RISKS, VULNERABILITIES, AND BURDEN OF HIV AMONG KEY POPULATIONS IN LOW AND MIDDLE INCOME COUNTRIES

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Department of Epidemiology, Johns Hopkins School of Public Health
Outline

- Assumptions about the Epidemiology of HIV
- HIV Among Key Populations
  - Epidemiology
  - Levels of HIV Risk
- Prerequisites for HIV Research and Programs
  - Case Studies
    - Prerequisites for Effective HIV Prevention and Treatment Programs
- Moving Forward
Traditional View of the Epidemiology of HIV

- 1.5 million IDU
- 7.6 million Heterosexual MSM IDU
- 12.1 million Heterosexual

Source: UNAIDS Report on the Global AIDS Pandemic
Most At Risk or Key Populations

- Populations with specific acquisition and transmission risk factors
  - Three Universal Key Populations
    - Sex workers (SW)
    - Gay Men and other Men who have sex with Men (MSM)
    - People who use drugs (PUD)
  - Country Specific Key Populations
    - Migrant populations
      - Laborers (Fisherfolk, Truckers, Mining)
      - Often Clients of Sex Workers
      - Non-Laborers (Internally Displaced People, Refugees)
Burden of HIV among FSW

- Sex Workers (SW) are at increased vulnerability to HIV acquisition and transmission through risks mediated by:
  - Biological
    - Eg. Untreated sexually transmitted infections mediate infection
  - Behavioural
    - Eg. High numbers of partners, limited condom usage
  - Structural
    - Eg. Criminalization and rights violations limits service provision and uptake
## Results of HIV Prevalence among FSW

<table>
<thead>
<tr>
<th>Region</th>
<th># Of Countries</th>
<th>HIV Positive SW</th>
<th>SW Sample Size</th>
<th>Pooled SW HIV Prevalence</th>
<th>HIV Prevalence Women 15-49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>14</td>
<td>3323</td>
<td>64224</td>
<td>5.2%</td>
<td>0.18%</td>
</tr>
<tr>
<td>EE/FSU</td>
<td>4</td>
<td>331</td>
<td>3037</td>
<td>10.9%</td>
<td>0.2%</td>
</tr>
<tr>
<td>LAC</td>
<td>12</td>
<td>627</td>
<td>10273</td>
<td>6.1%</td>
<td>0.38%</td>
</tr>
<tr>
<td>MENA</td>
<td>5</td>
<td>17</td>
<td>959</td>
<td>1.97%</td>
<td>0.43%</td>
</tr>
<tr>
<td>SSA</td>
<td>16</td>
<td>7899</td>
<td>21421</td>
<td>36.9%</td>
<td>7.42%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>12197</strong></td>
<td><strong>99878</strong></td>
<td><strong>11.8% (95% CI 11.6-12.0)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Map of HIV prevalence among female sex workers in low-income and middle-income countries, 2007-2011

- Pooled OR for HIV infection among FSW compared to other reproductive age women
  - 13.49 (95% CI 10.04-18.12)

Meta-Analysis of HIV among FSW compared to other women in SSA

HIV Incidence among Female Sex Workers in Sub-Saharan Africa (1987-2012)

<table>
<thead>
<tr>
<th>Country</th>
<th>Range of HIV Incidence Rate Estimates among FSW</th>
<th>HIV Incidence among all individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>3.6-25.9</td>
<td>0.53-1.09</td>
</tr>
<tr>
<td>South Africa</td>
<td>6.5-20.9</td>
<td>2.1-2.35</td>
</tr>
<tr>
<td>Benin</td>
<td>9.6</td>
<td>N/A</td>
</tr>
<tr>
<td>Rwanda</td>
<td>3.5-6.5</td>
<td>0.18-0.22</td>
</tr>
<tr>
<td>Cameroon</td>
<td>6.6</td>
<td>0.53</td>
</tr>
<tr>
<td>Cote D’Ivoire</td>
<td>3.7-8.5</td>
<td>~0.1-1</td>
</tr>
<tr>
<td>Tanzania</td>
<td>4.3-13.9</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Global HIV Prevalence among MSM, 2007-2012

<table>
<thead>
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<tbody>
<tr>
<td>Senegal</td>
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<td>Kenya</td>
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<td>The Gambia</td>
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<td>Côte d'Ivoire</td>
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<td>Botswana</td>
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<td>Malawi</td>
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<tr>
<td>Swaziland</td>
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</tr>
</tbody>
</table>

