MARYIA BAKHTSIYARAVA

Urban Health Collaborative
Drexel University
3600 Market Street
Philadelphia, PA 19104

mb4544@drexel.edu

EMPLOYMENT

2024 – present	Assistant Research Professor Urban Health Collaborative & Department of Environmental and Occupational Health Dornsife School of Public Health Drexel University
2020–2024	Postdoctoral Fellow Department of City and Regional Planning & Institute of Transportation Studies University of California - Berkeley

EDUCATION

2014–2020	Ph.D. in Geography, University of Minnesota Co-advisors: Dr. Kathryn Grace and Dr. Steven Manson Minor: Population Studies Dissertation: Household Agriculture as A Determinant of Household Food Security and Child Undernutrition in Ethiopia *Interdisciplinary Doctoral Fellow at the Center for Global Health and Social Responsibility, University of Minnesota (2018-2019)*
2014–2017	Graduate Trainee in Population Studies, Minnesota Population Center, University of Minnesota (formal training in quantitative demographic methods and theory)
2014	B.S. in Geography and GIS, Belarusian State University

AREAS OF RESEARCH INTERESTS AND METHODOLOGICAL EXPERTISE

Climate and health, food security, climate change, spatial analysis and statistics, GIS

PUBLICATIONS

Bakhtsiyarava, M., Moran, M., Ju, Y., Zhou, Y., Rodríguez, D.A., Dronova, I., Pina, F., de Matos, V.P., & Skaba, D.A. (2024). Potential drivers of urban green space availability in Latin American cities. *Nature Cities, 1-11.*

Bakhtsiyarava, M., Ju, Y., Moran, M., Rodríguez, D. A., Dronova, I., Delclòs-Alió, X., Moore, K., Castillo-Riquelme, M., & Anza-Ramirez, C. (2024). Associations between urban greenspace and depressive symptoms in Mexico's cities using different greenspace metrics. *Applied Geography, 164, 103219.*

Ramarao, M. V. S., Arunachalam, S., Sánchez, B. N., Schinasi, L. H., **Bakhtsiyarava, M.,** Caiaffa, W. T., ... & Rodríguez, D. A. (2024). Projected changes in heatwaves over Central and South America using high-resolution regional climate simulations. *Scientific reports, 14(1), 23145.*

Slovic, A. D., Indvik, K., Martins, L. S., Kephart, J. L., Swanson, S., Quistberg, D. A., Moran, M., **Bakhtsiyarava, M.,** … & Roux, A. V. D. (2024). Climate hazards in Latin American cities: Understanding the role of the social and built environments and barriers to adaptation action. *Climate Risk Management*, 100625.

Schinasi, L. H., **Bakhtsiyarava, M.,** Sánchez, B. N., Kephart, J. L., Ju, Y., Arunachalam, S., Gouveia, N., Caiaffa, W. T., O'Neill, M. S., & Dronova, I. (2023). Greenness and excess deaths from heat in 323 Latin American cities: Do associations vary according to climate zone or green space configuration? *Environment International, 108230.*

Ju, Y., Dronova, I., Rodriguez, D. A., **Bakhtsiyarava, M.,** & Farah, I. (2023). Recent greening may curb urban warming in Latin American cities of better economic conditions. *Landscape and Urban Planning*, *240*, 104896.

Bakhtsiyarava, M., Schinasi, L., Sánchez, B.N., Dronova, I., Kephart, J.L, Ju, Y., Gouveia, N., Caiaffa, W., O'Neill, M.S., Yamada, G., Arunachalam, S., Diez Roux, A.V., & Rodríguez, D.A. (2023). Modification of temperature-related human mortality by area-level socioeconomic and demographic characteristics in Latin American cities. *Social Science & Medicine*, *317*, 115526.

Bakhtsiyarava, M., Ortigoza, A., Sánchez, B.N., Braverman-Bronstein, A., Kephart, J.L., Lopez, S.R., Rodriguez, J. and Diez Roux, A.V. (2022). Ambient temperature and term birthweight in Latin American cities. *Environment International*, p.107412.

Featured in "Calor y bajo peso al nacer, una asociación inquietante" (SciDev.Net)

Kephart, J. L., Sánchez, B. N., Moore, J., Schinasi, L. H., **Bakhtsiyarava, M.,** Ju, Y., ... & Rodríguez, D. A. (2022). City-level impact of extreme temperatures and mortality in Latin America. *Nature Medicine*, 1-6.

López-Olmedo, N., Stern, D., **Bakhtsiyarava, M.,** Pérez-Ferrer, C., & Langellier, B. (2022). Greenhouse Gas Emissions Associated with the Mexican Diet: Identifying Social Groups With the Largest Carbon Footprint. *Frontiers in nutrition*, 559.

