Structural Stigma and Sexual Orientation Health: Measurement, Methods, and Challenges

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Sexual Orientation Health Disparities
“Societal-level conditions, cultural norms, and institutional policies and practices that constrain the opportunities, resources, and wellbeing of the stigmatized” (Hatzenbuehler & Link, 2014, p. 1).

“The under-representation of [structural stigma] is a dramatic shortcoming in the literature on stigma, as the processes involved are likely major contributors to unequal outcomes” (Link et al., 2004, p. 515).
Challenges in Studying Structural Stigma and LGB Health

- Lack of structural-level measures
  - Sexual minority stigma is largely assessed at the individual or interpersonal level of analysis

- Lack of variation in structural stigma
  - Some forms were, until recently, ubiquitous exposures (e.g., DOMA)

- Lack of data structures
  - Few population-based health data sets that include measures of sexual orientation and provide geographic units of analysis (e.g., state) that enable researchers to link in structural stigma variables
Measure #1: State-Level Policies Targeting LGB Populations

The Impact of Institutional Discrimination on Psychiatric Disorders in Lesbian, Gay, and Bisexual Populations: A Prospective Study

Mark L. Hatzenbuehler, MS, MPhil, Katie A. McLaughlin, PhD, Katherine M. Keyes, MPH, and Deborah S. Hasin, PhD

American Journal of Public Health | March 2010, Vol 100, No. 3
Constitutional Amendments Banning Same-Sex Marriage (2004)

- Red = States passing constitutional amendments
- Blue = States not passing constitutional amendments

National Epidemiologic Survey on Alcohol and Related Conditions (2001-2005)
LGB Adults Living in States that Banned Same-Sex Marriage Experienced Increase in Mood Disorders

AOR = 1.67 (95% C.I. 1.01, 2.77)  
AOR = 0.69 (95% C.I., 0.47, 1.01)

Covariates: sex, age, race/ethnicity, SES, marital status

Presented at the 2016 CDUHR Mini-Conference on Structural Variables - December 13, 2016
Effect of Marriage Bans Specific to LGB Adults

AOR = 1.67 (95% C.I. 1.01, 2.77)  
AOR = 1.03 (95% C.I. 0.93, 1.15)

Covariates: sex, age, race/ethnicity, SES, marital status

Presented at the 2016 CDUHR Mini-Conference on Structural Variables - December 13, 2016
Measure #2:
Behavioral Indices of Structural Stigma

Neighborhood-Level LGBT Hate Crimes and Bullying Among Sexual Minority Youths: A Geospatial Analysis

Mark L. Hatzenbuehler, PhD
Dustin Duncan, ScD
Renee Johnson, PhD

Lesbian, Gay, Bisexual, and Transgender Hate Crimes and Suicidality Among a Population-Based Sample of Sexual-Minority Adolescents in Boston

Dustin T. Duncan, ScD, and Mark L. Hatzenbuehler, PhD
LGBT Assault Hate Crimes (Obtained Via Police Records):

Boston
Boston Youth Survey

- Linked ecologic data on LGBT hate crimes at the neighborhood level to individual-level data

- Boston Youth Survey
  - Public high school students grades 9-12 in Boston who provided complete residential address
  - Measure of sexual orientation identity
  - Bullying experiences in the past 30 days (Rigby, 1998)
Bullying More Likely To Occur Among Sexual Minority Youth Living In Neighborhoods With A Greater Prevalence Of LGBT Assault Hate Crimes

<table>
<thead>
<tr>
<th>Bullying Outcome</th>
<th>No(^1)</th>
<th>Yes(^1)</th>
<th>P-value(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational</td>
<td>11.95</td>
<td>21.58</td>
<td>0.01</td>
</tr>
<tr>
<td>Electronic</td>
<td>13.29</td>
<td>26.73</td>
<td>0.03</td>
</tr>
<tr>
<td>Verbal</td>
<td>14.15</td>
<td>18.44</td>
<td>0.22</td>
</tr>
</tbody>
</table>

\(^1\)LGBT assault hate crimes (N=98) expressed as per 100,000 population.  
\(^2\)Wilcoxon two-sample t-test.

No association between LGBT assault hate crimes and bullying among heterosexual youth (N=1,129).

