

Opportunities for Measuring Correlates of Suicide: Merging NVDRS and American Community Survey Data?

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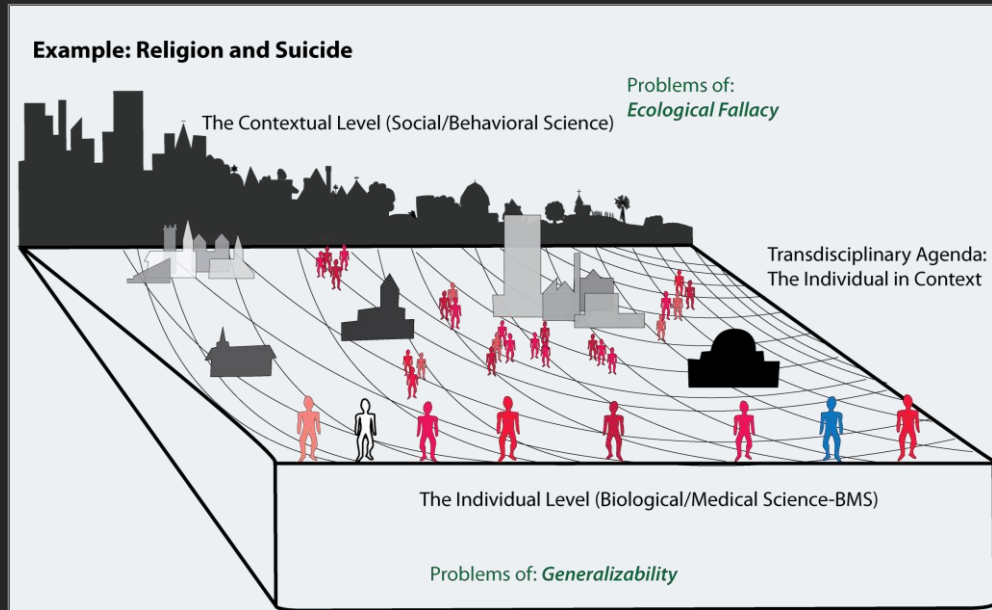
Irsay Institute for Sociomedical Sciences Research

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Law Enforcement in the United States: A Workshop
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Research Traditions, Initial Work & the Critiques



Using Rates

- Ecological Fallacy
- Of who is dying by suicide
- Implications for prevention & Tx (recognized)

Using Individual Cases

- Generalizability
- Not only of correlates, place
- Well-known effects of geography (e.g., neighborhood SDOH)
- Implications for prevention & Tx (generally unrecognized)

Transdisciplinary Agenda

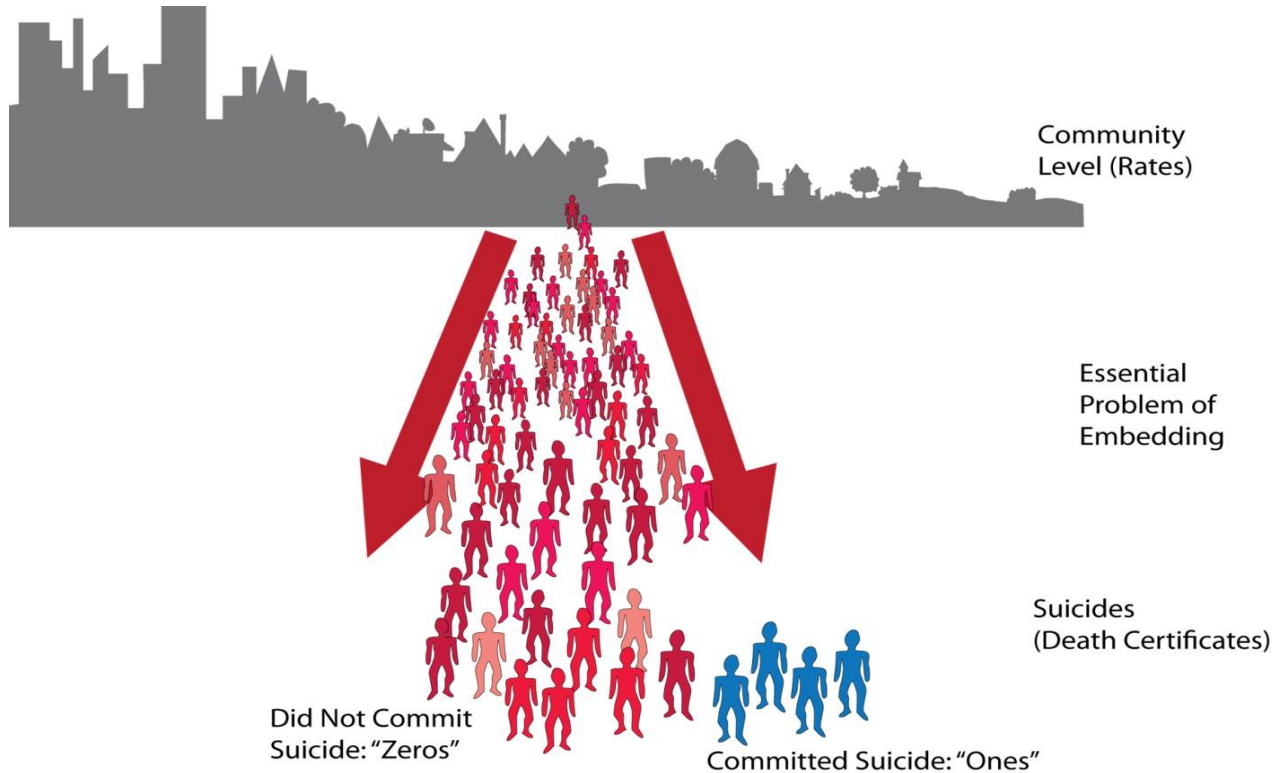
- Complex Systems Science
- Networks of Levels/Layers