Grace, K., Verdin, A., Brown, M., **Bakhtsiyarava, M.,** Backer, D. and Billing, T. (2022). Conflict and climate factors and the risk of child acute malnutrition among children aged 24–59 months: a comparative analysis of Kenya, Nigeria, and Uganda. *Spatial Demography*, pp.1-30.

Bakhtsiyarava, M. and Grace, K. (2021). Agricultural production diversity and child nutrition in Ethiopia. *Food Security*, *13*(6), pp.1407-1422.

Bakhtsiyarava, M., Williams, T. G., Verdin, A., & Guikema, S. D. (2021). A nonparametric analysis of household-level food insecurity and its determinant factors: exploratory study in Ethiopia and Nigeria. *Food Security*, 13(1), 55-70.

Randell, H., Grace, K. and **Bakhtsiyarava, M.** (2021). Climatic conditions and infant care: implications for child nutrition in rural Ethiopia. *Population and Environment*, *42*(4), pp.524-552.

Bakhtsiyarava, M., Grace, K., & Nawrotzki, R. (2018). Climate and Birthweight: Investigating Agricultural livelihoods in Kenya and Mali. *American Journal of Public Health* 108(Suppl 2), S144–S150. DOI: 10.2105/AJPH.2017.304128.

Bakhtsiyarava, M., & Nawrotzki, R. (2017). Environmental Inequality and Pollution Advantage among Immigrants in the United States. *Applied Geography* 81, 60-69. DOI: 10.1016/j.apgeog.2017.02.013. *[This paper was also featured in the London School of Economics' USA Politics and Policy Blog]*

Nawrotzki, R. J., & **Bakhtsiyarava, M.** (2017). International Climate Migration: Evidence for the Climate Inhibitor Mechanism and the Agricultural Pathway. *Population Space & Place* 23(4), e2033. DOI: 10.1002/psp.2033.

Nawrotzki, R. J., DeWaard, J., **Bakhtsiyarava, M.,** & Ha, J. T. (2017). Climate shocks and rural-urban migration in Mexico: Exploring nonlinearities and thresholds. *Climatic Change* 140(2), 243-258. DOI: 10.1007/s10584-016-1849-0.

Bakhtsiyarava, M. (2010). Population changes in Europe. *Wide World (GCSE geography)* 21(3), 15-18.

GRANT SUPPORT AS PI [attempted]

National Institutes of Health (NIH)
PI: Marie O'Neill; **Co-PI: Maryia Bakhtsiyrava** — 04/01/2025 – 03/31/2030

Greenspace, climate-related exposures, and birth weight: Enhancing equity with harmonized, comparative analyses of data from understudied populations.
Grant's 3 yr total cost: $1,354,127
Under review

Burroughs Wellcome Fund 04/01/24 – 04/01/27
PI: Daniel A. Rodriguez; **Co-PI: Bakhtsiyarava**
Attributing the impact of anthropogenic climate change related heat on newborn health in Latin America
Grant's 3 yr total cost: $250,000
Grant was one of the five finalists but was not awarded.

Wellcome Trust 08/01/23 – 08/01/26
PI: Ana V. Diez Roux; **Co-PIs: Bakhtsiyarava**, Ortigoza
Heat and child health outcomes in Latin American cities: Toward a better understanding of mechanisms and vulnerability
Grant's 3 yr total cost: $1,798,000
Grant passed the first round of selection but was not awarded.

AWARDS

Minnesota Population Center Outstanding Service Award	2019
Interdisciplinary Doctoral Fellowship, University of Minnesota	2018
Council of Graduate Students Conference Travel Grant	2017
Best Student Publication Award, Department of Geography	2017
Council of Graduate Students Career Development Grant	2016
Minnesota Population Center Research Collaboration Award	2016
PAA Travel Grant, Minnesota Population Center	2015–2018
Vernadsky Fellowship, Non-governmental Vernadsky Ecological Foundation	2013–2014
Excellent Service Award, Belarusian State University	2013
Travel grant for the International Student Festival in Trondheim, Norway, Belarusian State University	2013
1st place, National Geography Competition. Minsk, Belarus.	2006–2009

RESEARCH EXPERIENCE

PhD Candidate Research Assistant, IPUMS-DHS, Minnesota Population Center, University of Minnesota (NSF- and NIH-funded). Lead IPUMS-DHS effort to create reproductive health variables from the raw reproductive health calendar data in DHS. Developed methodology and workflow for the procedure. Developed R scripts to automate data processing and ensure reproducibility. 1/2020-6/2020

PhD Candidate Research Assistant, MERIAM (Modeling Early Risk Indicators of Acute Malnutrition), University of Minnesota (funded by the United Kingdom's Department for International Development). Developed predictive models of children's health outcomes such as stunting, wasting, and underweight as a function of climate extremes and conflict to identify the most vulnerable populations. Processed and integrated conflict data from various databases to Demographic and Health Surveys (DHS). 5/2019-12/2019

