 2019.

*Schmitz LL, Gard AM, **Ware EB**. Examining Sex Differences in Pleiotropic Effects for Depression and Smoking Using Polygenic and Gene-Region Aggregation Techniques. Paper presentation at the NIA sponsored Biomarker Network meeting, Austin, TX. April 10, 2019.

*Woods AD, Gard AM, **Ware EB**, Notterman D, Mitchell C. Using polygenic scores for Educational Attainment to Probe Genetic Effects on Schooling through Adolescence. Society for Research on Child Development Biennial meeting. Baltimore, MD. March 21-23, 2019

*Gard AM, **Ware EB**, Hyde L, Schmitz LL, Faul JD, Notterman D, Mitchell CM. Assessing the Phenotypic and Genetic Structure of Psychopathology Across the Life Course. Society for Research on Child Development Biennial meeting. Baltimore, MD. March 21-23, 2019

*Gaydos L, Harris KM, Mitchell CM, Schmitz LL, **Ware EB**, Faul JD, McLanahan S, Notterman D. Polygenic Penetrance on Life Course BMI Across Cohorts. Society for Research on Child Development Biennial meeting. Baltimore, MD. March 21-23, 2019

***Ware EB**. Calculating Polygenic Scores: Important methodological questions and replication. Population, Neurodevelopment, and Genetics meeting. Ann Arbor, MI. December 14, 2018.

*Faul JD, **Ware EB**. From GWAS to pathway enrichment: Exploring Gene Ontology as a tool to create biologically-informed genetic scores for trans-ethnic analyses. Integrating Genetics in the Social Sciences. Boulder, CO. October 11-13, 2018.

*Gregoire A, **Ware EB**, Bakulski KM. Applying genome-wide association study methodology to environmental toxicants and depressive phenotypes. Integrating Genetics in the Social Sciences. Boulder, CO. October 11-13, 2018.

***Ware EB**, Faul JD, Mitchell CM. Investigating array effects in polygenic score creation for use in the social sciences. Integrating Genetics in the Social Sciences. Boulder, CO. October 11-13, 2018.

*Vadari H, Bakulski KM, Faul JD, Mitchell CM, **Ware EB**. Early life head injury and genetic contributions to adolescent cognitive development and later life cognition. Integrating Genetics in the Social Sciences. Boulder, CO. October 11-13, 2018.

Bakulski K. (in collaboration with **Ware EB**). Measuring the Impact of Chemical Pollutants on the Brain Across the Lifespan. Alzheimer's Association International Conference. Alzheimer's Association. July 23, 2018.

Bakulski K. (in collaboration with **Ware EB**). Measuring the Impact of Chemical Pollutants on the Brain Across the Lifespan. Alzheimer's Disease Summit. National Institute of Aging. Bethesda, MD. May 24, 2018. Invited talk.

Ware EB. Connecting genomics, social science, and health: Applying novel methods to gene-environment interactions on depressive symptoms. Ann Arbor, MI, May 3, 2018. Research Seminar

*Mitchell CM. (in collaboration with **Ware EB**, Schnepfer L, Notterman, D). Application of Late Life Cognition Genes to Early Life Cognitive Development, Population Association of America Biomarker Network meeting, April 25, 2018. Denver, CO. Oral presentation.

*Faul JD, **Ware EB**. Moving Beyond European Only Genetic Association. Eastern Sociological Society, Baltimore MD, February 22-24, 2018. *Invited talk*

*Vadari H, **Ware EB**, Bakulski KM. Polygenic risk for Alzheimer's disease and early life head injury on risk of dementia in the Health and Retirement Study. Advances in Health and Aging Research Across the Translational Spectrum. Ann Arbor, MI. November 29, 2017. Poster presentation.

*Vadari H, **Ware EB**, Bakulski KM. Polygenic risk for Alzheimer's disease and early life head injury on risk of dementia in the Health and Retirement Study. University of Michigan

Department of Epidemiology Capstone Symposium. Ann Arbor, MI. November 11, 2017. Poster Presentation.

*Faul JD, **Ware EB**. Moving Beyond European Only Genetic Associations — An Examination of Within and Trans-Racial PGS and Gene-Region Associations. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 19-21, 2017.

*Gard AM, Schmitz LL, **Ware EB**, Faul JD, & Mitchell CM. Gene x environmental interaction models of latent psychopathology across the lifespan. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 19-21, 2017.

*Gaydos L, Mullan-Harris K, Mitchell C, Schmitz LL, **Ware EB**, Faul JD. Childhood socioeconomic status and BMI across the lifecourse. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 19-21, 2017.

*Schmitz LL, Gard AM, **Ware EB**. The Impact of Cigarette Taxation and Polygenic Risk for Smoking on Smoking Behavior in the 20th and 21st Century. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 19-21, 2017.

*Vadari H, **Ware EB**, Bakulski KM. Polygenic risk for Alzheimer's disease and early life head injury on risk of dementia in the Health and Retirement Study. UM Developmental Origins of Metabolic Syndrome Symposia. Ann Arbor, MI. October 9, 2017. *Poster presentation*.

