

Koichiro Shiba, Ph.D.

Postdoctoral Research Fellow

Department of Epidemiology/Department of Social and Behavioral Sciences
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EDUCATION

Harvard T.H. Chan School of Public Health Boston, MA
Ph.D. in Population Health Sciences 2020

- Dissertation Title: Challenges and Opportunities in Epidemiology of a Natural Disaster: Lessons From the 2011 Great East Japan Earthquake and Tsunami
- Dissertation Committee: Ichiro Kawachi (primary advisor), Mariana Arcaya, Peter James

The University of Tokyo, Faculty of Medicine Tokyo, Japan
Master of Public Health 2016

- Thesis Title: Changes in working status in later life, mental health, and social participation: A fixed-effects analysis of longitudinal data from the Japan Gerontological Evaluation Study

B.S. in Health Sciences 2014

RESEARCH INTERESTS

Social epidemiology, long-term impacts of disasters and other stressful experiences on health and well-being, psychosocial determinants of health, aging, housing and neighborhood environment, human flourishing, epidemiologic methods, causal inference, machine learning

RESEARCH EXPERIENCE

Postdoctoral Fellow

Harvard T.H. Chan School of Public Health Boston, MA
Department of Epidemiology 2020 - current
Department of Social and Behavioral Sciences 2020 - current

- Investigated the long-term impacts of the 2011 Great East Japan Earthquake on physical, mental, and cognitive health of older survivors.
- Integrated causal inference thinking with machine learning techniques to examine complex heterogeneous effects of a natural disaster on the health of survivors.
- Applied an outcome-wide analytic approach to holistically evaluate the impacts of exposure to a natural disaster on an array of health and well-being outcomes.
- Applied causal inference methods for time-varying treatments to rigorously examine the impacts of social determinants of health (e.g., social participation).
- Advisors: Ichiro Kawachi, Ph.D., and Tyler J. VanderWeele, Ph.D.

Harvard University Cambridge, MA
Human Flourishing Program, Institute for Quantitative Social Science 2020 - current

- Examined global trends and trajectories of multi-dimensional well-being and demonstrated that assessing well-being using a single-item measure commonly used in

literature (i.e., Cantril's ladder life satisfaction) can lead to misguided public health recommendations.

- Compared global trends in population averages of well-being with those in inequalities of well-being and demonstrated that the trends in two metrics remarkably diverge.
- Applied an outcome-wide analytic approach to holistically evaluated the impacts on an array of health and well-being outcomes of exposures to home confinement and online religious service attendance during the stringent lockdown in the UK during the COVID-19 pandemic.
- Applied an outcome-wide analytic approach to holistically evaluate the impacts of having a purpose in life on an array of health and well-being outcomes among Japanese older adults.
- Examined heterogeneous impacts of having a sense of purpose in life on all-cause mortality by socioeconomic status among in the US adult population.
- Advisor: Tyler J. VanderWeele, Ph.D.

Graduate Researcher

Positive psychology and healthy aging

Harvard T.H. Chan School of Public Health

Boston, MA

Department of Social and Behavioral Sciences

2018 - 2020

- Investigated how positive psychological factors (e.g., optimism and purpose in life) are linked to health behaviors and biomarkers of physical health later in life.
- Performed statistical analyses of a nationally representative cohort study of the U.S. population (Health and Retirement Study) and prepared multiple manuscripts for peer-reviewed journals.
- Principal Investigator: Eric S. Kim, Ph.D.

Natural disaster and physical health of survivors

Harvard T.H. Chan School of Public Health

Boston, MA

Department of Social and Behavioral Sciences

2017 - 2020

- Investigated the long-term associations between traumatic experiences of natural disaster (i.e., the 2011 Great East Japan Earthquake and Tsunami) and cardiometabolic health of survivors.
- Performed statistical analyses of large cohort data and prepared a manuscript for a peer-reviewed journal.
- Principal Investigator: Ichiro Kawachi, Ph.D.