Pescosolido, B.A. 1994. "Bringing Durkheim into the 21st Century: A Social Network Approach to Unresolved Issues in the Study of Suicide." Pp.264-295 in D. Lester (ed.), *Emile Durkheim: Le Suicide - 100 Years Later*. Philadelphia: The Charles Press.

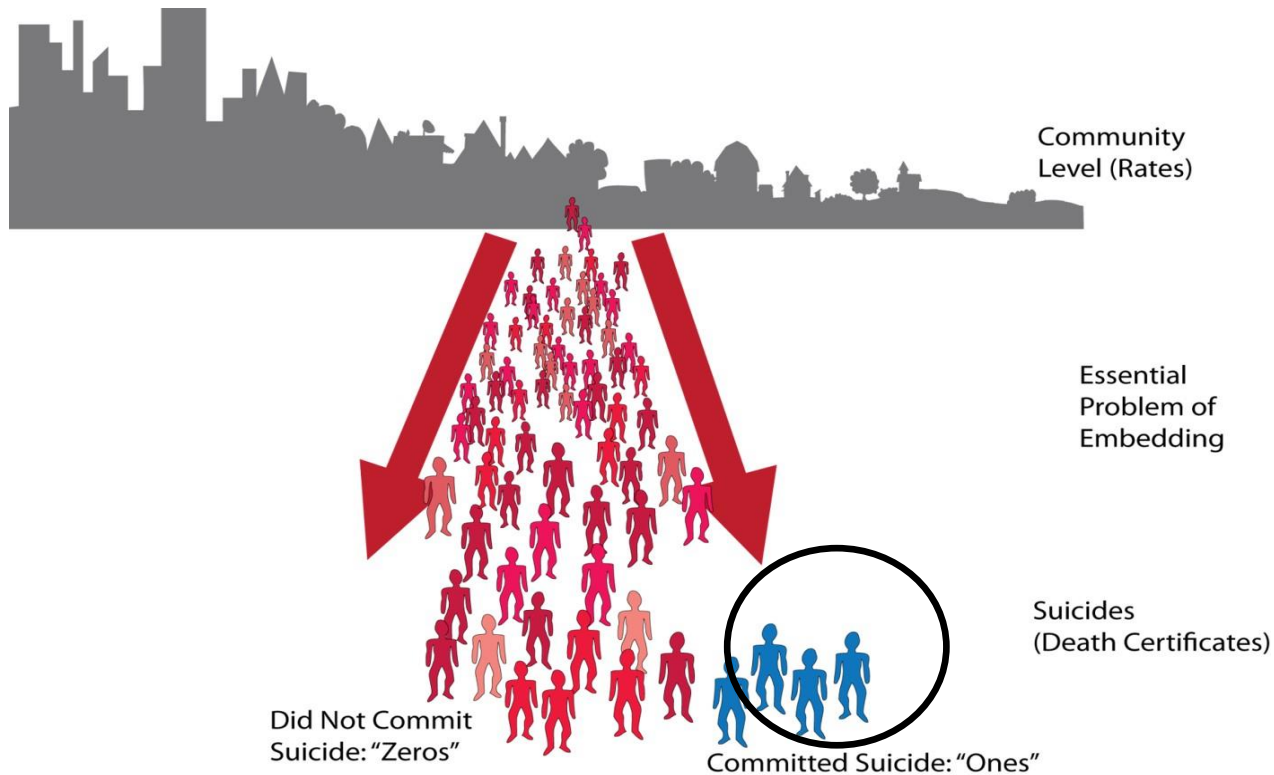
Pescosolido, B.A. 2004. "Society and Culture." Ch. 6 in *Reducing Suicide: A National Imperative*, S.K. Goldsmith, T.C. Pellmar, A.M. Kleinman, W.E. Bunney, Eds. Committee on Pathophysiology & Prevention of Adolescent & Adult Suicide, Board on Neuroscience and Behavioral Health. Institute of Medicine.