HIV Incidence among MSM in Sub-Saharan Africa

HIV Incidence among MSM in Kilifi, Kenya

Estimated HIV-1 Incidence by year, 2006 - 2014

Source: Sanders, Mugo, van der Elst, Smith, Graham. High HIV-1 incidence, correlates of HIV-1 acquisition, and high viral loads following seroconversion among MSM JAIS, 2013
HIV Incidence among MSM in High Income Countries, 1995-2015
HIV Incidence among MSM in Low and Middle Income Countries, 1995-2015
Sixty months cumulative HIV incidence in a cohort of men who have sex with men, Bangkok, Thailand, 2006 – 2012, by age group

Number at risk (HIV-negatives)

<table>
<thead>
<tr>
<th>Ages</th>
<th>Number at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21 years</td>
<td>38</td>
</tr>
<tr>
<td>22-29 years</td>
<td>179</td>
</tr>
<tr>
<td>≥30 years</td>
<td>109</td>
</tr>
</tbody>
</table>

Source: van Griensven et al, AIDS 2013 doi: 10.1097/QAD.0b013e32835c546e
HIV prevalence, by race and age in InvolveMENt Cohort in Atlanta

Black MSM: 44%

White MSM: 13%

Late HIV Diagnoses

### Estimated Number of People Who Inject Drugs by Region 2013

<table>
<thead>
<tr>
<th>Region</th>
<th>Subregion</th>
<th>Estimated number</th>
<th>Injecting drug users</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>Best</td>
<td>High</td>
</tr>
<tr>
<td>AFRICA</td>
<td></td>
<td>304,925</td>
<td>997,574</td>
<td>6,608,038</td>
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<tr>
<td>AMERICA</td>
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<td>2,908,787</td>
<td>3,427,561</td>
<td>4,019,041</td>
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<tr>
<td>North America</td>
<td></td>
<td>1,935,144</td>
<td>2,006,470</td>
<td>2,101,572</td>
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<tr>
<td>Latin America and the Caribbean</td>
<td></td>
<td>973,643</td>
<td>1,421,091</td>
<td>1,917,468</td>
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<tr>
<td>ASIA</td>
<td></td>
<td>4,328,212</td>
<td>5,692,005</td>
<td>7,031,647</td>
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<tr>
<td>Central Asia and Transcaucasia</td>
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<td>659,582</td>
<td>699,191</td>
<td>758,421</td>
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<tr>
<td>East and South-East Asia</td>
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<td>2,959,863</td>
<td>3,786,472</td>
<td>4,677,484</td>
</tr>
<tr>
<td>Near and Middle East/ South-West Asia</td>
<td></td>
<td>462,269</td>
<td>952,948</td>
<td>1,334,013</td>
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<tr>
<td>South Asia</td>
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<td>246,498</td>
<td>253,394</td>
<td>261,729</td>
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<td>EUROPE</td>
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<td>3,553,859</td>
<td>3,777,948</td>
<td>4,156,492</td>
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<tr>
<td>Eastern/South-Eastern Europe</td>
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<td>2,821,599</td>
<td>2,907,484</td>
<td>2,987,155</td>
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<tr>
<td>Western/Central Europe</td>
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<td>732,260</td>
<td>870,464</td>
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<td>118,628</td>
<td>128,005</td>
<td>158,919</td>
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<tr>
<td><strong>GLOBAL</strong></td>
<td></td>
<td><strong>11,214,411</strong></td>
<td><strong>14,023,092</strong></td>
<td><strong>21,974,136</strong></td>
</tr>
</tbody>
</table>

Sources: United Nations Office on Drugs and Crime, data from the annual report questionnaire; progress reports of the Joint United Nations Programme on HIV/AIDS (UNAIDS) on the global AIDS response (various years); the Reference Group to the United Nations on HIV and Injecting Drug Use; estimates based on United Nations Office on Drugs and Crime data; and national Government reports.
### HIV Prevalence among People Who Inject Drugs, 2011