Study of childhood obesity after the global economic crisis

University of Tokyo

Tokyo, Japan

Faculty of Medicine

2015 – 2016

- Assisted in a study that revealed the increased risk of childhood overweight; particularly, among children from single-parent households after the global economic crisis in 2008.
- Analyzed panel data from a nationwide birth-cohort and drafted a manuscript.
- Principal Investigator: Naoki Kondo, Ph.D.

Health survey project in the City of Rikuzentakata

University of Tokyo

Tokyo, Japan

Faculty of Medicine

2014 – 2015

- An epidemiological survey that targeted residents living in temporary housing in areas

affected by the disaster.

- Designed questionnaires for local citizens based on qualitative needs interviews.
- Wrote an official report and conducted an oral presentation to the local government based on the study's results, including the high prevalence of ill-health and risk factors among residents in temporary housing.
- Principal Investigator: Naoki Kondo, Ph.D.

GRANT FUNDING

Research Grant for Well-being Research 2020-2021
 Well-being for Planet Earth Foundation
 Role on Project: Principal Investigator
 Total Amount: \$162,840
 Project Title: Impacts of positive psychological factors on health and well-being

Grant for Young Health Science Investigators 2019
 Meiji Yasuda Life Foundation of Health and Welfare
 Role on Project: Principal Investigator
 Total Amount: \$10,000
 Project Title: Simulation of the effect of a continued community intervention facilitating sports participation among older adults on depression

Research Grants for Dissertation Research 2019
 Harvard University (Institute for Quantitative Social Science)
 Role on Project: Principal Investigator
 Total Amount: \$3,000
 Project Title: Natural Experiment Study of Neighborhood Effects on Cardiometabolic Health of Older Adults: Insights from the 2011 Great East Japan Earthquake

AWARD

- Teaching Assistant Award, Harvard T.H. Chan School of Public Health 2019
- Best Presentation, Japan Epidemiological Association 2015
- Graduate Study Scholarship, University of Tokyo 2015

INVITED TALKS

The 31st Annual Scientific Meeting of the Japan Epidemiological Association (online) 2021
 Talk title: Introduction to causal inference using observational data

StatsML Symposium'20 (online) 2020
 Talk title: Application of machine learning algorithms to epidemiology and social science research

Ministry of Health, Labour and Welfare (Tokyo, Japan), Ministry of Education, Culture, Sports, Science and Technology of Japan (Tokyo, Japan), National Center for Global Health and Medicine (Tokyo, Japan), Hiroshima University Tokyo Office (Tokyo, Japan), the University of Tokyo (Tokyo, Japan), and National Institute for Environmental Studies (Ibaraki, Japan) 2019
 Talk title: Basics of causal inference using observational data

Public Health Symposium 2019 (Boston, MA)
Talk title: Society and Health

2019

TEACHING EXPERIENCE

Epidemiologic Methods III: Models for Causal Inference (EPI289)

2019 & 2020

Department of Epidemiology, Harvard T.H. Chan School of Public Health

- Course Contents: Intermediate course on epidemiologic methods for causal inference from observational data. The methods covered include stratification, regression model, propensity score, g-formula, inverse probability weighting and marginal structural model, g-estimation and structural nested mean model, and instrumental variable estimation.
- Role: Teaching Fellow (Grading, weekly lab sessions, and office hours)
- Overall evaluation by students: 4.9/5
- With: Miguel Hernan, DrPH

Measurement Error and Misclassification for Epidemiologists (EPI515)

2019

Department of Epidemiology, Harvard T.H. Chan School of Public Health

- Course Contents: Overview of the implications of and methods to deal with measurement error and misclassification in epidemiologic studies. Theories and assumptions for the valid use of the correction methods were discussed.
- Role: Teaching Fellow (Grading and weekly office hours)
- Overall evaluation by students: not available
- With: Molin Wang, Ph.D.

