

Monica H. (Ahsan) Keith, Ph.D.

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EDUCATION

- 2020 Ph.D., Anthropology, University of Missouri
 Dissertation: *Genetic variation and health in a rural Caribbean village*
 Advisor: Gregory E. Blomquist
- 2014 M.A., Anthropology, University of Missouri
 Thesis: *Genetic and maternal effects on neonatal survival in the western lowland gorilla*
 Advisor: Gregory E. Blomquist
- 2012 B.S., Anthropology, Biology minor, Texas State University
 summa cum laude

ACADEMIC APPOINTMENTS

- 2020- Postdoctoral Scholar, University of Washington, Department of Anthropology
 Faculty mentor: Melanie A. Martin

RESEARCH PROJECTS

- 2021- Social Determinants of Maternal Health, Allostatic Load, and Birth Outcomes in the US (Project Lead)
 Collaborators: Melanie A. Martin
 Duties: Analysis of National Institute of Child Health and Human Development (NICHD) data; structural equation modeling of social determinants, birth outcomes, and biological intermediaries
- 2021- COVID-19 and Breastfeeding Study (Collaborator)
 Directors: Melanie A. Martin, Dan T.A. Eisenberg, Eleanor Brindle, Courtney Meehan, Michelle McGuire, Sylvia Ley
 Duties: Data management and analysis, Bayesian modeling of antibody and symptom data
- 2020- Chaco Area Reproductive Ecology (CARE) Program (Collaborator)
 Directors: Melanie A. Martin, Claudia Vaggia
 Duties: Child growth analysis, linear and nonlinear Bayesian modeling, data management

- 2016- Shodagor Longitudinal Health and Demography Project (Collaborator)
Director: Kathrine E. Starkweather
Duties: Project development, longitudinal data analysis, Bayesian modeling of growth, health, socio-economic, environmental, and behavioral data
- 2014- Dominica Longitudinal Health Study (Genetic Project Lead)
Collaborators: Mark V. Flinn, Gregory E. Blomquist, Jared E. Decker
Duties: Grant-writing, research approvals, field data collection, longitudinal health data management and analysis, DNA extractions, genotype data management and analysis
- 2012-14 Taxonomic Investigation of Bornean Loris Variation (Research Assistant)
Directors: Lori S. Eggert, Rachel A. Munds
Duties: Ancient DNA extraction from museum tissue, PCR, gel electrophoresis, sequence alignment, phylogenetic reconstruction
- 2011 Genetics of Metabolic Health (Intern)
Texas Biomedical Research Institute, Department of Genetics, Comuzzie Lab
Director: Anthony Comuzzie
Duties: Pedigree analysis, cardiac data analysis, serum processing, metabolic profiling in captive baboons, uric acid assay configuration

PUBLICATIONS

Peer-Reviewed

Keith MH, Flinn MV, Durbin HJ, Rowan TN, Blomquist GE, Taylor KH, Taylor JF, Decker JE. (in press). Genetic ancestry, admixture, and population structure in rural Dominica.

Martin MA, **Keith MH**, Olmedo S, Edwards D, Barrientes A, Pan A, Valeggia C. (in revision). Cesarean section and breastfeeding outcomes in an Indigenous Qom community with high breastfeeding support.

Starkweather KE, **Keith MH**, Prall SP, Alam N, Zohora F, Emery Thompson M. 2021. Are fathers a good substitute for mothers? Paternal care and growth rates in Shodagor children. *Developmental Psychobiology: Comparative Perspectives on Paternal Effects* [Special Issue]. PMID: 34087947.

Keith MH, Blomquist GE, Flinn MV. 2019. Anthropometric heritability and child growth in a Caribbean village: A quantitative genetic analysis of longitudinal height, weight, and BMI in Bwa Mawego, Dominica. *American Journal of Physical Anthropology* 170:393–403.

Starkweather KE, **Keith MH**. 2019. One piece of the matrilineal puzzle: the socioecology of maternal uncle investment. *Philosophical Transactions of the Royal Society B: The evolution of female-biased kinship in humans and other mammals [Special Issue]* 374: 20180071.

Starkweather KE, **Keith MH**. 2018. Estimating impacts of the nuclear family and heritability of nutritional outcomes in a boat-dwelling community. *American Journal of Human Biology* 30: e23105.

Ahsan MH, Blomquist GE. 2015. Modeling variation in early life mortality in the western lowland gorilla: genetic, maternal and other effects. *American Journal of Primatology* 77: 666–678.

Manuscripts in Preparation

Keith MH, Martin MA. An integrated structural equation model identifies causal pathways between social determinants of maternal health, biomarkers of allostatic load, and hypertensive disorders of pregnancy that vary among US racial/ethnic groups.

Keith MH, Corley M, Daniel S, Glass DJ, Lipton S, Ellison P, Vallengia C, Martin MA. Statistical methods to evaluate sampling designs: a Bayesian mixed model approach to assess intra- and inter-individual variation using pubertal hormone data.

Martin MA, Brindle EB, Meehan CL, Pace RM, Williams JE, Jarvinen KM, Ley SH, McGuire MA, Seppo A, Gogel AC, Fehrenkamp BD, Pace CDW, Lackey KA, Navarrete AD, Caffè B, Barbosa-Leiker C, Eisenberg D, **Keith MH**, Kunkle A, McGuire MK. COVID-19 antibody responses and symptoms in breastfeeding infants following acute maternal infection.

Starkweather KE, **Keith MH**, Alam N, Zohora F. Impacts of climate-induced flooding on household nutrition, child growth, and adult body mass in a Shodagor fishing community.