<table>
<thead>
<tr>
<th>Region</th>
<th>Subregion</th>
<th>HIV among injecting drug users</th>
<th>Estimated number</th>
<th>Best estimate</th>
<th>High estimate</th>
<th>Prevalence (%) Best estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRICA</td>
<td></td>
<td></td>
<td>36,506</td>
<td>117,502</td>
<td>1,837,542</td>
<td>11.8</td>
</tr>
<tr>
<td>AMERICA</td>
<td></td>
<td></td>
<td>222,053</td>
<td>369,445</td>
<td>560,134</td>
<td>10.8</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td>159,836</td>
<td>270,749</td>
<td>383,041</td>
<td>13.5</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td></td>
<td></td>
<td>62,217</td>
<td>98,696</td>
<td>177,093</td>
<td>6.9</td>
</tr>
<tr>
<td>ASIA</td>
<td></td>
<td></td>
<td>440,559</td>
<td>637,271</td>
<td>928,476</td>
<td>11.2</td>
</tr>
<tr>
<td>Central Asia and Transcaucasia</td>
<td></td>
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<td>54,858</td>
<td>59,193</td>
<td>71,352</td>
<td>8.5</td>
</tr>
<tr>
<td>East and South-East Asia</td>
<td></td>
<td></td>
<td>256,396</td>
<td>328,101</td>
<td>519,982</td>
<td>8.7</td>
</tr>
<tr>
<td>Near and Middle East/South-West Asia</td>
<td></td>
<td></td>
<td>108,539</td>
<td>228,765</td>
<td>315,430</td>
<td>24.0</td>
</tr>
<tr>
<td>South Asia</td>
<td></td>
<td></td>
<td>20,767</td>
<td>21,212</td>
<td>21,712</td>
<td>8.4</td>
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<tr>
<td>EUROPE</td>
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<td>466,243</td>
<td>492,054</td>
<td>532,304</td>
<td>13.0</td>
</tr>
<tr>
<td>Eastern/South-Eastern Europe</td>
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<td></td>
<td>419,715</td>
<td>433,836</td>
<td>448,183</td>
<td>14.9</td>
</tr>
<tr>
<td>Western/Central Europe</td>
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<td></td>
<td>46,528</td>
<td>58,217</td>
<td>84,120</td>
<td>6.7</td>
</tr>
<tr>
<td>OCEANIA</td>
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<td></td>
<td>1,095</td>
<td>1,308</td>
<td>1,635</td>
<td>1.0</td>
</tr>
<tr>
<td>GLOBAL</td>
<td></td>
<td></td>
<td>1,166,456</td>
<td>1,517,580</td>
<td>3,860,091</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Source: United Nations Office on Drugs and Crime, data from the annual report questionnaire; press reports of the Joint United Nations Programme on HIV/AIDS (UNAIDS) on the global AIDS response (various years); the Reference Group to the United Nations on HIV and Injecting Drug Use; estimates based on United Nations Office on Drugs and Crime data; and national Government reports.
HIV prevalence among PWID in 2011

Increasing Drug Trade in West Africa

Former UN Secretary General Kofi Annan's West Africa Commission on Drugs Calls for Drug Decriminalization

The Cocaine Crisis: How the Drug Trade Is Ruining West Africa
Global Distribution of Transgender Health Research

What do we know and where?

Reisner et al, Poteat, Baral., Lancet Special Issue, in press
Population Studies Yielding Prevalence Data for Transgender People

<table>
<thead>
<tr>
<th>Author, Date, country</th>
<th>Sample</th>
<th>Measure</th>
<th>Prevalence Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Birth Assigned Males (%)</td>
<td>Birth Assigned Females</td>
</tr>
<tr>
<td>Conron, 2012, USA</td>
<td>28662 Adults</td>
<td>Identification as Transgender</td>
<td>0.5</td>
</tr>
<tr>
<td>Glen and Hurrell, 2012, UK</td>
<td>10039 Adults</td>
<td>Identification as other gender or in another way</td>
<td>0.6</td>
</tr>
<tr>
<td>Clark, 2014, New Zealand</td>
<td>8166 High School Students</td>
<td>Identification as transgender</td>
<td>1.3</td>
</tr>
<tr>
<td>Kuyper and Wijsen, 2014, Netherlands</td>
<td>8064 Adults</td>
<td>Identification gender spectrum</td>
<td>1.1</td>
</tr>
<tr>
<td>Van Caenergen, 2015, Belgium</td>
<td>1832 Adults</td>
<td>Identification gender spectrum</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Winter, et al, Lancet Special Issue, in press
Burden of HIV among Transgender Women