Society and Health (SBS201)

2017 & 2018 (Lead Teaching Fellow)

Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health

- Course Contents: Introductory course on social epidemiology. Reviewed key evidence of social determinants of health and their implication for population health and health disparities.
- Role: Teaching Fellow (Grading and weekly lab sessions)
- Overall evaluation by students: 4.9/5
- With: Ichiro Kawachi, Ph.D.

Principles of Social and Behavioral Research (SBS281)

2018

Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health

- Course Contents: Introductory course on methods for social science research in public health. Topics covered include measurement, study design, survey research methods, questionnaire development, sampling, and data collection.
- Role: Teaching Fellow (Grading and weekly lab sessions)
- Overall evaluation by students: 4.8/5
- With: Laura D. Kubzansky, Ph.D.

Advanced Epidemiologic Methods (EPI207)

2018

Department of Epidemiology, Harvard T.H. Chan School of Public Health

- Course Contents: Advanced course on epidemiologic methods for causal inference to estimate causal effects of time-varying treatment. Topics covered include Directed Acyclic Graphs and Single World Intervention Graphs, g-formula, inverse probability weighting, dynamic regimes, structural nested models, instrumental variable estimation, and doubly robust methods.

- Role: Teaching Fellow (Grading and office hours)
- Overall evaluation by students: not available
- With: James Robins, M.D.

Explaining Health Behavior: Insights from Behavioral Economics (SBS503) 2018
Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health

- Course Contents: Review of the application of theories and constructs from behavioral sciences (particularly behavioral economics and social psychology) to the field of health behavior.
- Role: Teaching Fellow (Grading)
- Overall evaluation by students: 4.8/5
- With: Ichiro Kawachi, Ph.D.

OTHER WORKING EXPERIENCES

Part-time Data Analyst 2014 –2016
Cancer Scan / Campus for H Tokyo, Japan

- Worked with central and municipal governments / other national research centers to plan/execute large scale community-based public health interventions via methods such as increases in cancer screening rates.
- Conducted a thorough review of over 200 scholarly articles from diverse disciplines to generate a research hypothesis
- Led a research project that investigated the association between meditation practice and subjective job performance, in addition to being the first author of the resulting article.

Intern 2013 –2015
Health and Global Policy Institute Tokyo, Japan

- Worked with multiple stakeholders involved in forming health policies, including central/municipal governments, private companies, mass media, clinicians to plan/execute research and events towards better health policies.
- Engaged in the literature review and data analysis parts of the research.

SERVICE

Ad Hoc Referee

Alzheimer's & Dementia, American Journal of Epidemiology, BMC Nephrology, BMC Public Health, BMC Psychiatry, BMJ Open, European Journal of Public Health, Health and Place, Journal of the American Geriatrics Society, Journal of Epidemiology, Journal of Occupational Health, Journal of Public Health, PLOS ONE, Population, Space and Place, Psychoneuroendocrinology, Social Policy and Society, Social Science and Medicine, Social Science and Medicine – Population Health

