Stanford

Lili Liu

Postdoctoral Scholar, Epidemiology

Curriculum Vitae available Online

Bio

BIO

Lili (Larry) Liu, PhD, is a postdoctoral fellow in the Department of Epidemiology and Population Health at Stanford University. Dr. Liu is an integrative epidemiologist whose research is unified by a consistent methodological approach rather than a single disease area. Across his master's, doctoral, and postdoctoral training, he has repeatedly developed or operationalized epidemiologic frameworks and analytic programs and applied them to important public health questions spanning rare diseases, chronic disease, cancer, mortality, microbiome, and women's health. His work brings together molecular biomarkers, large-scale population cohorts, and real-world health data to generate coherent, hypothesis-driven research on how genetic variation, lifestyle, pharmacologic factors, and early-life exposures shape inflammation, biological aging, and chronic disease risk across the life course.

During his master's training at Peking University, Dr. Liu developed expertise in literature synthesis, national claims-based study, rare disease burden estimation, patient-centered health information research, cohort-based analysis, and vaccine effectiveness evaluation. He helped build and apply claims-based analytic algorithms to estimate incidence and prevalence for multiple rare diseases in China, led first-author studies on online health information and patient information needs in rare disease populations, and established an analytic framework for CHARLS-based cohort studies that supported multiple downstream projects. During his PhD training at Vanderbilt University, he expanded into population genetics, molecular and cancer epidemiology, mortality and health disparities research, gut microbiome, and pooled multi-study analyses. His doctoral work included a multi-ancestry GWAS of urinary prostaglandin E2 metabolite (PGE-M), development of PGE-M-derived dietary and lifestyle scores, and Mendelian randomization analyses linking lipid-related pathways to colorectal cancer risk. He also led several first-author studies in the Southern Community Cohort Study on poverty, sitting time, physical activity, walking and mortality, and alcohol intake and the gut microbiome, several of which received substantial public health and media attention.

At Stanford, Dr. Liu has developed an independent research program centered on women's health and life-course epidemiology using U.S. national claims data. He has built large nationwide pregnancy and mother-baby cohorts from MarketScan to study adverse obstetric outcomes, long-term cardiometabolic and hepatic outcomes, and early-onset cancer risk. His first corresponding-author paper at Stanford examined gestational diabetes in relation to subsequent type 2 diabetes and metabolic dysfunction-associated steatotic liver disease, and his ongoing work extends this framework to cardiovascular, kidney, metabolic, and reproductive health outcomes, including PCOS and endometriosis. He also received a Stanford MCHRI fellowship grant to study prenatal and early-life antibiotic exposure in relation to pediatric inflammatory bowel disease and celiac disease. In parallel, his collaborative work includes placental and maternal-fetal research on extracellular vesicles and angiogenic signaling.

Methodologically, Dr. Liu works at the interface of causal inference, pharmacoepidemiology, molecular epidemiology, and scalable real-world data science, using reproducible analytic pipelines in R, Python, SQL, and high-performance computing environments. Across all stages of his training, the central theme of his work has been to build scalable analytic infrastructure and apply it to high-impact epidemiologic questions with broad public health relevance, with the overarching goal of translating rigorous population science into actionable strategies for chronic disease prevention in diverse populations.

INSTITUTE AFFILIATIONS

- Member, Maternal & Child Health Research Institute (MCHRI)

PROFESSIONAL EDUCATION

- BS, Peking University , Nursing (Minor in Psychological and Cognitive Science) (2018)
- MPH, Peking University , Pharmaco-epidemiology (2021)
- PhD, Vanderbilt University , Genetic, Molecular, and Cancer Epidemiology (2025)

