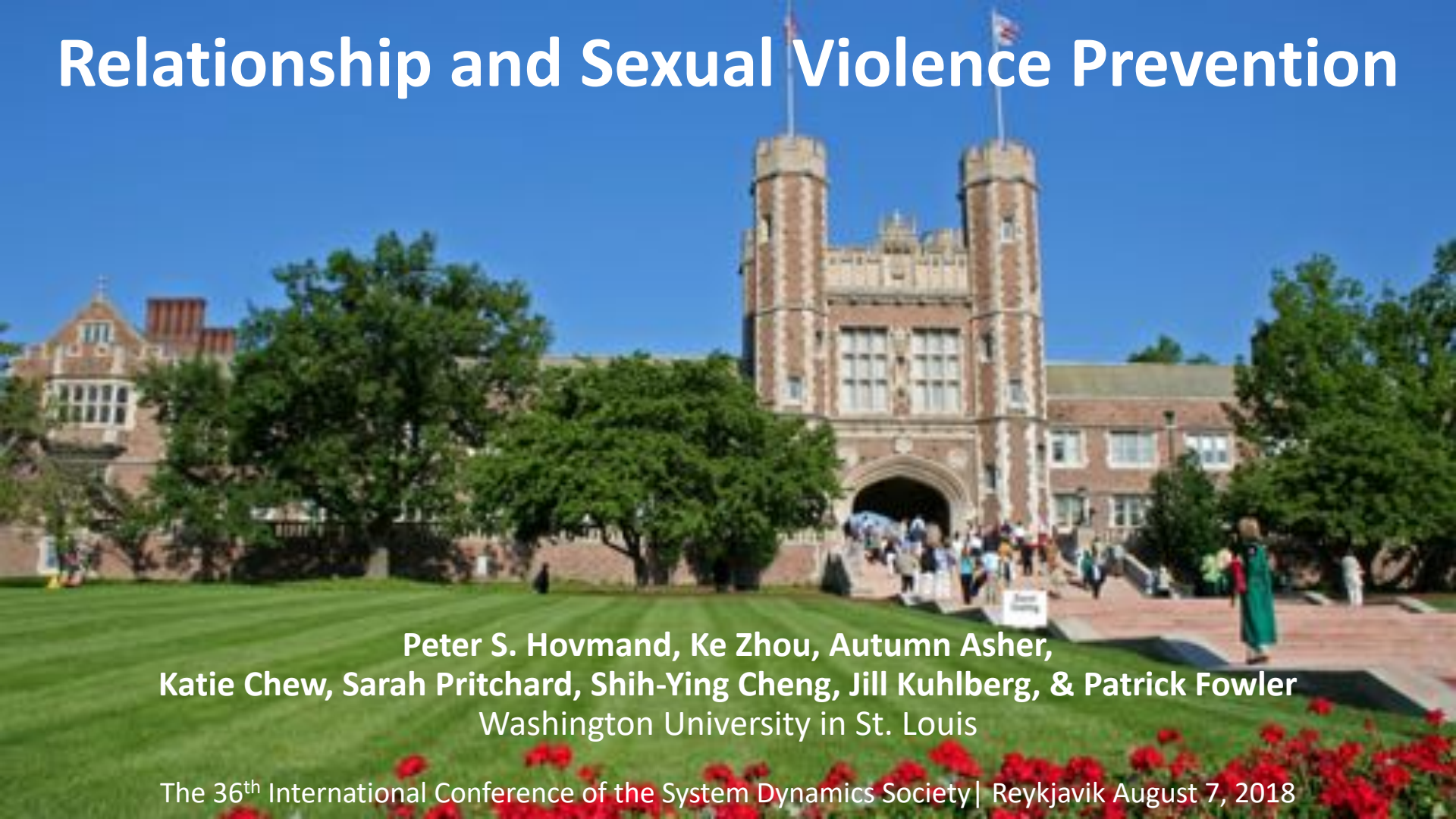
Relationship and Sexual Violence Prevention



Peter S. Hovmand, Ke Zhou, Autumn Asher,
Katie Chew, Sarah Pritchard, Shih-Ying Cheng, Jill Kuhlberg, & Patrick Fowler
Washington University in St. Louis

The 36th International Conference of the System Dynamics Society| Reykjavik August 7, 2018

Acknowledgements

- **Provost's Office**
  - Holden Thorpe
  - Sharon Stahl
  - Adrienne Davis
- **Institute of Public Health**
- **Center for Violence and Injury Prevention**
- **Relationship and Sexual Violence Prevention Center**
- **Social System Design Lab**

Washington University in St. Louis
Institute for Public Health

Center for Violence and Injury Prevention

Relationship & Sexual Violence Prevention Center
STUDENT AFFAIRS AT WASHINGTON UNIVERSITY