Pescosolido, B.A., S. Olafsdottir, O. Sporns, B.L. Perry, et. al. 2016. "The Social Symbiome Framework: Linking Genes-to-Global Cultures in Public Health Using Network Science." Pp. 25-48 in *The Handbook of Applied Systems Science*, Z.P. Neal, Ed. New York: Routledge.

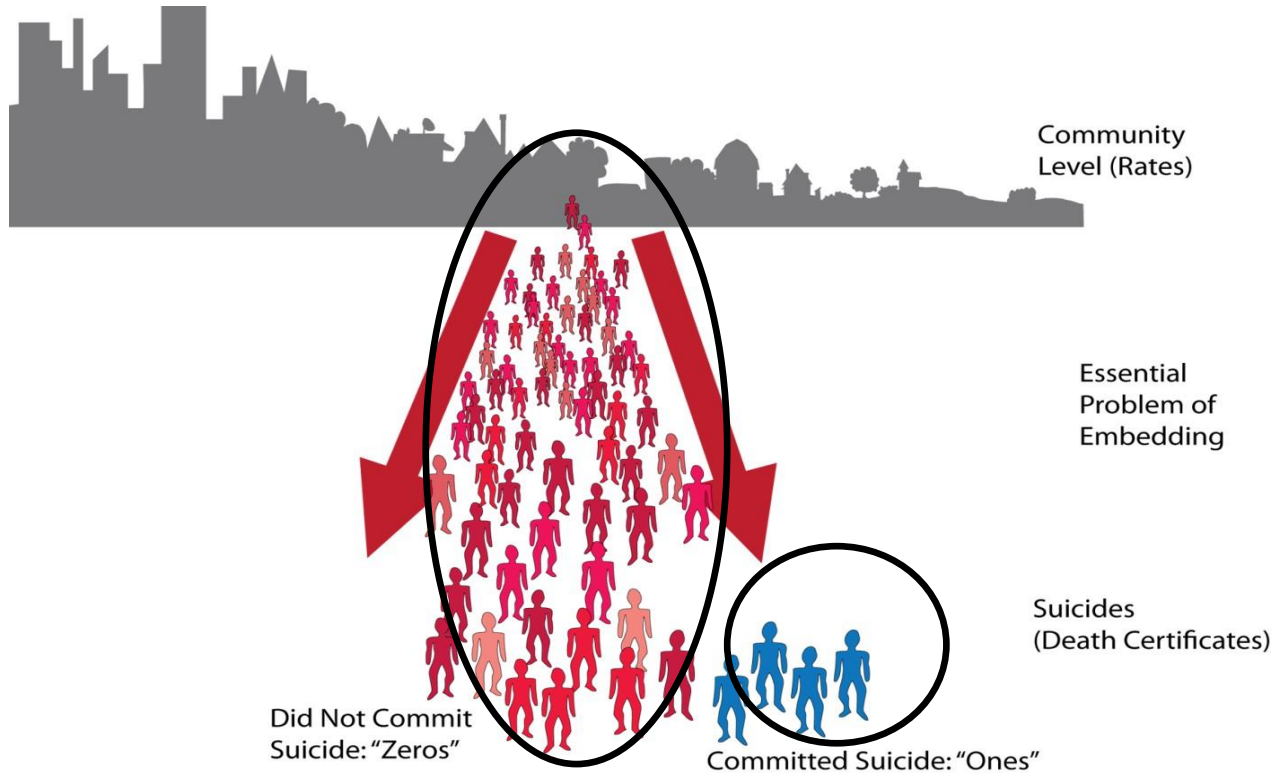
The Problem of the Zeros: Unique to the Study of Completed Suicide