STANFORD ADVISORS

- Michelle Williams, Postdoctoral Faculty Sponsor

LINKS

- Google cholar: https://scholar.google.com/citations?user=lGkzz8MAAAAJ&hl=en

Publications

PUBLICATIONS

- **Gestational diabetes and subsequent risk of type 2 diabetes and metabolic dysfunction-associated steatotic liver disease in a commercially insured U.S. Pregnancy cohort.** *Diabetes research and clinical practice*
  Liu, L., Velasquez, E. E., Ananth, C. V., Nadeau, K. C., Bondy, M. L., Nguyen, M. H., Williams, M. A.
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- **Daily Walking and Mortality in Racially and Socioeconomically Diverse U.S. Adults.** *American journal of preventive medicine*
  Liu, L., Jia, G., Shrubsole, M. J., Wen, W., Andersen, S. W., Sudenga, S. L., Zheng, W.
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- **Associations of alcohol intake with gut microbiome: a prospective study in a predominantly low-income Black/African American population.** *The American journal of clinical nutrition*
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- **Associations of blood lipids and LDL cholesterol lowering drug-targets with colorectal cancer risk: a Mendelian randomisation study.** *British journal of cancer*
  Chan, W. C., Liu, L., Bouras, E., Zuber, V., Wen, W., Long, J., Gill, D., Murphy, N., Gunter, M. J., Assimes, T. L., Bujanda, L., Gruber, S. B., Küry, et al
  2024
- **Impacts of Poverty and Lifestyles on Mortality: A Cohort Study in Predominantly Low-Income Americans.** *American journal of preventive medicine*
  Liu, L., Wen, W., Shrubsole, M. J., Lipworth, L. E., Mumma, M. T., Ackerly, B. A., Shu, X. O., Blot, W. J., Zheng, W.
  2024; 67 (1): 15-23
- **Sex-specific associations between lipids and cognitive decline in the middle-aged and elderly: a cohort study of Chinese adults.** *Alzheimer's research & therapy*
  Liu, L., Zhang, C., Lv, X., Lai, X., Xu, L., Feng, J., Song, Y., Wang, S., Zhan, S.
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- **Income, race and survival among low-income Black and White Americans with lung, breast, prostate or colorectal cancer.** *Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*
  Holowatyj, A. N., Liu, L., Munro, H. M., Perkins-Smith, J. J., Han, X., Kolitsopoulos, F., Shrubsole, M. J., Lipworth, L., Russo, L. J., Zheng, W.
  2025
- **Integrating multi-ancestry genomic and proteomic data to identify blood risk biomarkers and target proteins for breast cancer genetic risk loci.** *International journal of cancer*
  Jia, G., Ping, J., Tao, R., Long, J., Liu, L., Xu, S., Munro, H. M., Ambs, S., Barnard, M. E., Chen, Y., Choi, J. Y., Gao, Y. T., Garcia-Closas, et al
  2025
- **Genetically Predicted Gene Expression Effects on Changes in Red Blood Cell and Plasma Polyunsaturated Fatty Acids.** *Genetic epidemiology*
  Khankari, N. K., Su, T., Cai, Q., Liu, L., Jasper, E. A., Hellwege, J. N., Murff, H. J., Shrubsole, M. J., Long, J., Edwards, T. L., Zheng, W.
  2025; 49 (1): e22613
- **Sitting Time, Physical Activity and Mortality: A Cohort Study In Low-Income Older Americans.** *American journal of preventive medicine*
  Liu, L., Wen, W., Andersen, S. W., Shrubsole, M. J., Steinwandel, M. D., Lipworth, L. E., Sudenga, S. L., Zheng, W.
  2024; 67 (6): 924-931
- **Identification of target proteins for breast cancer genetic risk loci and blood risk biomarkers in a large study by integrating genomic and proteomic data** *INTERNATIONAL JOURNAL OF CANCER*
  Jia, G., Yang, Y., Ping, J., Xu, S., Liu, L., Guo, X., Tao, R., Long, J., Zheng, W.
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- **[Epidemiological and etiological characteristics of hand, foot and mouth disease among children aged 5 years and younger in Ningbo (2016 to 2019)].** *Beijing da xue xue bao. Yi xue ban = Journal of Peking University. Health sciences*
  Liu, L. L., Liu, Z. K., Zhang, L., Li, N., Fang, T., Zhang, D. L., Xu, G. Z., Zhan, S. Y.
  2021; 53 (3): 491-497
- **Incidence of and trends in hip fracture among adults in urban China: A nationwide retrospective cohort study.** *PLoS medicine*
  Zhang, C., Feng, J., Wang, S., Gao, P., Xu, L., Zhu, J., Jia, J., Liu, L., Liu, G., Wang, J., Zhan, S., Song, C.
  2020; 17 (8): e1003180
- **Global variation in prevalence and incidence of amyotrophic lateral sclerosis: a systematic review and meta-analysis.** *Journal of neurology*
  Xu, L., Liu, T., Liu, L., Yao, X., Chen, L., Fan, D., Zhan, S., Wang, S.
  2020; 267 (4): 944-953
- **Prevalence and Incidence of Multiple Myeloma in Urban Area in China: A National Population-Based Analysis.** *Frontiers in oncology*
  Wang, S., Xu, L., Feng, J., Liu, Y., Liu, L., Wang, J., Liu, J., Huang, X., Gao, P., Lu, J., Zhan, S.
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