Social System Design Lab

Overview

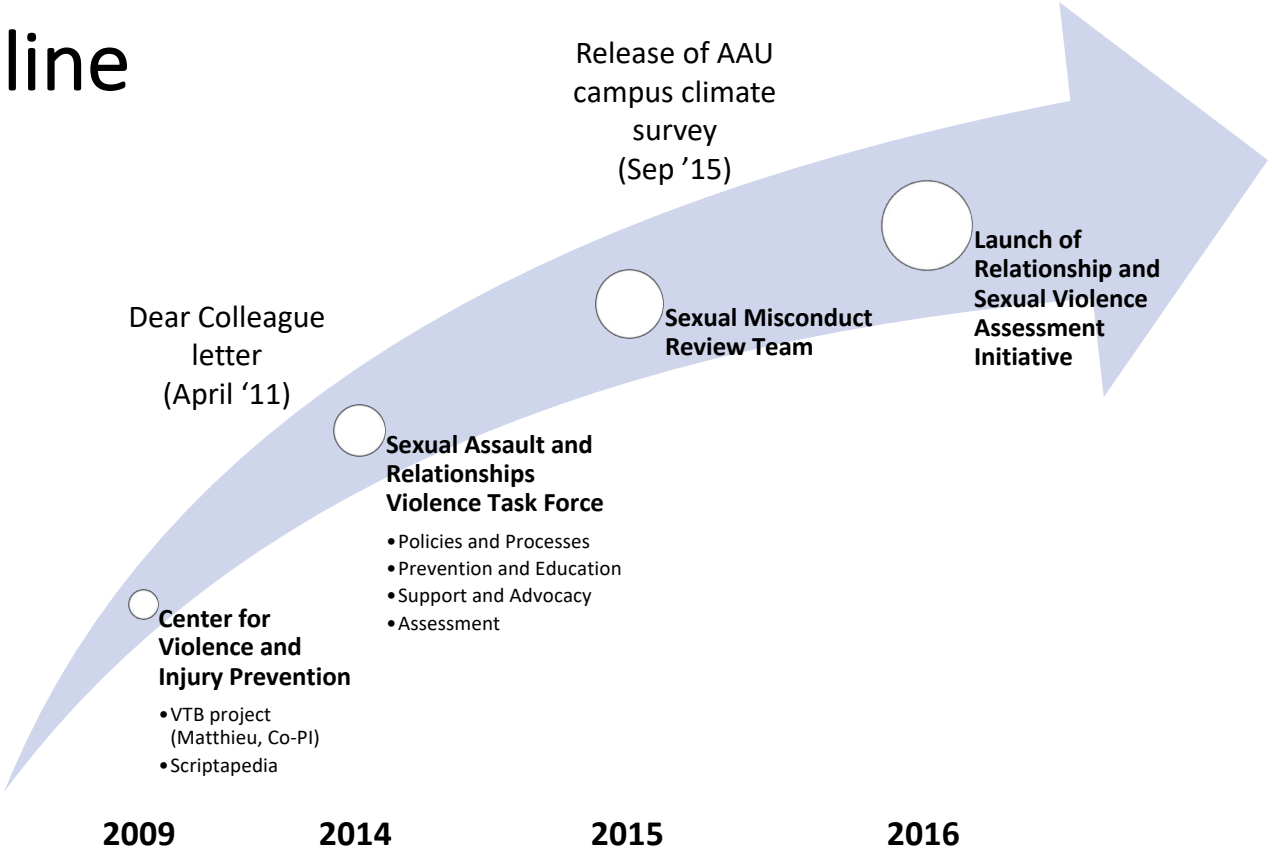
1. Background to the problem of relationship and sexual violence prevention on university campuses and Washington University's response

2. Structural violence and then need for new methods

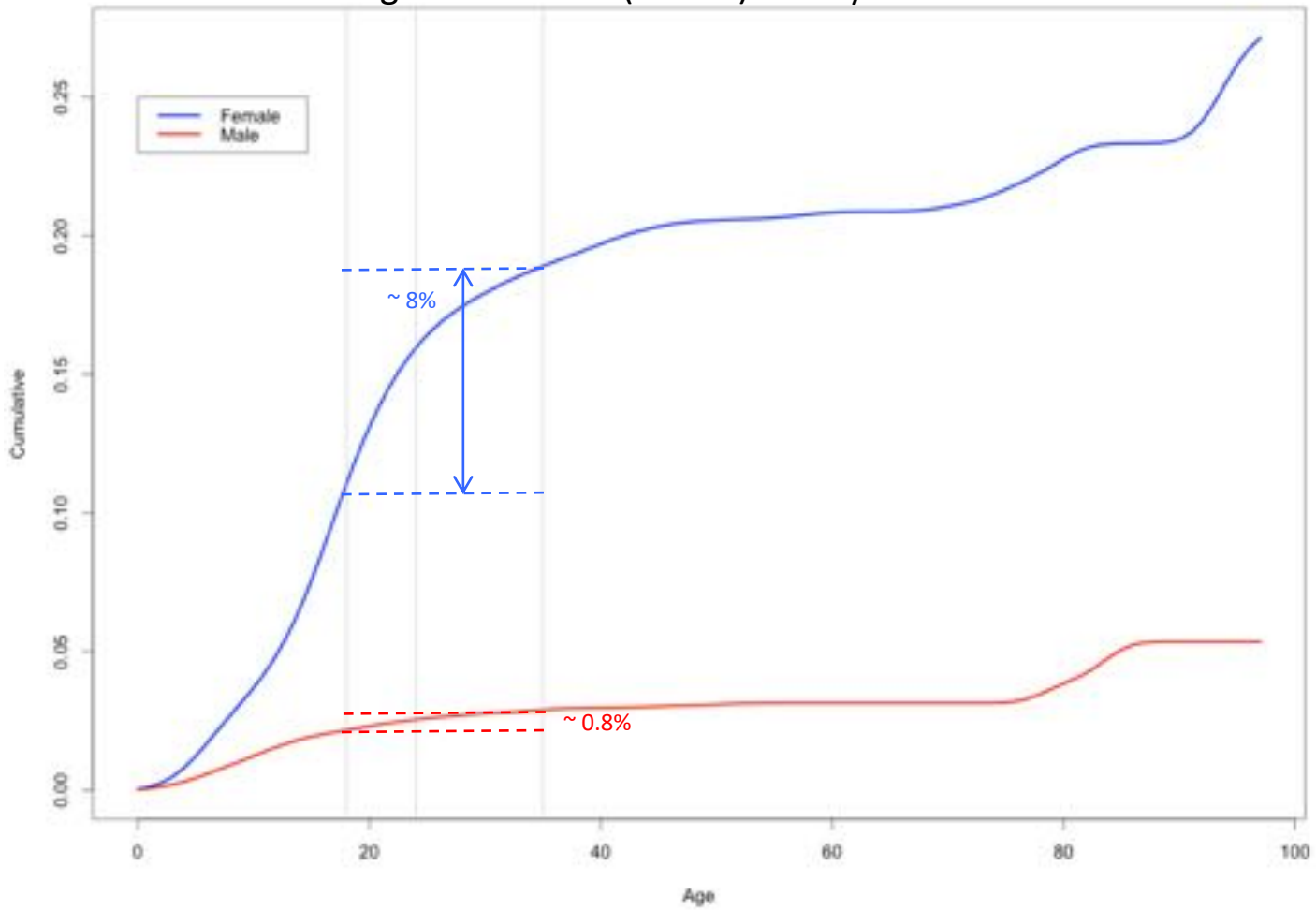
3. Conceptual individual level model of resilience in response to insults

