

KATHERINE WANDER
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TEACHING AND RESEARCH INTERESTS

Epidemiology and global health, infectious disease ecology, immune function, nutrition, growth and development, female genital cutting, East Africa, West Africa

EDUCATION

2012 PhD, Biocultural Anthropology, University of Washington
2009 MPH, Epidemiology, University of Washington
2001 BA, Anthropology, The Ohio State University

APPOINTMENTS

2015-present Assistant Professor, Department of Anthropology, Binghamton University
2012-2013 Lecturer, Department of Anthropology, University of Washington

RESEARCH

Current:

The Immune System of Milk: Developing a laboratory protocol to allow researchers to describe the activity of immune factors in human milk by measuring cytokine production upon *in vitro* stimulation of whole milk, and optimizing this protocol for use in remote and challenging field conditions.

Child Health and Development in Kilimanjaro: Iron Nutrition and Infectious Disease: Evaluating the complex interactions between infectious disease processes, immune protection, and iron nutrition among children living with a high burden of infectious disease in Kilimanjaro, Tanzania.

Child Health and Development in Kilimanjaro: Immunocompetence in Ecological Perspective: Evaluating the impact of early infectious disease exposure and nutritional stress on immune phenotypes and infectious disease susceptibility among children in Kilimanjaro, Tanzania.

Effect of Rapid Market Integration on Health Disparities in the Developing World: Describing the emergence of disparities in health among communities in rural China and Bangladesh undergoing rapid market integration, and evaluating the impact of emerging wealth inequality on health inequality.

Recent:

Immunocompetence and the Hygiene Hypothesis: Evaluated the role of early life infectious disease exposure in immune system development among children in Kilimanjaro, Tanzania.

Contingency and Change in the Practice of Female Genital Cutting: Dynamics of Decision-Making in Senegambia (Principal Investigator, Bettina Shell-Duncan): Assessed the decision-making process surrounding FGC and the applicability of a stage of change model to female genital cutting (FGC); described trends in the practice of FGC; and, tested hypotheses explaining the perpetuation of FGC among men and women in Senegal and The Gambia.

C-Reactive Protein across the Menstrual Cycle: Evaluated the effect of changes in concentration of endogenous hormones, menses, and ovulation on circulating concentration of C-reactive protein, a biomarker of inflammation.

TEACHING

Undergraduate:

Case Studies in Global Health: Uses case studies to analyze quantitative parameters of disease; contrast the descriptive and analytic approaches of health sciences, anthropology, and other social sciences; integrate diverse disciplinary perspectives into cohesive information; and, apply critical thinking in approaches to complex health issues.

Introduction to Epidemiology: Introduces the study of patterns in disease and health outcomes, including basic concepts and utility of epidemiologic framework, and critical evaluation of epidemiologic research.

Nutritional Anthropology: Introduces the study of human nutrition in ecological context, including concepts of malnutrition and micronutrient deficiency, nutritional epidemiology, and dietary adaptation.

Graduate:

Concepts and Methods in Epidemiology: Covers measures of disease frequency, epidemiologic study designs, methods of data analysis and their appropriate interpretation, and the process of causal inference.

Evolutionary Theory: Explores themes in evolutionary theory, including historic context and recent developments, and the development of evolutionary hypotheses outside of anthropology, and their application to primates and humans.

Coevolution of Humans and Pathogens: Examines the impact of humans on the evolution of pathogens and commensal microbes, and the impact of microbes on human health and disease, from the earliest modern humans to today.

GRANTS

Pending	Binghamton University Health Sciences Interdisciplinary Collaboration Grant (\$10,000)
Pending	Wenner-Gren Foundation Post-PhD Research Grant (\$20,000)
Pending	National Science Foundation CAREER (\$625,415)
2010	National Science Foundation Doctoral Dissertation Improvement Grant (\$20,000)
2009	Wenner-Gren Foundation Dissertation Fieldwork Grant (and Osmundsen Initiative supplement; \$20,000)
2007	Lewis and Clark Fund for Exploration and Field Research, American Philosophical Society (\$5,000)
2007	Pre-dissertation Research Fund, Department of Anthropology, University of Washington (\$2,000)