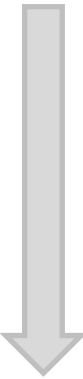
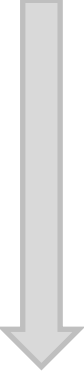
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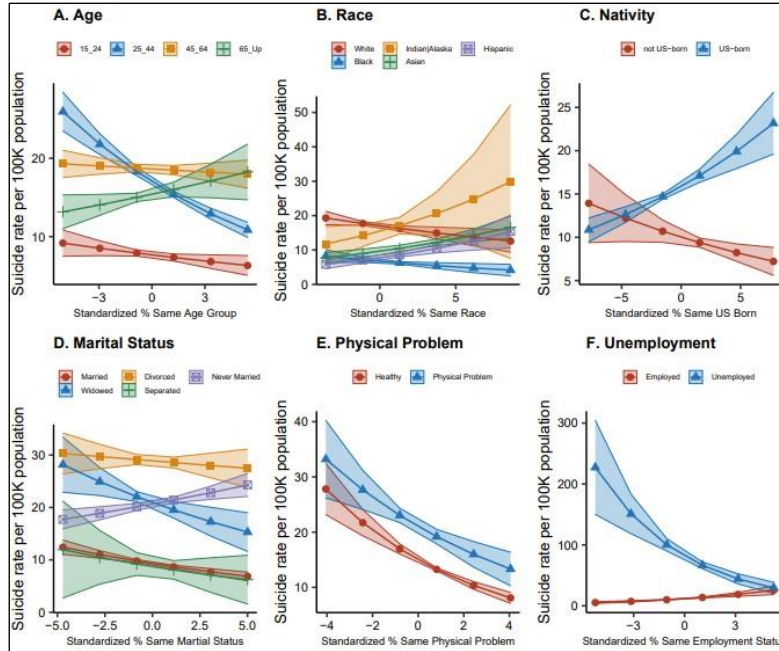


The Complicated But Feasible, Big Data Solution

|  Suicides –“ones” | Non-Suicides - “zeros” |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Census Bureau, CPS (Mandated); Religious Congregations & Membership Survey (1960-present) (All counties) | |
|  NVDRS (All Counties, 17 States) Treatment for MH problems, toxicology screen |  ACS (1996-present) (all counties, 2005- present) |
|  Proxies: intimate partner problem/ marital status, Job/school/ financial problems |  Marital status migration status |
| Age, occupation, gender, veteran status, suicide history, crisis in past 2 weeks, mode, date | Age, occupation, gender, income |
| Current depressed mood, current MH problem, diagnosis | Physical/mental/ emotional problems |

- Acquiring data
- Harmonizing data
 - Full model (N = 12,728,796)
 - Reduced models (Employment, N = 12,696,127; physical problems N = 12,722,565)
- Logistic regression for binary outcome:
 - Linearity
 - Clustering, dependency, hierarchical nesting
- MSDI-US = Multi-level suicide data – U.S.
- Examine the effect of individual and contextual effects controlling for one another
- Unique Possibility: “Sameness” or Cross-level Sociodemographic Homogeneity (Sociological Operationalization of Connectedness)

Original Insights



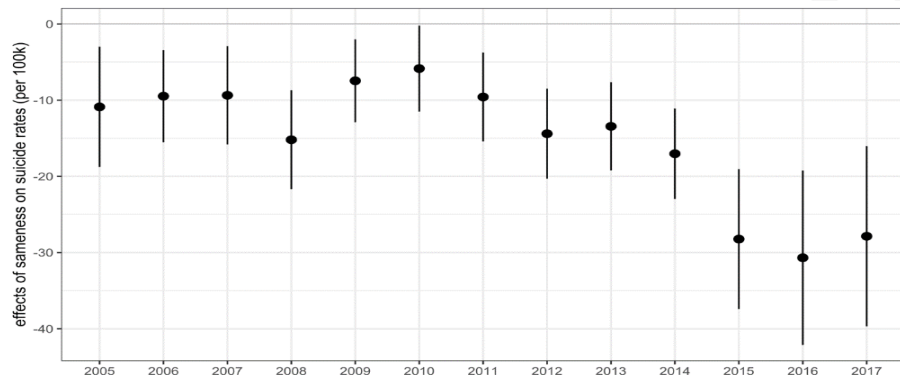
- Some of the “most robust” findings in suicide at the individual level are moderated by their cross-level counterpart in expected and unexpected ways
 - Unemployment has a dramatically different association with suicide depending on the unemployment level of the county
- Minority or marginalized populations: Isolation reverses the protective effect of ethnic cultures
 - Sameness effects are positive for White and Black, but negative for Asian/Native American
 - Sameness effects are positive for non-US born, but negative for US born
- Implications for policy, resources and treatment are substantial

Pescosolido, Bernice A., Byungkyu Lee, and Karen Kafadar. "Cross-level sociodemographic homogeneity alters individual risk for completed suicide." *Proceedings of the National Academy of Sciences* 117, no. 42 (2020): 26170-26175.