4. Next steps and future work

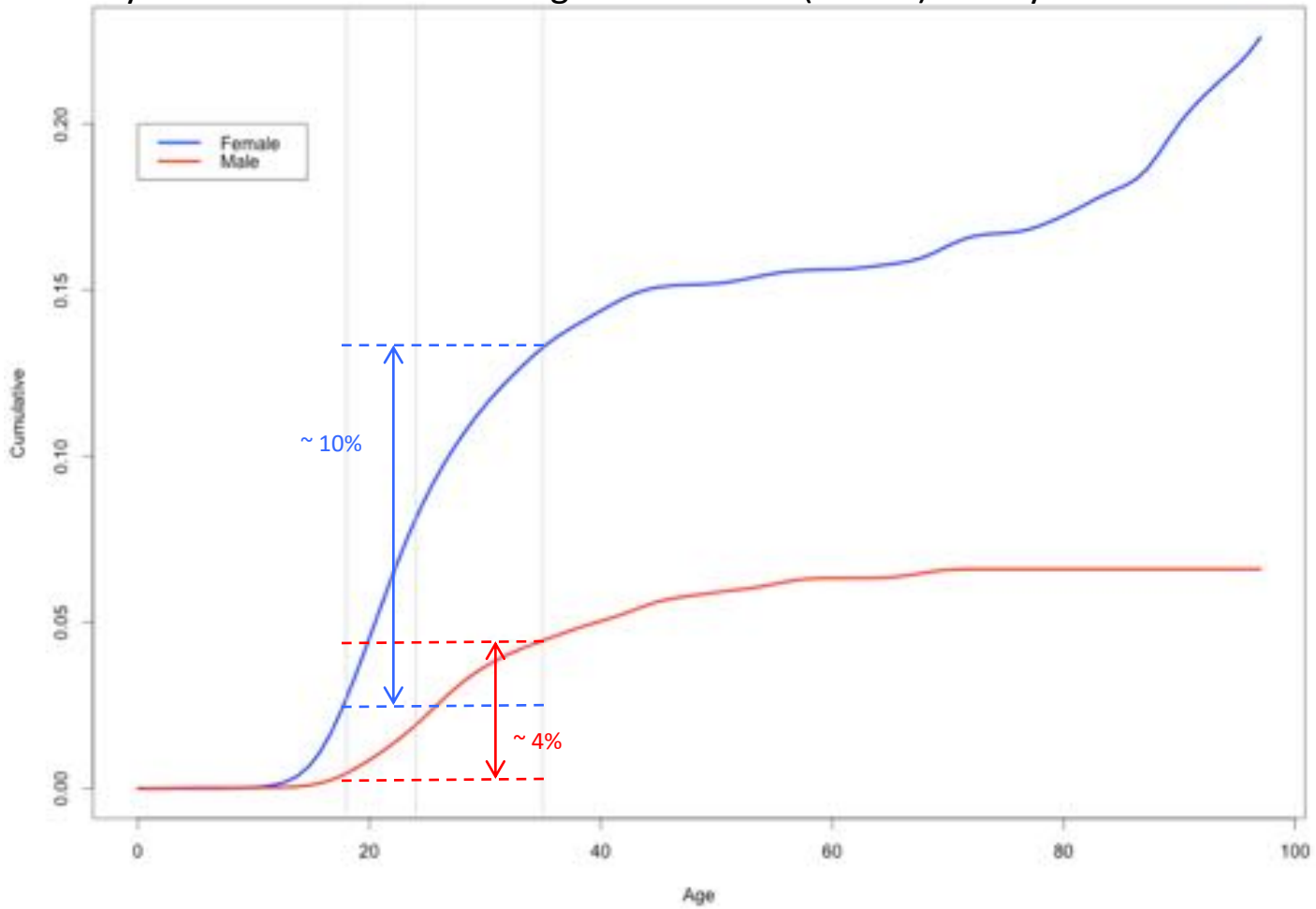
Timeline


Release of AAU campus climate survey (Sep ’15)
Launch of Relationship and Sexual Violence Assessment Initiative
Dear Colleague letter (April ‘11)
Sexual Misconduct Review Team
Sexual Assault and Relationships Violence Task Force
• Policies and Processes
• Prevention and Education
• Support and Advocacy
• Assessment
Center for Violence and Injury Prevention
• VTB project (Matthieu, Co-PI)
• Scriptapedia
2009
2014
2015
2016

Lifetime prevalence of sexual assault by age and gender for persons who have attended college (N=9,079) from analysis of National Violence Against Women (NVAW) survey



Lifetime prevalence of partner physical assault by age and gender for persons who have attended college (N=9,079) from analysis of National Violence Against Women (NVAW) survey



Rationale

- With close to 50 percent of the US population attending four-year institutions, ***prevention systems*** that show a demonstrated reduction in sexual assault and relationship violence ***could have significant population health impact.***

- Universities have an ***innovative role*** in prevention of sexual assault and relationship violence in other communities
  - Data on population and services
  - Dynamic population
  - University as a “testbed” for ***designing*** and demonstrating an adaptive prevention system

Goal: To **develop a comprehensive assessment** system for the prevention and response to campus sexual assault and relationship violence.

Specific aims:

1. ***Form transdisciplinary research teams*** to develop innovative solutions to prevention and response to campus sexual assault and relationship violence;

2. ***Develop scalable methods*** for a comprehensive campus sexual assault and relationship violence public health surveillance and evaluation of prevention and response programs and policies;

3. ***Train the next generation*** of public health prevention specialists, direct service providers (e.g., counselors, doctors), advocates and civic leaders to create community systems that prevent and respond more effectively to sexual assault and relationship violence at the community level.

Structural violence as systemic patterns

When one husband beats his wife there is a clear sense of personal violence, but when one million husbands keep one million wives in ignorance there is structural violence.