Graduate Research Assistant, NSF-INFEWS (Innovations at the Nexus of Food, Energy and Water Systems), University of Minnesota. Worked with complex survey data, processed climate and remote sensing data and created climate variables. Conducted extensive quantitative data analysis, led manuscript development, and participated in knowledge dissemination. 2017–2020

Graduate Research Assistant, IPUMS-International, Minnesota Population Center, University of Minnesota (NSF- and NIH-funded). Produced and integrated administrative boundary data and census microdata for 80+ countries, created contextual environmental variables. Developed R scripts to automate data processing. Developed a method for linking environmental data from various sources and formats to IPUMS-DHS with the help of R and Python. 2017–2018

Research Consultant, HealthPartners, Minneapolis. Spatial and statistical analysis for a study investigating food deserts in Saint Paul. Spatial and statistical analysis for a study investigating preventable emergency department visits. 2016–2017

Graduate Research Assistant, Terra Populus, Minnesota Population Center, University of Minnesota (NSF- and NIH-funded). Processed, integrated, and linked environmental data and aggregate census data with countries' administrative boundaries. Other activities included manuscript development and quantitative data analysis, development of workshop and outreach materials, knowledge dissemination. 2014–2017

GIS Intern, National Park Service, Acadia National Park, Maine, USA. Created and maintained a database of Acadia National Parks' vistas, or scenic viewpoints. The created database was successfully integrated into the Facility Management Software System and has been used by the park's maintenance crew for evaluating and streamlining work orders and funding proposals. 2013

GIS Intern, Land Inventory & Monitoring Data Center, Minsk, Belarus. Created a database of horticulture associations' land plots. The database and maps were implemented in the Land Information System of Minsk District. 2012–2013

ADDITIONAL TRAINING

Rostock Retreat on Simulation in Population Studies. Max Planck Institute for Demographic Research. Rostock, Germany	2019
INFEWS Field Course, Ethiopia	2017
GEOSTAT 2016 Summer School on Spatial Statistics, University of Castilla – La Mancha, Spain	2016
Esri Student Assistantship, Esri User Conference, San Diego, California.	2016
Humanitarian crisis simulation, University of Minnesota (Processed and analyzed spatial and demographic data in a refugee crisis scenario)	2015

International Student Festival in Trondheim, Norway (Workshop attended: Natural Resources)	2013
Certificate in C++ programming, School of Information Technologies, Belarusian State University	2012

INVITED TALKS OR PANELS

Maternal and Child Health Symposium "Impacts of Extreme Heat on Maternal and Child Health: From Awareness to Action." Organized by Maternal & Child Health Public Health Catalyst Program, Drexel University, Children's Hospital of Philadelphia, and the American Academy of Pediatrics. Role: Invited Panelist. May 31, 2024. Philadelphia, USA.

Greenspace and Mental Health in Mexico. UC Berkeley Institute of Transportation Studies Seminar Series. March 17, 2023.

Greenspace and Mental Health: Effects of Urbanization in Mexico. Research talk at the Department of Geography at the University of Connecticut. December 15, 2022.

Ambient temperature and term birthweight in Latin American cities. The Society for Epidemiologic Research Online Journal Club. October 19, 2022 [Virtual].

CONFERENCE PRESENTATIONS

Bakhtsiyarava, M. 2023. Modification of Temperature-Related Mortality by Area-Level Socioeconomic and Demographic Characteristics in Latin American Cities**.** Annual Meeting of the Association of American Geographers, Denver, USA.

Bakhtsiyarava, M. 2022. Ambient temperature and term birthweight in Latin American cities. Annual Meeting of the Population Association of America, Atlanta, USA.

Bakhtsiyarava, M. 2021. Temperature and birthweight in Latin American cities. 17th International Conference on Urban Health (virtual meeting).

Bakhtsiyarava, M. 2021. Food security pathway in the relationship between weather and child nutrition in Uganda. Annual Meeting of the Association of American Geographers (virtual meeting).

Bakhtsiyarava, M. 2019. Agriculture, rainfall and child nutrition in Ethiopia: Evidence from cross-sectional and longitudinal analyses. Retreat on Simulation at the Max Planck Institute for Demographic Research. Rostock, Germany.

Bakhtsiyarava, M. 2019. Are Improvements in Agricultural Production Equally Beneficial for Household Food Security and Children's Nutrition? Evidence from Ethiopia. Annual Meeting of the Population Association of America, Austin, USA.

Bakhtsiyarava, M. 2018. Investigation of the Determinants of Food Security: The Role of Agricultural Inputs for Household Food Security and Child Nutrition in Ethiopia. Annual Meeting of the Population Association of America, Denver, USA.

Bakhtsiyarava, M. 2018. The role of agricultural inputs for household food security and child nutrition in Ethiopia. Annual Meeting of the Association of American Geographers, New Orleans, USA.