PUBLICATIONS

<i>In preparation</i>	Fujita M, Wander K. A test of the “Optimal Iron Hypothesis” among breastfeeding Ariaal mothers in northern Kenya.
<i>In preparation</i>	Wander K, Shell-Duncan B, Brindle E, O’Connor K. Cows’ milk consumption is inversely associated with diagnosed allergic disease among children in Kilimanjaro, Tanzania.
<i>In preparation</i>	Shell-Duncan B, Hernlund Y, Wander K, Moreau A. Contesting norms associated with female genital cutting among Senegambian women: A factorial focus group analysis.
<i>Submitted</i>	Wander K, Shell-Duncan B, Brindle E. <i>Under revision</i> . Lower incidence of respiratory infections among iron deficient children in Kilimanjaro, Tanzania. <i>Evol Med Public Health</i> .
2017	Wander K, Shell-Duncan B, Brindle E, O’Connor K. <i>In press</i> . Hay fever, asthma, and eczema and early infectious diseases among children in Kilimanjaro, Tanzania. <i>Am J Hum Biol</i> .
2017	Wander K. The evolution of female genital cutting. <i>Nat Ecol Evol</i> 1: 0079.
2016	Wander K. “The Origin of Chronic Inflammatory Systemic Diseases and Their Sequelae. By: Rainer H. Straub. 371 p. New York: Academic Press” <i>Am J Hum Biol</i> 28(3): 445-446.
2015	Mattison SM, Wander K, Hinde K. Breastfeeding over two years is associated with longer birth intervals, but not measures of growth or health, among children in Kilimanjaro, TZ. <i>Am J Hum Biol</i> 6(27): 807-814.
2013	Shell-Duncan B, Wander K, Hernlund Y, Moreau A. Legislating Change? Exploring how social and legal norms influence the practice of female genital cutting. <i>Law and Society Review</i> 47(4): 803-835.
2013	Wander K, Mattison S. The evolutionary ecology of early weaning in Kilimanjaro, Tanzania. <i>Proc R Soc B</i> 280(1768): 20131359.
2013	Wander K, Shell-Duncan B, Brindle E, O’Connor K. Predictors of delayed-type hypersensitivity to <i>Candida albicans</i> and Epstein-Barr virus antibody among children in Kilimanjaro, Tanzania. <i>Am J Phys Anthropol</i> 151(2): 183-190.
2012	Wander K, Shell-Duncan B, O’Connor KA. Expanding the hygiene hypothesis: Early exposure to infectious agents predicts delayed-type hypersensitivity to <i>Candida</i> among children in Kilimanjaro. <i>PLoS ONE</i> 7(5): e37406.

- 2012 Wander K, Brindle E, O'Connor KA. Sensitivity and specificity of C-reactive protein and α_1 -acid glycoprotein for episodes of acute infection among children in Kilimanjaro, Tanzania. *Am J Hum Biol* 24(4): 565-568.
- 2011 Shell-Duncan B, Wander K, Hernlund Y, Moreau A. Dynamics of change in the practice of female genital cutting in Senegambia: Testing predictions of social convention theory. *Soc Sci Med* 73: 1275-1283.
- 2010 Shell-Duncan B, Hernlund Y, Wander K, Moreau A. Contingency and Change in the Practice of Female Genital Cutting: Dynamics of Decision Making in Senegambia. Summary Report to the World Health Organization. <http://csde.washington.edu/~bsd/FGC/>
- 2009 Wander K, Shell-Duncan B, McDade TW. Evaluation of iron deficiency as a nutritional adaptation to infectious disease: an evolutionary medicine perspective. *Am J Hum Biol* 21(2): 172-179.
- 2008 Wander K, Brindle E, O'Connor KA. C-reactive protein across the menstrual cycle. *Am J Phys Anthropol* 136(2): 138-146.