- Pooled OR for HIV infection among transgender women compared to other reproductive people
  - 48.8 (95% CI 31.2-76.3)

Transgender Women across Sub-Saharan Africa

- Very rare for people to identify as transgender, but more common to identify as women using two-step gender assessment in studies focused on MSM
  - 16% in Burkina Faso
  - 19% in Malawi
  - 25.5% in Swaziland (aOR for HIV 3.96 [1.66-9.43])
  - 8% in Lesotho (p<0.05 for HIV)

Transgender Health Research by Year

Number of Studies (n=116)

Year

2008 2009 2010 2011 2012 2013 2014
HIV Surveillance

1989

WHO First Recommendations on HIV Surveillance
- Focused nearly exclusively on general population
  - One size fits all
  - Sentinel Surveillance
    - Antenatal Clinics (ANC)
  - No tracking of behavior

2000

Second Generation HIV Surveillance
- Targeted Surveillance Strategy
  - Categorized HIV Epidemics
    - Low Level
      - Less than 5% in any most at risk population (IDU, SW, MSM, country-specific MARPS)
      - Less than 1% in ANC
    - Concentrated
      - Greater than 5% in any most at risk population
      - Less than 1% in ANC
    - Generalized
      - Greater than 1% in ANC (changed 2013 to remove the 1%)
  - Passive Case-Based Surveillance, Active Surveillance (+Demographic Health Surveys, AIDS Indicator Surveys, etc)

201...

Third Generation Surveillance
Modes of Transmission Studies

Levels of HIV Acquisition and Transmission Risks

HIV Epidemic Stage
Prevalent transmission of HIV in the population

Public Policy
Content and implementation of policies promote or decrease ability to decrease HIV risk

Community
Determines the access to safe and competent prevention, treatment, and care services
Can promote health and well-being or reinforce stigma and discrimination

Social and sexual networks

Individual-Level
Biological or behavioral factors associated with acquisition or transmission risks

Level of Risks
- Stage of Epidemic
- Public Policy
- Community
- Network
- Individual

Studies focused on Structural Determinants of HIV risk among key populations in LMIC, 2000-2014

Source: Baral, et al. Enhancing benefits or increasing harms: community responses for HIV among men who have sex with men, transgender women, female sex workers, and people who inject drugs. JAIDS. 2014
STIs among MSM in South Africa and Nigeria

- **STI among MSM in Nigeria**
  - Lagos
    - Gonorrhea 28.1%
    - Chlamydia 18.3%
    - Syphilis 19.6%
  - All Asymptomatic

- **STI among MSM in South Africa**

Source: Babajide Keshinro, MHRP, Nigeria, Kevin Rebe, Anova Health Institute, South Africa
Prevalence of meeting sex partners online among MSM in SSA by country and age

Source: Stahlman, Baral, Characteristics of Men Who Have Sex with Men in Southern Africa Using the Internet to Find Sexual Partners: A Cross-Sectional Study. AIDS and Behavior
Associations of Meeting Male Sex Partners Online among MSM

- **Lesotho (n=530)**
  - Age***
  - Secondary/high school***
  - More than high school***
  - Female/other gender
  - Ever married or cohabited**
  - Ever felt scared to walk around in public*
  - Ever felt that family members gossiped***
  - Ever felt afraid to go to healthcare services**
  - Increasing knowledge of HIV transmission*
  - Number of male anal sex partners, past 12 months*
  - Tested positive for HIV**

- **Swaziland (n=322)**
  - Age*
  - Secondary/high school
  - More than high school*
  - Female/other gender
  - Ever married or cohabited
  - Ever felt scared to walk around in public*
  - Ever felt that family members gossiped*
  - Ever felt afraid to go to healthcare services
  - Increasing knowledge of HIV transmission
  - Number of male anal sex partners, past 12 months**
  - Tested positive for HIV

*p<0.05; **p<0.01; ***p<0.001
Note: Variables entered into single logistic regression model

Depression and HIV/STIs among MSM in Lesotho

- 527 MSM completed structured survey instrument, biologic testing for HIV and Syphilis
- Defined positive depression screen as a PHQ-9 score of 10 or more