Keith MH, Flinn MV, Taylor JF, Taylor KH, Blomquist GE. Genome-wide association (GWA) tests of cardiometabolic traits in a Caribbean community show association between Ankyrin-3 (ANK3) and body mass index.

Starkweather KE, **Keith MH**. Women's work and child illness: The disease ecology of Shodagor women's trading.

TEACHING EXPERIENCE

2016-20 University of Missouri, Department of Anthropology
Introduction to General Anthropology, Instructor of Record
Introduction to Multiculturalism, Instructor of Record
Introduction to Biological Anthropology, Laboratory Instructor

- 2017-19 University of Missouri, Department of Biological Sciences
General Biology Lab, Teaching Assistant
Summer Transition Program Biology Lab, Teaching Assistant
- 2011 Texas State University, Student Learning Assistance Center
Pre-medical Biology and Chemistry, Tutor

CONFERENCE PRESENTATIONS

- 2021 **Keith MH**, Martin MA, Valeggia C. How precise is your sample? A mixed model approach to assess sampling precision using pubertal hormone data. Presented at the 7th annual Northwest Evolution, Ecology, and Human Behavior Symposium, virtual.
- 2021 Starkweather KE, **Keith MH**, Prall SP, tuz Zohora F, Alam N, Emery Thompson M. Are fathers a good substitute for mothers? Paternal care and growth rates in Shodagor children. Presented at the 46th annual Human Biology Association meetings, virtual.
- 2020 **Keith MH**, Durbin HJ, Rowan TN, Blomquist GE, Flinn MV, Taylor JF, Decker JE. Genetic ancestry and demographic history of a rural Caribbean village. Abstract for the 89th annual American Association of Physical Anthropology meetings.
- 2019 Starkweather KE, **Keith MH**. Shodagor women's work and reproductive decision-making. Presented at the American Anthropology Association Annual Meetings, Vancouver, BC.
- 2019 **Keith MH**, Starkweather KE. Socio-ecological predictors of maternal uncle investment in bilateral, semi-nomadic Shodagor. Presented at the 88th annual American Association of Physical Anthropology meetings, Cleveland, OH.
- 2017 **Ahsan MH**, Starkweather KE. Effects of genetics and the nuclear family environment on Shodagor health. Presented at the 86th annual American Association of Physical Anthropology meetings, New Orleans, LA.
- 2016 **Ahsan MH**, Bain JC, Flinn MV. Heritable traits and their impacts on child health in a Caribbean village. Poster at the 85th annual American Association of Physical Anthropology meetings, Atlanta, GA.
- 2015 **Ahsan MH**, Blomquist GE. Survival of the infants: An analysis of early life mortality in captive western lowland gorillas. Presented at the 27th annual Human Behavior and Evolution Society meetings, Columbia, MO.

- 2014 **Ahsan MH**, Blomquist GE. Heritability and maternal effects of neonatal survival in the western lowland gorilla. Presented at Missouri Life Sciences Week, Columbia, MO.

INVITED LECTURES

- 2020 “Longitudinal Health in Two Small-Scale Societies”. Presented for the University of Michigan, Genes for Good Research Group. February 3, 2020.
- 2019 “Health, Genes, and Ancestry in a Caribbean Village”. Presented for the University of Pittsburgh, Department of Anthropology. January 28, 2019.

GRANTS AND FELLOWSHIPS

- 2021-22 Data Science Postdoctoral Fellowship (\$7,000), University of Washington
- 2017 Research Board Grant (\$47,048), University of Missouri
- 2017 Dorothy (Dot) Tompkins Gelvin, Ph.D., Memorial Research Scholarship (\$1,500), University of Missouri
- 2012-16 Life Sciences Fellowship (\$33,000/year), University of Missouri

HONORS AND AWARDS

- 2020 William S. Pollitzer Student Travel Award, American Association of Physical Anthropologists
- 2019 Best Paper by a New Investigator, Evolutionary Anthropology Society, American Anthropology Association Annual Meeting, Vancouver, BC.
- 2019 Conference Travel Award (\$500), Department of Anthropology, University of Missouri
- 2017 Conference Travel Award (\$500), Department of Anthropology, University of Missouri
- 2012 Outstanding Undergraduate in Anthropology, Texas State University
- 2012 Golden Key International Honour Society Induction
- 2011 Lambda Alpha National Honor Society Induction
- 2010-11 University Honors Scholarship (\$1,000), Texas State University
- 2009-12 Texas State Achievement Scholarship (\$2,500/year), Texas State University
- 2009-12 Top 10% Scholarship (\$2,000/year), Texas State University
- 2009-12 Dean's List, Texas State University

AFFILIATIONS AND MEMBERSHIPS

American Association of Biological Anthropologists
Human Biology Association
Human Behavior and Evolution Society
American Society of Human Genetics
UW Center for Studies in Demography and Ecology

TECHNICAL SKILLS

Wet Lab

Ancient DNA extractions from tissue; DNA extractions from tissue, buccal swabs
PCR, gel electrophoresis
Serum processing, biomarker assays
Anthropometric, osteological measurements

Dry Lab

Proficient in Program R, Linux, SAS, Systat, PEDSYS, SOLAR, and Excel; basic Perl script
Longitudinal phenotype database and genotype data management
Bayesian modeling, linear and nonlinear mixed models, multivariate analysis
Structural equation modeling
Pedigree analysis, heritability estimation
Genome-wide association studies
Phylogenetic reconstructions, comparative methods