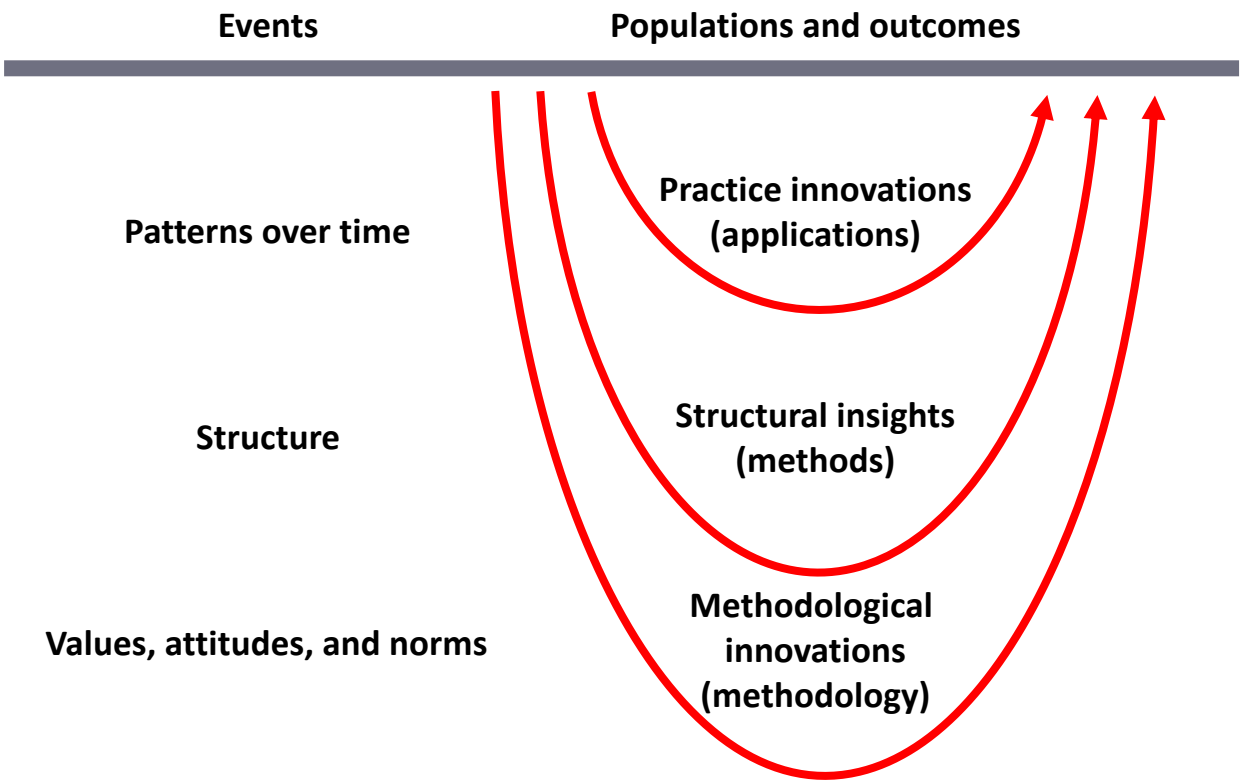
Johan Galtung (1969). Violence, peace, and peace research. *Journal of Peace Research, 6*(4), p. 171

Violence as systemic, distributional versus structural injustice, and concept of thrownness of social groups.

Iris Young (1990), Five faces of oppression. In *Justice and the politics of difference.* Princeton, New Jersey: Princeton University Press

(Redrawn from Galtung)

Need for methodology (methodology = *study of* methods)



Two major methodological problems in studying relationship and sexual violence

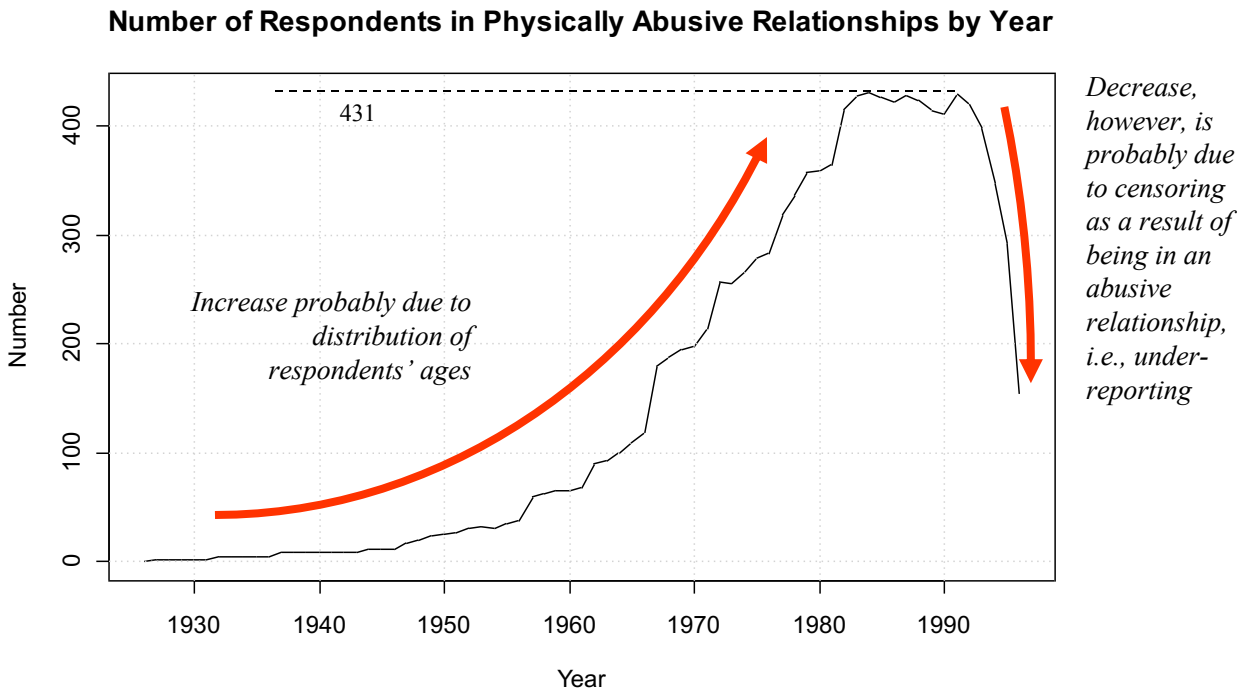
- Time delays ➔ right censoring of data and biases in underreporting

- Dynamics of identity labels ➔ biases in reporting and assessing risk of marginalized populations

  - Constructs tied to vulnerability and risk changing quickly in a dynamic population

  - Hence, missing data and ***not missing at random***

Time delays in recognizing and self-reporting victimization experiences (i.e., right censoring)



Data from NVAW survey

Dynamics of identity and labels (i.e., not missing at random)

Journal of Theoretical and Philosophical Psychology
2018, Vol. 38, No. 1, 29–41

Feelings Under Dynamic
N

Tovah Cowan
Concordia University

Scientific discourse often reli
When spectrums of sexual ide
changes in labels are necessary
meaning, and shape those who
(1995a). However, this mecha
experience and feelings in the l
dynamic description describes
tions they are given and how
prompt a new label. When the
effect, and feelings under dynar
identities, the necessity of unde
description becomes clear. Th
asexual, demi sexual, and allos
for others, from no sexual attra
of the feeling of sexual attract
degree to which sexual feeling
of feelings interact with the f
shaping the associated emotion

Public Significance Statem
This article describes a new
the labels we use for our f
feelings change the words w
we use for feelings can cha

Keywords: feelings under dy
immutable–categorical labels

SOCIOLOGY AND SYSTEM DYNAMICS

Chanoch Jacobsen, Hubert Law-Yone, Technion, Haifa, Israel

This is a revised version of a paper presented at the 1983 International System Dynamics Conference, Pine Manor College, Boston, July, 1983.

