Lessons from the Broad Street Pump:
The importance of addressing structural factors that drive HIV

Lori Heise, PhD
Senior Lecturer, LSHTM
STRIVE Research Symposium
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Disease determinants

Factor → Biological  Behavioural  Social

Intervention → Bio-medical  Educational  Structural

Source: Adapted from Jim Thomas, Measure Evaluation
Structural interventions

(behavioral)

High  →  Personal Volition  ←  Low

(behavioral)

HIV  “Have fewer partners”

Obesity  “Exercise more”

Hazardous drinking  “Drink responsibly”

(structural)

Improve livelihoods (to reduce transactional sex)

Create walkable neighbourhoods

Regulate alcohol advertising and promotion

Source: Adapted from Jim Thomas, Measure Evaluation
Stemming the tide of cholera
London 1854

John Snow,
Father of modern epidemiology
The historical decline of TB deaths in England and Wales 1848-1961

McKeown T, Record RG, Turner RD Population Studies 1975

Introduction of Chemotherapy
STRIVE Priority Research Topics

STRIVE: Tackling the factors that create vulnerability and undermine HIV prevention and treatment
Designed around 4 research themes

- **Theme 1:** Deepening fundamental understanding of structural factors and pathways

- **Theme 2:** Evaluating the impact and cost-effectiveness of structural interventions

- **Theme 3:** Advancing methods for evaluating structural interventions; and

- **Theme 4:** Enhancing insights into processes of change
Conceptual framework

MACRO LEVEL

Structural Drivers

Proximate Determinants of Risk

HIV transmission

Structural Interventions
Evidence of Impact: Partner violence

3 prospective studies link IPV with Incident HIV or STI

<table>
<thead>
<tr>
<th>Relationship power scale</th>
<th>IRR (95% CI)</th>
<th>p value</th>
<th>HSV2-adjusted IRR (95% CI)*</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium or high equity</td>
<td>1.00</td>
<td>--</td>
<td>1.00</td>
<td>--</td>
</tr>
<tr>
<td>Low equity</td>
<td>1.51 (1.05-2.17)</td>
<td>0.027</td>
<td>1.51 (1.05-2.17)</td>
<td>0.027</td>
</tr>
<tr>
<td>Physical or sexual intimate partner violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None or one</td>
<td>1.00</td>
<td>--</td>
<td>1.00</td>
<td>--</td>
</tr>
<tr>
<td>&gt;1 episode</td>
<td>1.65 (1.13-2.40)</td>
<td>0.009</td>
<td>1.51 (1.04-2.21)</td>
<td>0.032</td>
</tr>
</tbody>
</table>


Cross-sectional data more mixed; methodological limitations
Consistent association found between more severe IPV and HIV risk
Evidence of Impact:
Livelihood options, transactional sex & HIV

- 2 longitudinal studies; 1 RCT link transactional sex to incident HIV*
- Cohort study, embedded in intervention trial, enrolled 1077 sexually active, HIV- women 15-26 yrs in rural South Africa
  - HIV incidence:
    - 3 times higher among girls with a once-off partner
    - 2 times higher among girls with on-going concurrent partner
- Effect over and above adjustments for total number of partners, relationship control, violence and other potentially confounding factors
- Not mediated through partner age

* Shaffer et al, JAIDS, 2010
  Baird et al, Health Econ. 2010 & the Lancet, 2012
Transactional sex & HIV: Conditional Cash Transfer Trial in Zomba, Malawi

Cash transfer scheme to keep girls in school – Zomba, Malawi

$10/month provided to HH of in and out-of-school girls (13-22 yrs)

30% went directly to girls

(Baird et al., 2010 & 2012)

35% reduction school drop-out rate

40% reduction early marriages

76% reduction in HSV-2 risk

30% reduction in teen pregnancies

64% reduction in HIV risk

Results after 18 months among baseline school girls
Evidence of impact: alcohol use

Alcohol consumption

Risk taking personality

Drinking norms
Alcohol myopia
Cognitive impairment
Immune function

Drinking venue
Partner violence

Partner selection
Sexual frequency
Partner turnover
Unprotected sex
Access to info & services
Biologic susceptibility

HIV infection
Capturing the multiple benefits of intervening “upstream”

Indicators of Gender Inequality

- Early sexual debut (≤16)
- Partner violence
- Lack of secondary education

HIV Indicators
- Teen pregnancy
- High fertility
- Unplanned pregnancy

Maternal & Child Health Indicators
- Home Delivery
- Child diarrhea
- Child fever

Malawi DHS – Stoekl, H. Thurs. Poster
RESEARCH ON STRUCTURAL CHANGE TO PREVENT HIV

Social forces drive the HIV epidemic and block prevention efforts. STRIVE partners investigate how structural factors create vulnerability and what programmes work to tackle them.

Latest

Resources

What Works to Prevent Partner Violence? An Evidence Overview
Lori Heise reviews the empirical evidence of what works in low- and middle-income countries to prevent violence against women by their partners.
<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Actions Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>Conduct outreach programs</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Provide counseling services</td>
</tr>
<tr>
<td>Government</td>
<td>Develop policies</td>
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</tbody>
</table>

**Figure 1:** Reducing HIV stigma and discrimination for programme implementation and management.

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