PRESENTATIONS

Academic Conferences:

- 2017 Wander K, Spathis R. Describing immune responses in human milk via *in vitro* stimulation. Annual Meeting of the Human Biology Association. *Accepted*.
- 2017 Fujita M, Wander K. Moderate iron deficiency is associated with lower prevalence of inflammation/infection among breastfeeding mothers in northern Kenya. Annual Meeting of the Human Biology Association. *Accepted*.
- 2017 Mattison S, Wander K, MacDonald H. What does a matricentric view of breastfeeding imply for public health? A view from behavioral ecology. Annual Meeting of the Society for Applied Anthropology. *Accepted*.
- 2016 Wander K, Sherwood M*, Shell-Duncan B, Brindle E. Is drinking tea a dietary adaptation? Tea, iron, and infection among children in Kilimanjaro, Tanzania. Annual Meeting of the American Anthropological Association, Evolutionary Anthropology Section. (Best Paper by a New Investigator, Evolutionary Anthropology Society, for Katherine Wander)
- 2016 Wander K, Shell-Duncan B, Brindle E. Associations between iron status and prevalent and incident infectious disease among children in Kilimanjaro, Tanzania. Micronutrient Forum Global Conference.
- 2016 Wander K, Shell-Duncan B, Brindle E. Complex interactions between iron nutrition and infectious disease among children in Kilimanjaro, Tanzania. Annual Meeting of the Human Biology Association. *Am J Hum Biol* 28(2): 301.
- 2015 Shell-Duncan B, Moreau A, Wander K, Hernlund Y. Women's business? Reassessing the role of men in the perpetuation and abandonment of female genital mutilation/cutting. Annual Meeting of the Population Association of America.
- 2013 Mattison S, Wander K. The evolutionary ecology of weaning among the Chagga of Kilimanjaro. Annual meeting of the American Anthropological Association. (Best Paper by a New Investigator, Evolutionary Anthropology Society, for Siobhán Mattison)
- 2013 Wander K, Mattison S. The evolutionary ecology of weaning among the Chagga of Kilimanjaro. Annual Scientific Conference of the Australasian Society for Human Biology. *HOMO* 64(2): 160.
- 2012 Shell-Duncan B, Wander K, Hernlund Y, Moreau A. Legislating Change? Responses to Criminalizing Female Genital Cutting in Senegal. Conference of the Nordic Network for Research on Female Genital Cutting (Forskning om Kvindeligt Omskaering, FOKO).
- 2011 Wander K. Immunocompetence and the hygiene hypothesis. Annual Meeting of the American Association of Physical Anthropologists. *Am J Phys Anthropol* 144(S52): 304.
- 2011 Wander K, Shell-Duncan B, Hernlund Y. Legislating change?: Community responses to the law banning female genital cutting in Senegal. Annual Meeting of the Society for Applied Anthropology.

- 2011 Shell-Duncan B, Hernlund Y, Wander K. Women's business?: Reassessing the role of men in the perpetuation and abandonment of female genital cutting. Annual Meeting of the Society for Applied Anthropology.
- 2009 Wander K. Family size and immunocompetence: Insight from evolutionary medicine. Annual Meeting of the Human Biology Association. *Am J Hum Biol* 21(2): 273.
- 2006 Wander K, Brindle E, O'Connor KA. C-reactive protein across the menstrual cycle. Annual Meeting of the Human Biology Association. *Am J Hum Biol* 18(2): 279-280.
- 2006 Hernlund Y, Shell-Duncan B, Wander K. "One blade per girl": AIDS education and the inadvertent medicalization of female genital cutting in The Gambia. Annual Meeting of the Society for Applied Anthropology.

Invited:

- 2016 Wander K. The Evolutionary Epidemiology of Iron Deficiency. Cornell University International Nutrition Seminar.