The authors wish to thank Richard Bronson for his helpful comments and criticism.

ABSTRACT

The most basic problem of sociology as an empirical science is the difficulty of replicating studies within reasonable time limits and in genuinely comparable situations. It is the problem of controlled experimentation. Sociologists want to make correct predictions based on verified causal relationships, but cannot, because the nature of macro-social phenomena precludes experiments with adequate controls.

System dynamics promises a way out of this dilema. The proposed strategy involves four phases. (1) Formulating the theory as a causal loop diagram. (2) Storing the variables involved in the functioning of the system, building the model and calibrating it until it is consistent with the theory. (3) Refining and adjusting the constants until the model can reproduce known time-series of relevant data on a number of data sets. (4) Systematically varying each constant while controlling the others. The last phase is, in fact, the quasi-experimental procedure for testing the conditions under which theory will stand or fall.

An illustrative example of the proposed strategy is given, with encouraging results relative to two data sets.

1. INTRODUCTION

Ever since Durkheim and Weber, sociologists have concerned themselves with the methodology of their discipline as much as with its substantive content. Yet the classic names in sociology are remembered for their theoretical insights rather than for their contributions to method. Not that there has been no progress in method. We have seen great improvements in the techniques of empirical social research. Still, our predictions of social events are at best tentative, stating typically as a non-existent ceteris paribus, while our theoretical explanations remain time-specific and situation-bound, being frequently no better than those of competent journalists.

Part of the difficulty is to get valid operationalizations and reliable measurements. These, however, are matters of degree, not of substance. Generations of researchers have made great strides towards greater sophistication and robustness of our data bases. The real problem, perhaps the most basic problem of sociology as an empirical science, is that we have not yet found a way to make true replications of our studies within reasonable time limits and genuinely comparable situations. It is the problem of controlled experimentation. Until this problem is resolved, we shall continue to wallow in storm of theoretical sociology, while empirically trained sociological theory goes begging.

By way of contrast, consider social psychology. Once pioneers like Lewin and Sherif had shown the way to study social interaction and small group behaviour in controlled experimental settings, this branch has surged forwards like no other in the social sciences. Social psychology is today the most scientifically advanced field in sociology, having spawned technologies based on systematic theory and research for marketing, advertising, personnel management, education, and many other applied areas. Macro-sociology and the study of larger social systems have been left far behind.

We are in a dilemma. The nature of the phenomena that we study preclude experimental situations with elaborate controls, leaving us with research techniques that lend themselves at best only to correlational analyses and their derivatives. Moreover, our data are typically time-specific and situation-bound, making generalisations and extrapolations extremely hazardous, as economists have learned the hard way. We want to make correct predictions about events, and verifiable causal statements about the relationships between variables, but with our data and analytical techniques it cannot be done with impunity.

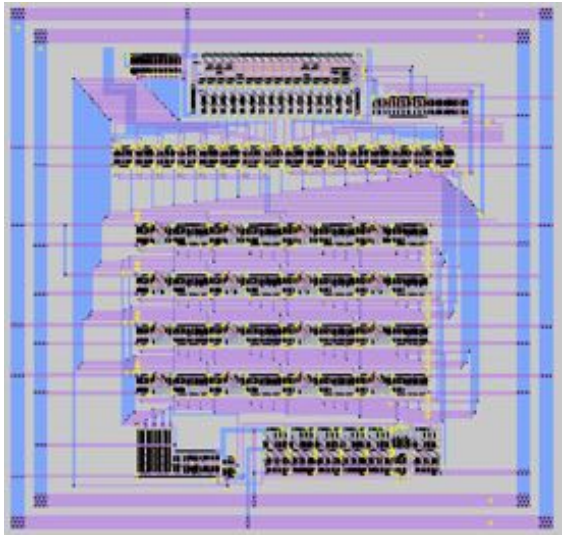
Computer simulation in general, and the system dynamics approach in particular, seem to hold the promise of a way out of this dilemma. A number of features of system dynamics methodology make it especially suitable for testing sociological theory. First, it is possible to handle many variable simultaneously, and study their fluctuations over time. Secondly, we can take account of multiple feedback loops in the system under investigation and study their mutual influences, again, over time. Furthermore, we do not have to stick to linear hypotheses, and can readily model any non-linear relationships posited by the theory. Another advantage is that system dynamics stresses relationships rather than processes, making it more suitable than other modelling techniques for the organic measures that we usually have. Finally, and perhaps crucially for many practicing sociologists, system dynamics does not require great mathematical sophistication from the user. What it does require is analytical acumen and a familiarity with computers, both of which are necessary to sociologists anyway.

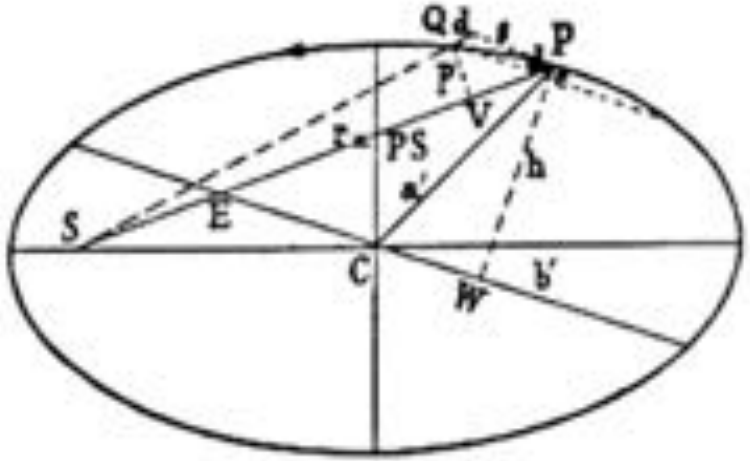
Not all sociologists are unaware of system dynamics and its applications. Forrester's work on industrial and urban dynamics[1] has attracted the attention of many social scientists who specialize in organizational studies, urban planning, human ecology, demography, and similar areas. But sociologists generally have tended to dismiss this approach, probably because it did not incorporate the knowledge available to them, and in some cases flatly contradicted it. This is unfortunate, because thereby they have thrown the baby out with the bath water. It is the author's belief that there is great potential in the system dynamics methodology for sociology, once we make the effort to anchor it in social theory.