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory test result</td>
<td></td>
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</tr>
<tr>
<td>Positive for syphilis</td>
<td>2.75*</td>
<td>1.07, 7.08</td>
</tr>
<tr>
<td>Positive for HIV</td>
<td>1.58</td>
<td>0.85, 2.94</td>
</tr>
<tr>
<td>Self-report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosed with any STI, past 12 months</td>
<td>2.04*</td>
<td>1.02, 4.06</td>
</tr>
<tr>
<td>Diagnosed with HIV, ever</td>
<td>1.27</td>
<td>0.61, 2.63</td>
</tr>
</tbody>
</table>

Potential Causal Pathway for Stigma and HIV-Risks

Structural Equation Model
- Indirect effect of stigma in health system on sexual risk practices
- 527 MSM from Lesotho
- \( p=0.072 \); \( **p<0.01 \)

Da, W and Baral, S. Depressive symptoms and Alcohol use as Mediators of HIV-related risk practices and stigma affecting men who have sex with men in Lesotho: a Structural Equation Modelling Approach, 2015. Annals of Epidemiology, Forthcoming
Combination HIV Prevention Programs

- **Behavioural Interventions**
  - Increasing condom and lubricant use during sex
    - Eg. Peer Education, Risk Reduction Counselling, Adherence Counselling

- **Biomedical Interventions**
  - Biomedical interventions aim to decrease transmission and acquisition risk of sex
    - Eg. Oral or topical antiviral chemoprophylaxis, Universal Coverage of Treatment (UCT)

- **Structural Interventions**
  - Focused on potentiating safe and effective provision and uptake of Biomedical and Behavioral Interventions
    - Eg. Decriminalization, Government-sponsored anti-stigma policy, Mass media engagement, Gender engagement programs, Community systems strengthening, Health Sector Interventions
Continuum of HIV Care

Source: Gardiner, AJPH, 2011, Millett, 2012
Prerequisites for HIV Prevention Program

- **Identification**
  - Must be able to identify MSM and Sex Workers
    - Willing to self-disclose

- **Risk Assessment**
  - Must be able to appropriately stratify MSM and Sex Work according to risk
    - Asked about risks in a competent and sensitive manner

- **Follow Up**
  - Must be able to follow up participants to assess adherence and efficacy of intervention
    - Safe Environment
    - Community Group
    - Client trust in health care facility
Case Studies

- Combination HIV Prevention and Treatment and Stigma
  - Female Sex Workers in Swaziland
  - Gay men and other MSM in The Gambia
Case Study - Swaziland

Disclosure of Sex Work in Swaziland

<table>
<thead>
<tr>
<th>As a result of selling sex</th>
<th>N=313</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt afraid to seek healthcare</td>
<td>143</td>
<td>44.0</td>
</tr>
<tr>
<td>Experienced legal discrimination</td>
<td>152</td>
<td>46.8</td>
</tr>
<tr>
<td>Been refused police protection</td>
<td>160</td>
<td>49.4</td>
</tr>
<tr>
<td>Been blackmailed</td>
<td>113</td>
<td>34.8</td>
</tr>
<tr>
<td>Verbal and physical harassment</td>
<td>198</td>
<td>60.9</td>
</tr>
<tr>
<td>Have been tortured</td>
<td>173</td>
<td>53.2</td>
</tr>
<tr>
<td>Have been beaten up</td>
<td>125</td>
<td>38.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Have been beaten up by</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniformed Officers (police, military, security)</td>
<td>45</td>
<td>20.8</td>
</tr>
<tr>
<td>Family Member</td>
<td>21</td>
<td>9.7</td>
</tr>
<tr>
<td>Regular Partner</td>
<td>16</td>
<td>7.4</td>
</tr>
<tr>
<td>One time client</td>
<td>11</td>
<td>5.1</td>
</tr>
<tr>
<td>Regular client, partner</td>
<td>9</td>
<td>4.2</td>
</tr>
<tr>
<td>Manager/pimp</td>
<td>6</td>
<td>2.8</td>
</tr>
</tbody>
</table>

As a result of selling sex, 313 women were surveyed. The table shows the percentage of respondents who experienced various forms of discrimination and violence. The most common experiences were verbal and physical harassment (60.9%), followed by being afraid to seek healthcare (44.0%), experiencing legal discrimination (46.8%), and being refused police protection (49.4%). The least common experiences were being beaten up by regular clients or partners (7.4%), regular clients or partners (5.1%), and managers/pimps (2.8%).
Associations of Disclosure of Sex Work