***Ware EB**, Schmitz LL, Faul JD, Gard AM, Mitchell CM, Smith JA, Zhao W. Heterogeneity in polygenic scores for common human traits in a Population-based cohort, Lisbon, Portugal, July 17-21, 2017. European Survey Research Association

***Ware EB**, Schmitz LL, Faul JD, Gard AM, Mitchell CM, Smith JA, Zhao W. Implications of polygenic scores' estimation methods on gene-by-environment interaction analyses, Seattle, WA, June 20-23, 2017. Society for Epidemiological Research

*Liu J, Zhao W, **Ware EB**, Kardia SLR, Turner ST, Mosley TH, Smith JA. DNA methylation in APOE is associated with cognitive function in African Americans, Seattle, WA, June 20-23, 2017. Society for Epidemiological Research

***Ware EB**, Schmitz LL, Faul JD, Gard AM, Mitchell CM, Smith JA, Zhao W. Methods of measurement: Implications of polygenic scores' estimation methods on gene-by-environment interaction analyses, Chicago, IL, April 26-28, 2017. Population Association of America

*Schmitz LL, Gard AM, **Ware EB**. Genetic and Social Contributions to Gender-Cohort Differences in Smoking Behavior. Population Association of America. Chicago, IL, April 26-28, 2017

*He KY, Wang H, Cade BE, Nandakumar P, Giri A, **Ware EB**, Haessler J, Liang J, Smith JA, Franceschini N, Kooperberg C, Edwards TL, Kardia SLR, Lin X, Chakravarti A, Redline S, Zhu X. Rare variants in Fox-1 homolog A (RBFOX1) are protectively associated with blood pressure. American Society of Human Genetics Annual Meeting, Vancouver, Canada, October 18-22, 2016.

*Smith JA, Faul JD, Zhao W, Kho M, Hillman TJ, **Ware EB**, Mitchell C. Gene-based association and gene-by-education interaction on episodic memory in the Health and Retirement Study. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 21-22, 2016.

*Zhao W, **Ware EB**, Smith JA, Faul JD, Kardia SLR. Social and psychosocial factors modify the effect of genetic variants on body mass index: A gene environment interaction analysis in a longitudinal setting. Integrating Genetics and Social Sciences Conference, Boulder, CO, October 21- 22, 2016.

*Nandakumar P, Lee D, Richard MA, Tekola-Ayele F, Tayo B, **Ware EB**, Sung YJ, Salako B, Ogunniyi A, Gu CC, Grove ML, Fornage M, Kardia S, Rotimi C, Cooper R, Morrison A, Ehret G, Chakravarti A. Rare coding variants associated with blood pressure in 15914 individuals of African Ancestry. American Society of Human Genetics Annual Meeting, Vancouver, Canada, October 18-22, 2016.

***Ware EB**, Schmitz LL, Faul JD, Smith JA, Mitchell CM, Weir DR, Kardia SLR. Establishing best practices: generating polygenic scores in a population-representative cohort – Integrating Genetics in the Social Sciences, Presenter/Panelist. Denver, CO. October 21-23, 2016.

Lieske JC, Perinpam M, **Ware EB**, Smith JA, Turner ST, Kardia SL. Higher blood glucose is associated with higher urine citrate excretion. 13th Annual Symposium on Urolithiasis, Makuhari, Japan, July 19-22, 2016.

***Ware EB**, Smith JA, Faul J, Kardia SLR. Ethnic disparities in social and psychosocial factors modify the effect of genes on body mass index. American Heart Association – EPIlifestyles. Poster Presentation. Phoenix, AZ. March 1-4, 2016.

*Smith JA, **Ware EB**, Zhao W, Faul JD, Weir DR, Kardia SLR. The effect of gene-by-social factor interactions on blood pressure in older non-Hispanic whites and African Americans: a genomic region-level analysis. American Heart Association – EPIlifestyles. Poster Presentation. Phoenix, AZ. March 1-4, 2016.

*Brown K, Kardia SLR, Diez-Roux AV, Liu Y, Smith JA, Needham B, Cole S, Mukherjee B, **Ware EB**, Seeman T. Getting “under the skin”: Human social genomics in the Multi-Ethnic Study of Atherosclerosis. Society for Epidemiological Research. Poster Presentation. Miami, FL, USA. June 21-24, 2016.

*Kho MJ, Smith JA, Zhao W, **Ware EB**, Kardia SLR. Genome-wide meta-analysis of sodium intake and salty taste preference in multi-ancestry cohorts. Oral Presentation. University of Michigan Doctoral Day. Ann Arbor, MI. January 29, 2016.

*Perinpam M, **Ware EB**, Smith JA, Turner ST, Kardia SLR, Lieske JC. Independent effect of blood glucose level on urinary citrate and pH. American Society of Nephrology Kidney Week 2015 Annual Meeting. Poster Presentation. San Diego, CA, USA. November 6, 2015.

*Perinpam M, **Ware EB**, Smith JA, Turner ST, Kardia SLR, Lieske JC. Key influence of sex on urine volume and osmolality. American Society of Nephrology Kidney Week 2015 Annual Meeting. Poster Presentation. San Diego, CA, USA. November 6, 2015.

*Epstein MP, Broadway A, Cutler D, Duncan R, Moore JL, **Ware EB**, Jhun MA, Bielak LF, Zhao W, Smith JA, Peyser PA, Kardia SLR. A statistical approach for testing pleiotropic effects of rare

variants. Poster presentation. American Society of Human Genetics Annual Meeting, Baltimore, MD, October 6-10, 2015.

*Joshi PK, Esko T, Mattsson H, Eklund N, Gandin I, Jackson AU, Nutile T, Shurmann C, Polasek O, Wilson JF, ROHgen Consortium (**including Ware EB**). Evidence for directional dominance on complex traits relating to size and cognition in a wide range of human populations. Poster Presentation. European Human Genetics Conference. Glasgow, Scotland, UK. June 6-9, 2015.

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*Epstein MP, **Ware EB**, Jhun MA, Bielak LF, Zhao W, Smith J, Peyser PA, Kardia SLR, Satten GA. Statistical approaches for rare-variant association testing in affected sibships. Platform presentation. American Society of Human Genetics Annual Meeting. San Diego, CA. October 18-22, 2014.

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