- Scientific discourse relies on understanding labels as immutable
- Understanding how labels change (“looping effect”)
- Changing social norms, process of crescive legitimation

Cowan T, A LeBlanc. 2018. Feelings under dynamic description: the asexual spectrum and new ways of being. *Journal of Theoretical and Philosophical Psychology* **38**(29-41); Jacobsen C, H Law-Yone. Sociology and system dynamics. *Dynamica 10(*1): 2-8. (originally presented at the first ISDC at Chestnut, MA in 1983)

Ways to think about mathematical modeling





Like an engineer

How do we solve a problem?

E.g., Petroski (2011); Simon (1996)

As a basic natural scientist

How do we explain natural phenomena?

E.g., Newtown (1686); Lakatos (1970); Meehl (1990)

Two types of propositions in mathematical modeling in a progressive program of research

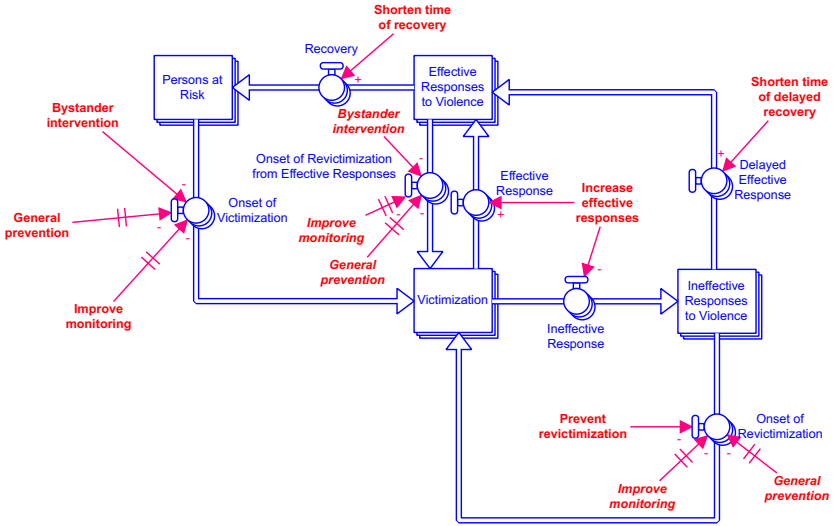
1. ***Conjectures***
   Statements about what is logically entailed by the assumptions of the model of a theory (what does the model "say"?)
   - Explored and verified through computer simulation
   - Testing the dynamic hypothesis in system dynamics

2. ***Hypotheses***
   Statements logically implied by the model that can be empirically tested
   - Comparing statements entailed by a model against empirical reality

Black M. 1962. *Models and metaphors: Studies in the language and philosophy.* Cornell University Press, Ithaca, NY.; Lakatos I. 1970. Falisfication and the methodology of scientific research programmes. In Lakatos I., A. Musgrave (eds.), *Criticism and the Growth of Knowledge.* Cambridge University Press, New York, NY, pp. 91-196; Bunge M. 1967. Scientific research II: The search for truth. Springer-Verlag, New York, NY.; Meehl PE. 1990. Appraising and amending theories: The strategy of Lakatosian defense and two principles that warrant it. *Psychological Inquiry 1*(2): 108-141.; Ostrom E. 2005. *Understanding institutional diversity.* Princeton University Press, Princeton, NJ.

