

**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
- Advisor: Naoki Kondo and Hideki Hashimoto

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 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 with 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, gender, and race/ethnicity 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

## Curriculum Vitae

Faculty of Medicine	2014 – 2015
<ul style="list-style-type: none"><li>• An epidemiological survey that targeted residents living in temporary housing in areas affected by the disaster.</li><li>• Designed questionnaires for local citizens based on qualitative needs interviews.</li><li>• 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.</li><li>• Principal Investigator: Naoki Kondo, Ph.D.</li></ul>	

### GRANT FUNDING

Research Grant for Well-being Research 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	2020-2021
Grant for Young Health Science Investigators 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	2019
Research Grants for Dissertation Research 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	2019

### 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

Research roundtable at New York City Department of Health and Mental Hygiene Talk title: Causal Inference in Studying the Long-Term Health Effects of Disasters: Challenges and Potential Solutions	2022
The 32 <sup>nd</sup> Annual Scientific Meeting of the Japan Epidemiological Association (online) Talk title: Causal inference in social epidemiology: history and future directions	2022
The 31 <sup>st</sup> Annual Scientific Meeting of the Japan Epidemiological Association (online) Talk title: Introduction to causal inference using observational data	2021
StatsML Symposium'20 (online)	2020
March 10, 2022	Koichiro Shiba, Ph.D.

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)

2019

Talk title: Society and Health

## 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, Applied Research in Quality of Life, BMC Nephrology, BMC Public Health, BMC Psychiatry, BMJ Open, Environmental Health Perspectives, Epidemiology and Psychiatric Sciences, European Journal of Public Health, Gerontology, Health and Place, Health and Social Care in the Community, International Journal

## Curriculum Vitae

of Disaster Risk Reduction, Journal of the American Geriatrics Society, Journal of Epidemiology, Journal of Occupational Health, Journal of Psychosomatic Research, Journal of Public Health, Land Use Policy, 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 (\*equal authorship)

1. **Shiba K**, Cowden RG, Gonzalez N, VanderWeele TJ, Fancourt D. Associations of place confinement during the COVID-19 lockdown with subsequent health and well-being: a longitudinal outcome-wide study of the U.K. population. *Current Psychology*. 2022 (accepted).
2. **Shiba K**, Cowden RG, Gonzalez N, Ransome Y, Nakagomi A, Chen Y, Lee MT, VanderWeele TJ, Fancourt D. Associations of Online Religious Participation During the COVID-19 Lockdown with Subsequent Health and Well-being: A Longitudinal Study of the U.K. Population. *Psychological Medicine*. 2022 (accepted).
3. **Shiba K\***, Yazawa A\*, Inoue Y, Okuzono SS, Inoue K, Kondo N, Kondo K, Kawachi I. Early childhood adversity and late-life depressive symptoms: unpacking mediation and interaction by adult socioeconomic status. *Social psychiatry and psychiatric epidemiology*. 2022 Feb 1:1-0.
4. **Shiba K**, Cowden RG, Gonzalez N, Lee MT, Lomas T, Lai A, VanderWeele TJ. Global Trends of Mean and Inequality in Multidimensional Well-being From 2009 to 2019: Analysis of 1.2 Million Individuals From 162 Countries. *Frontiers in Public Health*. 2022 Feb 10.
5. **Shiba K\***, Okuzono SS\*, Kim E, Shirai K, Kondo N, Fujiwara T, Kondo K, Lomas T, Trudel-Fitzgerald C, Kawachi I, VanderWeele TJ. Ikigai and subsequent health and wellbeing among Japanese older adults: Longitudinal outcome-wide analysis. *The Lancet Regional Health-Western Pacific*. 2022 Apr 1;21:100391.
6. **Shiba K**, Daoud A, Kino S, Nishi D, Kondo K, Kawachi I. Uncovering Heterogeneous Associations of Disaster-related Traumatic Experiences with Subsequent Mental Health Problems: a Machine Learning Approach. *Psychiatry and Clinical Neurosciences*. 2021 Dec 22.
7. Okuzono SS, **Shiba K**, Lee HH., Shirai K, Koga H, Kondo N, Fujiwara T, Kondo K, Grodstein F, Kubzansky LD, Trudel-Fitzgerald C. Optimism and Longevity Among Japanese Older Adults. *Journal of Happiness Studies*. 2022 (accepted).
8. Kawahara T, **Shiba K**, Tsuchiya A. Application of causal inference methods in the analysis of observational neurosurgical data: g-formula and marginal structural model. *World Neurosurgery*. 2021 (accepted).
9. Nakagomi A, **Shiba K**, Kawachi I, Ide K, Nagamine Y, Kondo N, Hanazato M, Kondo K. Internet use and subsequent health and well-being in older adults: An outcome-wide analysis. *Computers in Human Behavior*. 2022 Jan 5:107156.
10. Kamada M, Hayashi H, **Shiba K**, et al. Large-Scale Fandom-based Gamification Intervention to Increase Physical Activity: A Quasi-experimental Study. *Medicine and Science in Sports and Exercise*. 2022 Jan;54(1):181-188.
11. **Shiba K**, Daoud A, Hikichi H, Yazawa A, Aida J, Kondo K, Kawachi I. Heterogeneity in cognitive disability after a major disaster: A natural experiment study. *Science Advances*. 2021 Oct;7(40):eabj2610.
12. Nakagomi A, **Shiba K**, Ueno T, Kondo K, Kawachi I. General health checks and incident dementia: A six-year follow-up study of community-dwelling older adults in Japan. *Preventive Medicine*. 2021 Aug 1:106757.
13. **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*. 2021 Jun 25.
14. Kino S, Hsu YT, **Shiba K**, Chien YS, 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. *SSM-Population Health*. 2021 Jun 5:100836.
15. **Shiba K\***, Kubzansky LD, Williams DR, VanderWeele TJ, Kim ES\*. Associations Between Purpose in Life and Mortality by SES. *American Journal of Preventive Medicine*. 2021 May 18.
  16. **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.
  17. **Shiba K**, Kawahara T. Using propensity scores for causal inference: pitfalls and tips. *Journal of Epidemiology*. 2021;JE20210145.
  18. 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.
  19. 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.
  20. **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.
  21. **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.
  22. **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.
  23. 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.
  24. 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.
  25. 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.
  26. **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).
  27. **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.
  28. 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.
  29. **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.
  30. **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.



31. Group JGHW. Protecting human security: proposals for the G7 Ise-Shima Summit in Japan. *The Lancet*. 2016;387(10033):2155-62.
32. **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. Guimond, A.-J., **Shiba, K.**, Kim, E. S\*, & Kubzansky, L. D\*. (Accepted). *Sense of Purpose in Life as a Contributor to Inflammation in Older Adults: A Longitudinal Study*. American Psychosomatic Society 2022 Annual Scientific Meeting, Long Beach, United States.
2. **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.
3. **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.
4. Kim ES, **Shiba K**, Rimm E, Kubzansky LD Sense of purpose in life and health behaviors. Society of Behavioral Medicine, San Francisco, CA, USA.
5. 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.
6. **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.
7. 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. 7<sup>th</sup> International Society for Physical Activity and Health Congress, London, UK, Oct 2018
8. **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 51<sup>st</sup> Annual Meeting, Baltimore, ML, USA, June 2018.
9. 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
10. **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.
11. **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.
12. **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.

13. **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 25<sup>th</sup> Annual Scientific Meeting of the Japan Epidemiological Association, Aichi, Japan, January 2015.