BIBLIOGRAPHY

Peer-reviewed Publications

1. **Shiba K**, Daoud A, Hikichi H, Yazawa A, Aida J, Kondo K, Kawachi I. Heterogeneity in cognitive decline after a major disaster: a natural experiment study. *Science Advances* (in press).
2. **Shiba K**, Torres JM, Daoud A, Inoue K, Kanamori S, Tsuji T, Kamada M, Kondo K, Kawachi I. Estimating the impact of sustained social participation on depressive symptoms in older adults. *Epidemiology* (in press).
3. Kino S, Hsu Y, **Shiba K**, Chien Y, Mita C, Kawachi I, Daoud A. A scoping review on the use of machine learning in research on social determinants of health: Trends and research prospects. *Social Science and Medicine - Population Health* (in press).
4. **Shiba K***, Kubzansky LD, Williams DR, VanderWeele TJ, Kim ES*. Associations Between Purpose in Life and Mortality by SES. *American Journal of Preventive Medicine* (in press). (*equal authorship)
5. **Shiba K**, Kawahara T, Aida J, Kondo K, Kondo N, James P, Arcaya M, Kawachi I. Causal Inference in Studying the Long-term Health Effects of Disasters: Challenges and Potential Solutions. *American Journal of Epidemiology*. 2021 Mar 17.
6. **Shiba K**, Kawahara T. Using propensity scores for causal inference: pitfalls and tips. *Journal of Epidemiology*. 2021;JE20210145.
7. Nakagomi A, **Shiba K**, Kondo K, Kawachi I. Can Online Communication Prevent Depression Among Older People? A Longitudinal Analysis. *Journal of Applied Gerontology*. 2020 Dec 24;0733464820982147.
8. Ogawa T, Yoshii T, Moriwaki M, Morishita S, Oh Y, Miyatake K, Nazarian A, **Shiba K**, Okawa A, Fushimi K, Fujiwara T. Association between Hemiarthroplasty vs Total Hip Arthroplasty and Major Surgical Complications among Patients with Femoral Neck Fracture. *Journal of Clinical Medicine*. 2020 Oct;9(10):3203.
9. **Shiba K**, Yazawa A, Kino S, Kondo K, Aida J, Kawachi I. Depressive symptoms in the aftermath of major disaster: Empirical test of the social support deterioration model using natural experiment. *Wellbeing, Space and Society*. 2020 Jan 1;1:100006.
10. **Shiba K**, Hanazato M, Aida J, Kondo K, Arcaya M, James P, Kawachi I. Cardiometabolic Profiles and Change in Neighborhood Food and Built Environment Among Older Adults: A Natural Experiment. *Epidemiology*. 2020 Nov;31(6):758-767.
11. **Shiba K**, Aida J, Kondo K, Nakagomi A, Arcaya M, James P, et al. Mediation of the relationship between home loss and worsened cardiometabolic profiles of older disaster survivors by post-disaster relocation: A natural experiment from the Great East Japan earthquake and tsunami. *Health & Place*. 2020;66:102456.
12. Kim ES, **Shiba K**, Boehm JK, Kubzansky LD. Sense of purpose in life and five health behaviors in older adults. *Preventive Medicine*. 2020 Oct 1;139:106172.
13. Nakagomi A, **Shiba K**, Hanazato M, Kondo K, Kawachi I. Does community-level social capital mitigate the impact of widowhood & living alone on depressive symptoms?: A prospective, multi-level study. *Social Science & Medicine*. 2020 Aug 1;259:113140.
14. Nakagomi A, **Shiba K**, Kondo K, Kawachi I. Can social capital moderate the impact of widowhood on depressive symptoms? A fixed-effects longitudinal analysis. *Aging & Mental Health*. 2020 Jul 17:1-0.
15. **Shiba K**, Kondo N. The Global Financial Crisis and Overweight among Children of Single Parents: A Nationwide 10-Year Birth Cohort Study in Japan. *International Journal of Environmental Research and Public Health*. 2019;16(6).