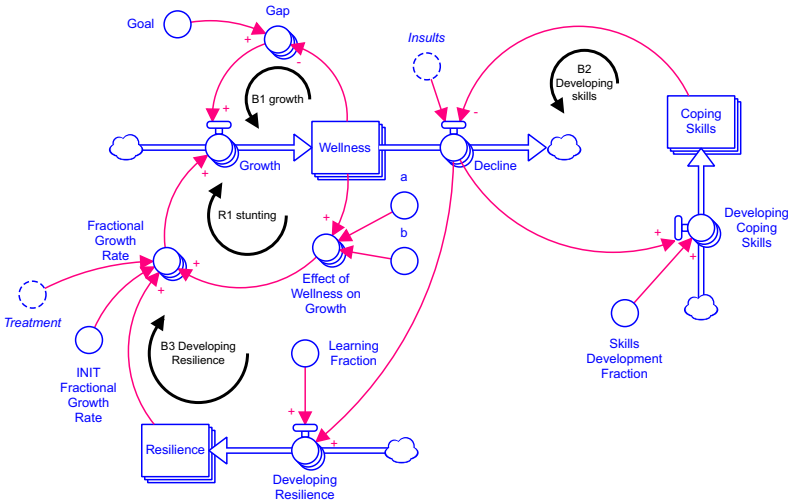
System dynamics simulation modeling

1. Macrosystem view of population, risk, prevention, and response



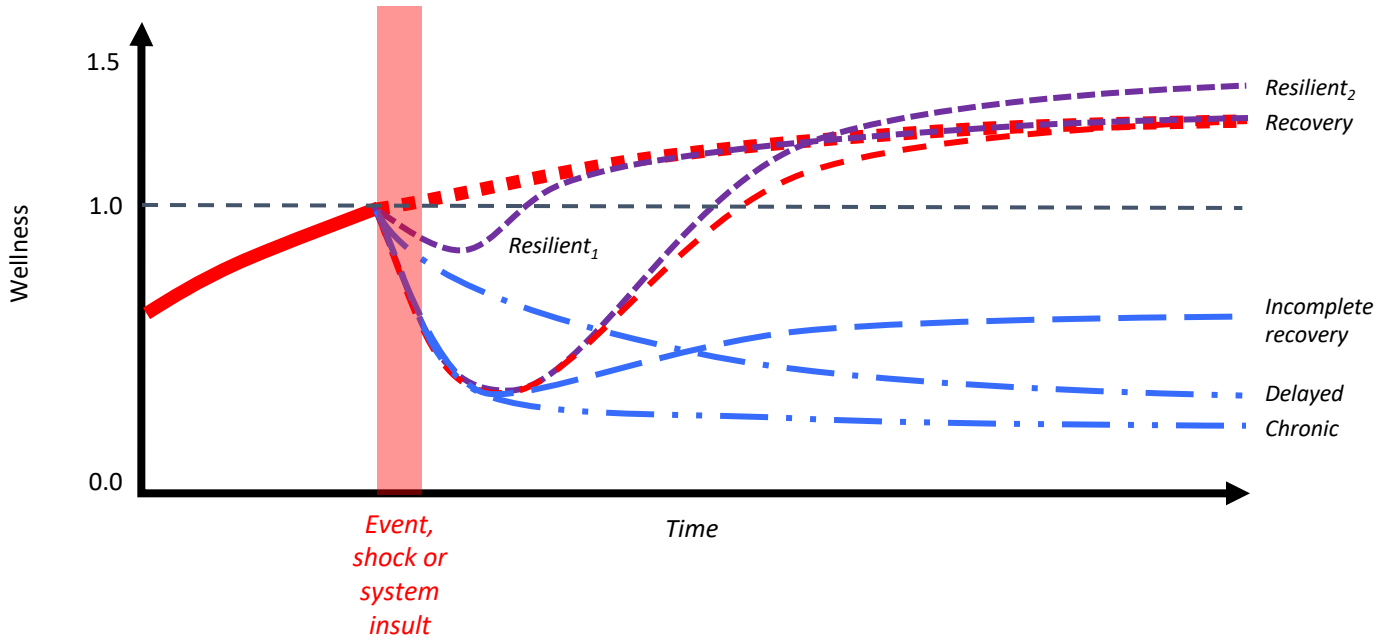
https://tinyurl.com/y75d7gsn

2. Microsystem view of individual trajectories



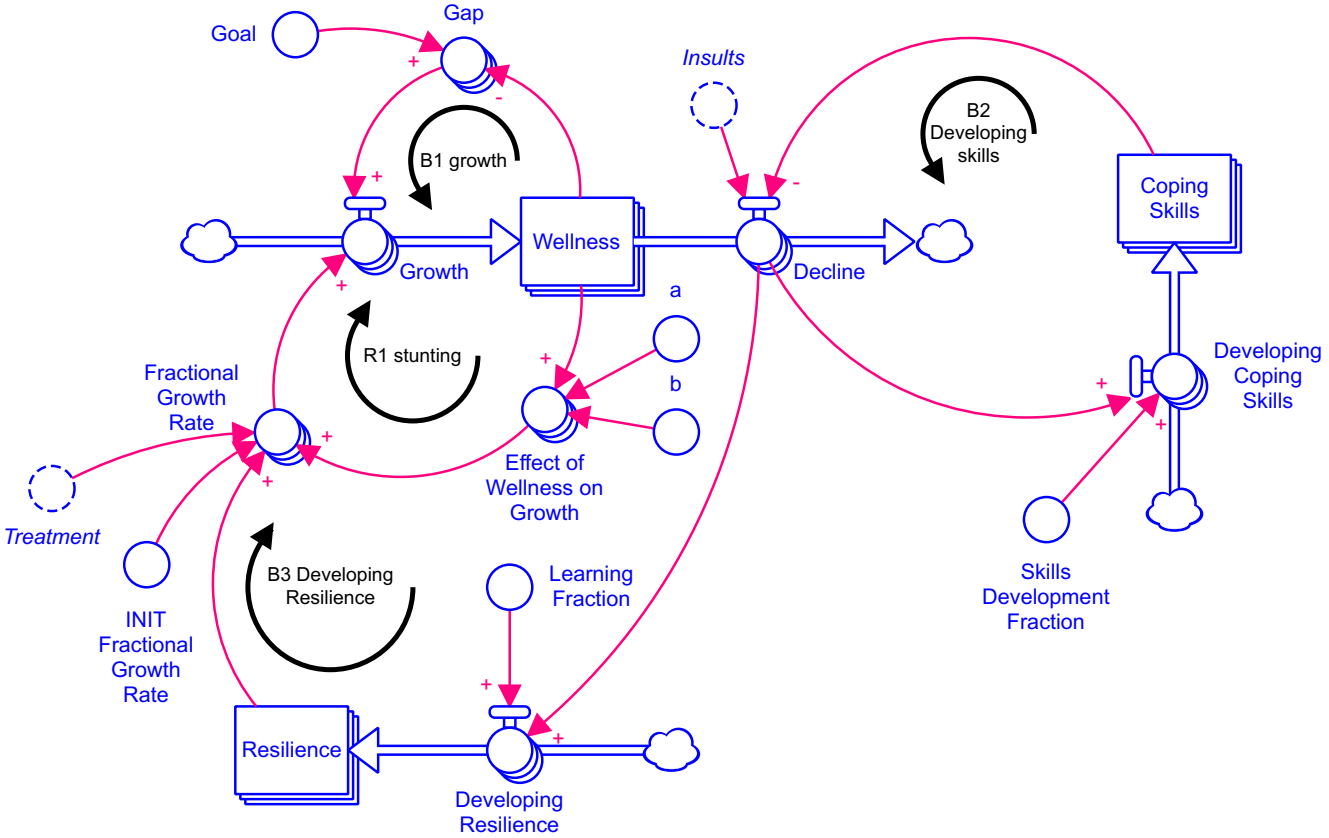
https://tinyurl.com/y9f6jaua

Different responses to insults

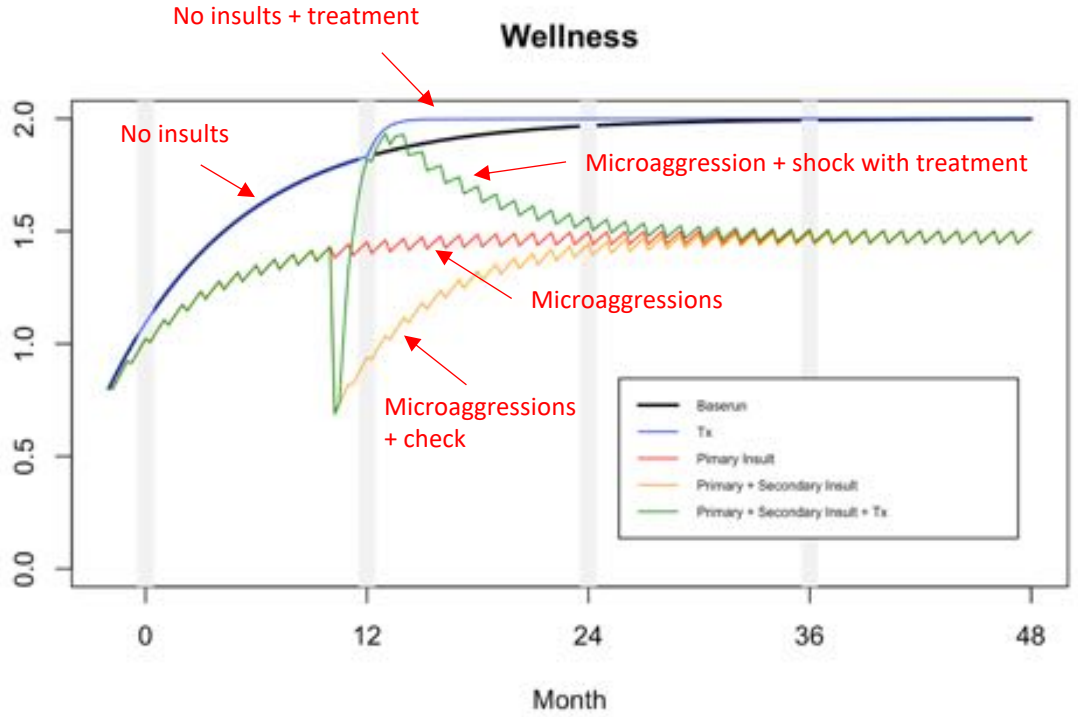


Adapted from Bonanno, G. A., & Diminich, E. D. (2013). Annual Research Review: Positive adjustment to adversity--trajectories of minimal-impact resilience and emergent resilience. *J Child Psychology Psychiatry, 54*(4), 378-401.

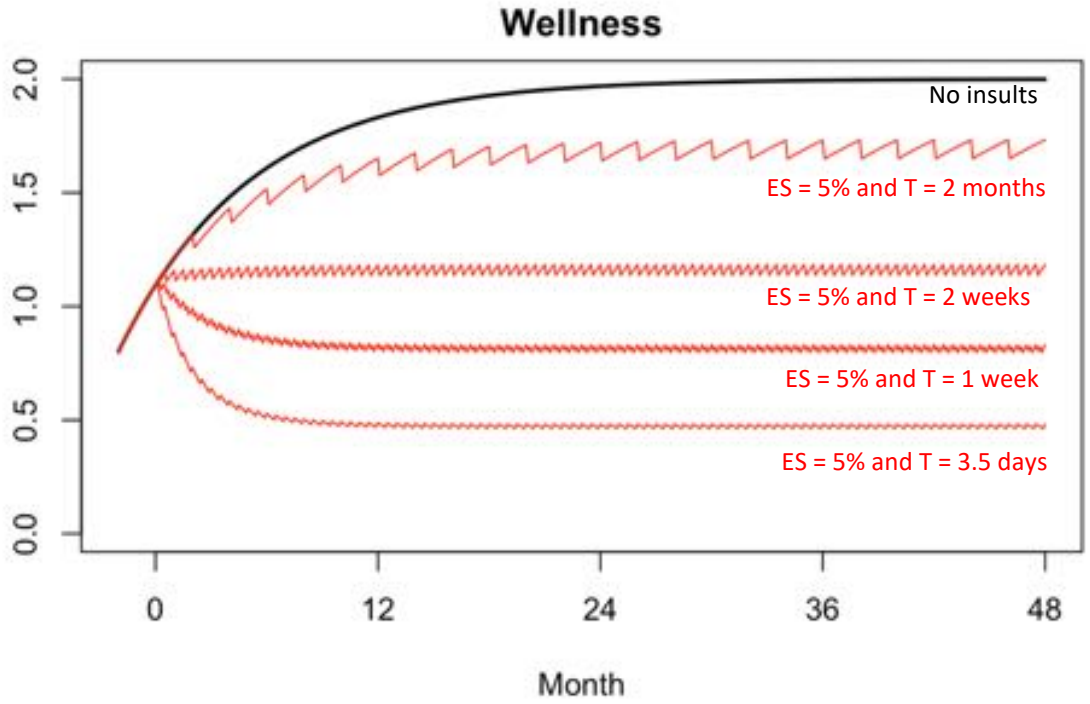
Resiliency model



Example of an individual factual-counterfactual comparison



As frequency of microaggressions increases, perceived impact *decreases* while cumulative impact *increases*



Using the model to generate synthetic data for developing and testing innovative resource allocation algorithms

Sarah Busmann, Neeharika Kotte, and Carley Maupin. (2018). Intelligently Segmenting the Long Tail. *Research mentor:* Brendan Juba

Sarah Busmann

Neeharika Kotte

Carley Maupin

Brendan Juba, PhD
Assistant Professor
of Computer Science
and Engineering

Next steps and future directions