No association between bullying and overall violent and property crimes (N=31,254) among sexual minority youth (N=108).
Measurement #3: Composite Measures of Structural Stigma

Hidden from health: structural stigma, sexual orientation concealment, and HIV across 38 countries in the European MSM Internet Survey

*AIDS* 2015, **29**:1239–1246
Structural Stigma Measure

- Derived country-level attitudes towards sexual minorities from the 2008 European Values Survey, a cross-national survey of social attitudes that randomly sampled ~1500 residents per country.
  - Included proportion of respondents in each country who (1) thought homosexuality “could be justified”; (2) agreed that “homosexual couples should be able to adopt children”; and (3) did not indicate not wanting to have “homosexuals as neighbors.”
- Calculated the standardized mean of these three variables
- Averaged the mean with the standardized policy index to create a country-level index of structural stigma
Methods

• Linked ecologic data on structural stigma at the country level (N=38 European countries) to individual-level outcomes among MSM living in these countries (n=174,209 MSM)
### Structural Stigma Associated with HIV Risk Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate HIV prevention reach</td>
<td>1.43 (1.27-1.62)***</td>
</tr>
<tr>
<td>Incorrect HIV transmission knowledge</td>
<td>1.16 (1.08-1.26)***</td>
</tr>
<tr>
<td>No HIV test result (12 mo.)</td>
<td>1.14 (1.05-1.24)**</td>
</tr>
<tr>
<td>No STI screen (12 mo.)</td>
<td>1.21 (1.07-1.36)**</td>
</tr>
<tr>
<td>Condoms never/seldom used</td>
<td>1.30 (1.10-1.54)**</td>
</tr>
<tr>
<td>No sex/MSM discussion when tested</td>
<td>1.52 (1.29-1.80)***</td>
</tr>
</tbody>
</table>

Covariates: Age, relationship status, employment status, education, settlement size, HIV status, Gini index. ** $p \leq .01$, *** $p \leq .001$, + significant mediation via distribution-of-the-product method.
Measure #4: Newer Measurement Approaches

Association between an Internet-Based Measure of Area Racism and Black Mortality

David H. Chae¹ *, Sean Clouston², Mark L. Hatzenbuehler³, Michael R. Kramer⁴, Hannah L. F. Cooper⁵, Sacoby M. Wilson⁶, Seth I. Stephens-Davidowitz⁷, Robert S. Gold¹, Bruce G. Link³
Measure #4: New Measurement Approaches

Fig 1. Proportion of Google queries containing the “N-word” by designated market area, 2004–2007.
**Measure #4:**

**New Measurement Approaches**

Table 2. Nested negative binomial regression models estimating associations with Black all-cause mortality rates.

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MRR (95% CI) p</td>
<td>MRR (95% CI) p</td>
<td>MRR (95% CI) p</td>
<td>MRR (95% CI) p</td>
</tr>
<tr>
<td>Area racism</td>
<td>1.082 (1.056, 1.108) &lt;0.001</td>
<td>1.076 (1.052, 1.101) &lt;0.001</td>
<td>1.057 (1.034, 1.080) &lt;0.001</td>
<td>1.036 (1.015, 1.057) 0.001</td>
</tr>
<tr>
<td>Urbanicity</td>
<td>1.000 (0.999, 1.001) 0.963</td>
<td>1.002 (1.001, 1.004) 0.001</td>
<td>1.004 (1.003, 1.005) &lt;0.001</td>
<td></td>
</tr>
<tr>
<td>% Black</td>
<td>1.006 (1.005, 1.008) &lt;0.001</td>
<td>1.007 (1.005, 1.009) &lt;0.001</td>
<td>1.006 (1.004, 1.007) &lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>1.003 (0.998, 1.008) 0.199</td>
<td>1.001 (0.996, 1.006) 0.659</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty</td>
<td>1.012 (1.008, 1.016) &lt;0.001</td>
<td>1.010 (1.006, 1.014) &lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Mortality</td>
<td></td>
<td></td>
<td></td>
<td>1.046 (1.032, 1.059) &lt;0.001</td>
</tr>
<tr>
<td>Psuedo-R²</td>
<td>0.309 &lt;0.001</td>
<td>0.314 &lt;0.001</td>
<td>0.317 &lt;0.001</td>
<td>0.321 &lt;0.001</td>
</tr>
<tr>
<td>AIC, R_{k}</td>
<td>14472 &lt;0.001</td>
<td>14371 &lt;0.001</td>
<td>14294 &lt;0.001</td>
<td>14221 &lt;0.001</td>
</tr>
<tr>
<td>Alpha</td>
<td>0.025 &lt;0.001</td>
<td>0.022 &lt;0.001</td>
<td>0.020 &lt;0.001</td>
<td>0.018 &lt;0.001</td>
</tr>
</tbody>
</table>
Methods for Studies on Structural Stigma

• Datasets must have the following variables:
  • Demographic measures of stigmatized group of interest
  • Covariates (at both the individual and structural level) to control for confounders/alternative explanations
  • Dependent variables (i.e., health outcomes)
  • Geographic information (e.g., ZIP code, FIPS code) to link structural stigma variables to individual-level data

Hatzenbuehler (2014), *Current Directions in Psychological Science*
Conclusion: Multi-Measure, Multi-Method Approach to Studying Structural Stigma and LGB Health

- Measures of structural stigma:
  - Social policies (e.g., same-sex marriage laws)
  - Social attitudes
  - Social behaviors (e.g., LGBT assault hate crimes)

- Methods:
  - Observational designs (cross-sectional, longitudinal)
  - Quasi-experimental designs
  - Laboratory designs
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