- Disclosure of Sex Work to
  - Family Member
    - 30.3% (98/325)
  - Health Care Worker
    - 25.9% (84/325)

- Afraid to Seek Health Care
  - OR 3.5 (95% CI 1.3-5.6) disclosed sex work to HCW
  - OR 2.0 (95% CI 1.12-3.7) being treated for HIV
Continuum of HIV Care

Source: Gardiner, AJPH, 2011, Millett, 2012
Fraction of new HIV infections averted among FSWs and clients over ten years

Case Study – Gambia

Gambia

MSM HIV Positive

National Prevalance

An Act to prohibit any form of sexual relations between persons of the same sex; prohibit the promotion or recognition of such relations and to provide for other related matters.

(e) who acts as an accomplice or attempts to promote or in any way abets homosexuality and related practices;

commits an offence and is liable, on conviction, to a fine of five thousand currency points or imprisonment of a minimum of five years and a maximum of seven years or both fine and imprisonment.

(2) Where the offender is a corporate body or a business or an association or a non-governmental organization, on conviction its certificate of registration shall be cancelled and the director, proprietor or promoter shall be liable, on conviction, to imprisonment for seven years.

PART IV—MISCELLANEOUS.

A person charged with an offence under this Act shall be liable to extradition under the existing extradition laws.
Associations with Disclosure

- Disclosure of Sexual Orientation to Family Member
  - 3.9% (8/205)
- Disclosure of Sexual Orientation to Health Care Worker
  - 15.4% (32/205)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fear</th>
<th>95% CI</th>
<th>Denial</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure of Sexual Orientation to Family or HCW</td>
<td>2.61</td>
<td>[1.08-6.32]</td>
<td>9.74</td>
<td>[1.96-48.45]</td>
</tr>
</tbody>
</table>

Source: Baral, A cross-sectional analysis of population demographics, HIV knowledge and risk behaviors, and prevalence and associations of HIV among men who have sex with men in the Gambia. AIDS Research and Human Retroviruses. 2014
Effects of the Criminalization of Same-Sex Practices in Nigeria

- Same-sex marriage bill introduced in Nigeria in January, 2014 further criminalizing same-sex relationships and associations with community groups.

- Methods

  - MSM recruited through respondent-driven sampling and enrolled into a prospective cohort in Abuja from March 2013-June 2014.

  - Characteristics related to discrimination and HIV care are described and compared pre-post legislation using chi-squared statistics.

  - TRUST Model

    - UMD/IHV HIV Prevention and Treatment Services co-located with community group serving MSM (ICARH).

Sources: Schwartz, Nowak, Orazulike, Blattner, Charurat, Baral, TRUST Study Group (UMD, MHRP, ICARH, JHU). The immediate HIV-related impact of enacted legislation that further criminalizes same-sex practices in Nigeria. Forthcoming.
Outcomes of Criminalization on HIV-Risks among MSM in Nigeria

- Reporting of Discrimination and Stigma During Study Visits Pre and Post Legislation
- Cumulative lifetime experiences of reported fear of seeking health care services across study visits (n=1,175 visits).

Sources: Schwartz, Nowak, Orazulike, Blattner, Charurat, Baral, TRUST Study Group (UMD, MHRP, ICARH, JHU). The immediate HIV-related impact of enacted legislation that further criminalizes same-sex practices in Nigeria. Forthcoming
Global Engagement in the Continuum of HIV Care among MSM

Source: Ayala, Mafokane, Arreola, Beck, Do. HIV Treatment Cascades that Leak: Correlates of Drop-off from the HIV Care Continuum among Men who have Sex with Men Worldwide. J AIDS Clin Res 2014, 5:8
Case Study Messages

- Limited Capacity for Scale Up of HIV Prevention and Treatment Programs if Populations:
  - Live in fear
  - Live hidden
  - Have limited access to safe and effective clinical care
Key Themes

- **Data Paradox**
  - There is the least amount of data characterizing the needs of key populations in the most stigmatizing settings

- **The world is more similar than it is different**
  - Wherever HIV is studied around the world, risk is not evenly distributed
    - Highest incidence appears to be among young gay men and other MSM
    - Transgender woman appear to have higher burden of HIV

- **Comprehensive Research Agenda should include evaluating the content, scale, and implementation of HIV prevention, treatment, and care programs for all people affected by HIV**
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