Bakhtsiyarava, M. 2018. The dimensions of household electricity use and their impact on child nutrition: Evidence from the Ethiopia Socioeconomic Survey. NSF-INFEWS, University of California Santa Barbara, USA.

Bakhtsiyarava, M. 2017. Does Agricultural Specialization Matter? An Analysis of the Relationship between Climate Change, Agricultural Specialization and Children's Health in Kenya and Mali. 28th International Population Conference of the International Union for the Scientific Study of Population (IUSSP), Cape Town, South Africa.

Bakhtsiyarava, M. 2017. Climate change and health: Evidence from the Kenya and Mali DHS. Annual Meeting of the Population Association of America, Chicago, USA.

Bakhtsiyarava, M. 2017. A Comparative Analysis of the Relationship between Climate Change, Agricultural Specialization and Children's Health: Evidence from Kenya and Mali, preliminary results. Annual Meeting of the Association of American Geographers, Boston, USA.

Bakhtsiyarava, M., Nawrotzki, R. 2016. Environmental inequality and pollution advantage among international immigrants in the United States, Inequality and Methods Workshop Series, Minnesota Population Center, University of Minnesota, Minneapolis, Minnesota.

Nawrotzki, R., Bakhtsiyarava, M. 2016. Seasonality in the climate-migration relationship in Africa. Annual Meeting of the Population Association of America, Washington, DC.

Nawrotzki, R., Bakhtsiyarava, M. 2015. Seasonality in the climate-migration relationship in Africa. Inequality and Methods Workshop Series, Minnesota Population Center, University of Minnesota, Minneapolis, Minnesota.

Bakhtsiyarava, M. 2015. Integration of Administrative Boundary and Census Data. Association of American Geographers Annual Meeting, Chicago, USA

Bakhtsiyarava, M. 2013. Digital elevation modeling during the process of creating orthophotographs. Annual GIS conference, Belarusian State University, Minsk, Belarus.

Bakhtsiyarava, M. 2011. Assessing the quality of cell reception in the central region of Belarus with the help of GIS. Annual GIS conference, Belarusian State University, Minsk, Belarus.

TEACHING EXPERIENCE

Teaching assistant, Geography of Health & Health Care, UMN Department of Geography, Environment and Society	Fall 2018
Guest Lecturer on Climate Change and Health, Global Nutrition Class, UMN School of Public Health	Spring 2019, 2018
Guest Lecturer on Climate and Population, World Population Problems Class, UMN Department of Sociology	Spring 2018
Guest Lecturer on Linking Remotely Sensed Satellite Data to DHS in R, GIS & Spatial Analysis Class, UMN Department of Geography, Environment and Society	Fall 2017

UNDERGRADUATE RESEARCH EXPERIENCE

Bakhtsiyarava, M. (2013). Digital elevation modeling during the process of creating orthophotographs. *Collection of research papers of undergraduate and graduate students of Belarusian State University,* 5.

Bakhtsiyarava, M. (2012). Assessing cell coverage quality provided by MTS, Velcom and Life mobile operators in Minsk Region, Belarus. *Proceedings of the Annual GIS Conference. Minsk, Belarusian State University,* 49-53.

Bakhtsiyarava, M. (2012). Belarusian agritowns. *Collection of research papers of undergraduate and graduate students of Belarusian State University*, 8.

Bakhtsiyarava, M. (2011). Agriecotourism: Its peculiarities in Belarus and in the world. *Collection of research papers of undergraduate and graduate students of Belarusian State University*, 6.

Bakhtsiyarava, Maryia. (2010). Population changes in Europe. *Wide World (GCSE geography)* 21(3), 15-18.

SERVICE

Editorial Board, Scientific Reports	2024-
Reviewer for the American Journal of Public Health, Applied Geography, Environmental Epidemiology, Demography, Food Security, Population and Environment, Nature Medicine, Social Science and Medicine, Spatial Demography, CABI Agriculture and Bioscience, Population, Space and Place, Habitat International, Journal of Environmental Science and Management	2016–date
Esri Campus Ambassador Program	2016–2017
Advisory Board, Minnesota Population Center	2016–2017
Training Committee of the Graduate Faculty in Population Studies, Minnesota Population Center	2016–2018
Department of Geography Coffee Hour Committee	2015–2016
Secretary of the GIS Students Research Lab at Belarusian State University	2013–2014
Volunteer at the Belarusian Association of UNESCO Clubs	2010–2011

PROFESSIONAL AFFILIATIONS

Member, International Union for the Scientific Study of Population (2017 – present)
Member, Association of American Geographers (2016 – present)
Member, Population Association of America (2015 – present)
Member, American Geophysical Union (2022 – present)

LANGUAGES: English (fluent), Russian (native), Spanish (intermediate)