16. **Shiba K**, Hikichi H, Aida J, Kondo K, Kawachi I. Long-Term Associations Between Disaster Experiences and Cardiometabolic Risk: A Natural Experiment From the 2011 Great East Japan Earthquake and Tsunami. *American Journal of Epidemiology*. 2019;188(6):1109-19.
17. Saito T, Kondo N, **Shiba K**, Murata C, Kondo K. Income-based inequalities in caregiving time and depressive symptoms among older family caregivers under the Japanese long-term care insurance system: A cross-sectional analysis. *PLOS ONE*. 2018;13(3):e0194919.
18. **Shiba K**, Kondo N, Kondo K, Kawachi I. Retirement and mental health: does social participation mitigate the association? A fixed-effects longitudinal analysis. *BMC Public Health*. 2017;17(1):526.
19. **Shiba K**, Kondo N, Kondo K. Informal and Formal Social Support and Caregiver Burden: The AGES Caregiver Survey. *Journal of Epidemiology*. 2016;26(12):622-8.
20. Group JGHW. Protecting human security: proposals for the G7 Ise-Shima Summit in Japan. *The Lancet*. 2016;387(10033):2155-62.
21. **Shiba K**, Nishimoto M, Sugimoto M, Ishikawa Y. The Association between Meditation Practice and Job Performance: A Cross-Sectional Study. *PLOS ONE*. 2015;10(5):e0128287.

Conference Presentations

1. **Shiba K**, Kawachi I. Challenges and Approaches for Causal Inference in Studying the Long-term Health Effects of Disaster. (Oral Presentation) The Society for Epidemiologic Research 2020 Annual Meeting (Virtual), Dec 2020.
2. **Shiba K**, Kim ES, VanderWeele T.J., Kubzansky LD Is the association between purpose in life and mortality modified by key social structural factors? (Oral Presentation) *American Psychosomatic Society*; Long Beach, CA, USA, March 2020.
3. Kim ES, **Shiba K**, Rimm E, Kubzansky LD Sense of purpose in life and health behaviors. Society of Behavioral Medicine, San Francisco, CA, USA.
4. Kim ES, **Shiba K**, Rimm E, Kubzansky LD Sense of purpose in life and health behaviors over time. Gerontological Society of America Annual Conference, Austin, TX, USA.
5. **Shiba K**, Hanazato M, Kawachi I. Does Neighborhood Environment Causally Affect Cardiometabolic Risks? Natural Experiment From the 2011 Great East Japan Earthquake. (Poster Presentation) The Society for Epidemiologic Research 2019 Annual Meeting, Minneapolis, MN, USA, June 2019.
6. Kamada M, Hayashi H, **Shiba K**, Taguri M, Kondo N, Lee I-M, Kawachi I. Nudging baseball fans to be active: a large-scale, smartphone-based, quasi-experimental study. 7th International Society for Physical Activity and Health Congress, London, UK, Oct 2018
7. **Shiba K**, Kawachi I. Long-term impact of disaster experiences on cardiometabolic risk: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. (Oral presentation) The Society for Epidemiologic Research 51st Annual Meeting, Baltimore, ML, USA, June 2018.
8. Honjo K, **Shiba K**, Tani Y, Sasaki Y, Kondo K, Kondo N. The risk of depressive symptoms according to living alone and social support among Japanese older people: A fixed effects analysis of longitudinal data from the Japan Gerontological Evaluation Study. ICBM2016 2016.12.10 Melbourne, Australia
9. **Shiba K**, Kondo N. Pre-adolescent overweight in single-parent households after the global economic crisis: a nationwide 10-year birth cohort study in Japan. (Poster presentation) Epidemiology Congress of the Americas 2016, Miami, FL, USA, June 2016.
10. **Shiba K**, Kondo N, Kondo K, Kawachi I. Changes in working status in later life and mental health: Longitudinal findings from the Japan Gerontological Evaluation Study.

- (Poster presentation) Inaugural Forum on Population Health Equity, Boston, MA, USA, September 2015.
11. **Shiba K**, Kondo N. Social roles in households or local communities and depression among older Japanese -the AGES longitudinal study-. (Poster presentation) The Society for Epidemiologic Research 48th Annual Meeting, Denver, CO, USA, June 2015.
 12. **Shiba K**, Kondo N, Kondo K. The Differential Effects of Informal and Formal Social Supports on Reducing Family Caregiver Burden –AGES Caregiver Survey-. (Oral presentation) The 25th Annual Scientific Meeting of the Japan Epidemiological Association, Aichi, Japan, January 2015.