Campus/Department:

- 2017 Sherwood M*, Wander K. Effects of dietary intake on iron deficiency in children in rural Kilimanjaro, Tanzania. Binghamton Research Days, Binghamton University. *Submitted*.
- 2017 Wander K. Rough-tech: Laboratory strategies for supporting research in remote settings. Universities Allied for Essential Medicine at Binghamton University Global Health Conference, Binghamton University. *Upcoming*.
- 2015 Wander K. The lasting impact of early infections in Kilimanjaro, Tanzania. Human Rights and Global Health Conference, Binghamton University.
- 2012 Wander K. Risk of early weaning among children in Kilimanjaro, Tanzania. Biocultural Anthropology Seminar Series, University of Washington.
- 2011 Shell-Duncan B, Wander K. Theoretical and empirical dimensions of behavior change with respect to female genital cutting: The Senegambia Study. Biocultural Anthropology Seminar Series, University of Washington.
- 2010 Wander K. Immunocompetence and the hygiene hypothesis. Biocultural Anthropology Seminar Series, University of Washington.
- 2010 Wander K. How well do C-reactive protein and α_1 -acid glycoprotein identify acute infection among children in Kilimanjaro, Tanzania? Biomarker Methods Research Group, University of Washington.

*Student or mentee co-author

MEDIA COVERAGE

- 11/Feb/2017 Cultural evolution and the mutilation of women. *The Economist*.
- 6/Feb/2017 Brink, Susan. Study: A new strategy to stop female genital mutilation. *NPR: Goats and Soda*.

SUPERVISED STUDENT RESEARCH

- 2016-2017 Melissa Chacko, Anthropology Honors Thesis: *Binghamton Community Health Fair Assessment on Muslim Immigrant and Refugee Knowledge of Health Risks*
- 2016-2017 Hannah Rose, Public Health Individual Major Program Integrative Project: *Systematic Review of Shift Work and Breast Cancer Risk*
- 2015-2017 Molly Sherwood, Binghamton University Scholar (Anthropology), Capstone Project: *Iron Deficiency, Diet, and Infectious Diseases among Children in Kilimanjaro, Tanzania*

AWARDS AND HONORS

- 2016 Best Paper by a New Investigator, Evolutionary Anthropology Society, American Anthropological Association

2004 Top Scholar Award, Graduate School Fund for Excellence & Innovation and the Graduate Opportunities & Minority Achievement Program, University of Washington

FELLOWSHIPS

2009-2010 Daris R. Swindler Memorial Fellowship
2005-2008 National Science Foundation Graduate Research Fellowship

SERVICE

Committee Membership:

2016 Member, Binghamton University Anthropology Department Grievance Committee
2015-present Member, Binghamton University Anthropology Department Graduate Committee
2009-2012 Member, University of Washington Anthropology Department Resources Committee
2006-2008 Member, University of Washington Anthropology Graduate Activities Fund Committee
2005-2008 Member, University of Washington Anthropology Department Development Committee
2005-2006 Chair, University of Washington Anthropology Graduate Activities Fund Committee

Conference Organization:

2016-2017 Program Committee, 42nd Annual Meeting of the Human Biology Association

Journal Article Review:

<i>American Journal of Human Biology</i>	<i>Pediatrics</i>
<i>Archives of Gynecology and Obstetrics</i>	<i>PLoS ONE</i>
<i>Evolution and Human Behavior</i>	<i>Social Science and Medicine</i>
<i>Journal of Asthma</i>	<i>Women's Studies International Forum</i>
<i>Nature Ecology and Evolution</i>	

CONSULTANCIES

Spring, 2010: UNICEF, *Analytical Report on Female Genital Mutilation/Cutting*: Participated in the formulation of an analysis plan and consulted in the analysis of data for a report on the current global state of FGM/C (*Female Genital Mutilation/Cutting: A statistical overview and exploration of the dynamics of change*).

Fall, 2009: World Health Organization, *Contingency and Change in the Practice of Female Genital Cutting: Dynamics of Decision-Making in Senegambia*: Presented study findings to representatives from WHO, government agencies, and non-governmental organizations in Senegal and The Gambia; discussed the relevance of the study findings for interventions aimed at eliminating FGC in the Senegambia.

PROFESSIONAL AFFILIATIONS

Human Biology Association (Fellow)
American Association of Physical Anthropologists
American Anthropological Association, Evolutionary Anthropology Society
Society for Applied Anthropology
International Society for Evolution, Medicine & Public Health

OTHER AFFILIATIONS

Center for Studies in Demography and Ecology, University of Washington
American Association of University Women

LANGUAGES

Swahili: excellent speaking and moderate writing skills