- **Using model to design/test research evaluation designs**
  - Brown School Evaluation Center leading effort to develop RSVP program evaluation plan for prevention and response
- **Educational supports for P-12**
  - Addressing capability traps in Tier 1, 2, and 3 needs and services
- **AAU Campus Climate Survey**
  - 27 institutions
  - Sampling size of 779,170 with 196,984 responses
- **Extend to design of a more general diversity and inclusion model**

Your invited!

Washington University in St. Louis
INSTITUTE FOR PUBLIC HEALTH
Relationship & Sexual Violence-Assessment Initiative

Innovations in Evaluation: Expanding the Boundaries of Privacy and Security through Technology

October 2018 | 1-4PM
Danforth University Campus Center

Keynote speaker:

Jody O'Sullivan
Professor & Dean of the UMSL/Wash U Joint Undergraduate Engineering Program and The Samuel C. Sachs Professor of Electrical Engineering

Agenda:
1-2 PM Keynote
2-3 PM Developing a Comprehensive Evaluation Plan
3- 4 PM Poster Session

For more information about RSV-AI: contact Peter Hovmand, PHD, MSW (phovmand@wustl.edu) or Sarah Pritchard, MSW/MPH (sarahrpritchard@wustl.edu) or visit https://publichealth.wustl.edu/relationship-and-sexual-violence-assessment-initiative/