Pushing Forward: Overtime Effects

Unemployment Sameness Effects Across the Great Recession

The effects of employment sameness for the unemployed population on suicide across 16 states from 2005 to 2017, using Commuting Zones (CZ) rather than Counties



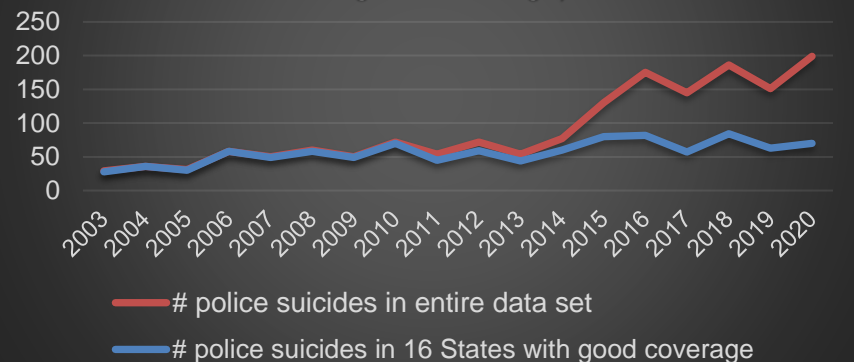
Note. We present average marginal effects of employment sameness with 95% confidence interval (i.e., the change of suicide rates from the minimal employment sameness to maximal employment sameness) across those who are unemployed each year. We estimate logistic regression models with the same model specifications used in Table S6, Model 2 in Appendix to account for basic individual and CZ-level demographic covariates (sex, age group, race, marital status, born in the US), other CZ-level characteristics (i.e., population density, out migration rate and poverty rate), and state/year dummies. Standard errors are clustered at CZ levels.

BK Lee and B.A. Pescosolido, "Misery Needs Company: Contextualizing the Link Between Unemployment and Suicide in the US Before, During and After the Great Recession." *Under Review*. Presented previously at the annual meeting of the Population Association of America, 2022.

The Potential for Understanding Suicide Among Police

Number of Deaths Reported for Active Police Officers, NVDRS

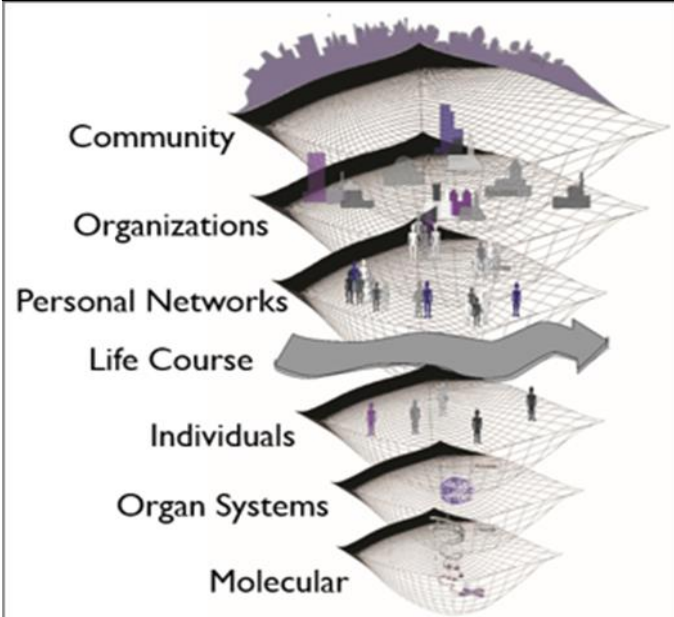
(Red – # police suicides in entire data set;
Blue – # police suicides in 16 States with good coverage)



As you can see there are some increases in police suicide in 2015, which is an artifact of NVDRS data expansion. But if we focus on the 16 states for which we have longitudinal data, we are still observing an increase in the number of police suicides.

More Possibilities

Complex Modeling of Multilevel Connectedness



Issues

- The major considerations are the comparison group (ACS?) that sets the analytic possibilities and tailoring (as in CZ) that set the requirements of different questions.
- Theoretical possibilities are not limited but depend on careful harmonization of appropriate data sets and NVDRS continuity and change.
- There are limits (e.g., religion). Public Law 94-521 (1947) prohibits the US from asking a question on religious affiliation on a mandatory basis; therefore, the USCB cannot be the source for individuals' religious affiliation)

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