REDUCING STRUCTURAL BARRIERS TO SCHOOLING: A MEANS TO REDUCE HIV RISK?

Audrey Pettifor, PhD MPH
Department of Epidemiology, University of North Carolina
Overview

- Epidemiology of HIV in young people
- Evidence on schooling and HIV risk in youth
- Rationale behind cash transfers
- Review completed and current studies that provide cash to increase schooling or reduce financial barriers to schooling as a means to reduce HIV risk
In sub-Saharan Africa, girls make up nearly 70% of all young people living with HIV.

Sub-Saharan Africa (4.0 Million)
- Female: 69%
- Male: 31%

Latin America & the Caribbean (300,000)
- Female: 57%
- Male: 43%

South Asia (210,000)
- Female: 52%
- Male: 48%

East Asia & Pacific (210,000)
- Female: 44%
- Male: 57%

Middle East & North Africa (89,000)
- Female: 49%
- Male: 51%

CEE/CIS (70,000)
- Female: 41%
- Male: 59%

Source: UNAIDS, 2009 AIDS Epidemic Update

The size of the pie charts indicates the number of young people infected.
HIV prevalence by age and gender among South Africans age 15-24

We found that young South African women do not report engaging in “high risk” sexual activity, despite the incredibly high incidence and prevalence of HIV among young women.

Structural produce strong and consistent associations with HIV risk in young women.

Few interventions have addressed structural barriers or rigorously evaluated them.
Education and HIV: protection or risk?

- Data from early in the epidemic suggested that more education was associated with increased risk of HIV infection.
- Two recent reviews on HIV and education indicate a protective association between higher education and HIV infection, particularly as epidemics mature (Hargreaves et al. AIDS 2008, Jukes et al. AIDS 2008).
In Zambia, young women with more education were less likely to be HIV infected than those with less education, and declines in infection rates from 1995-2003 were greatest in young women with the most education (Michelo C et al. AIDS 2006)

In Uganda, HIV infection rates declined most rapidly over 10 years in young women with a secondary school education (de Walque D et al. TMIH 2005)

In South Africa, participants were 7% less likely to become infected with HIV for each year of education they had completed (Barnighausen T, et al. AIDS 2007)
A Social Vaccine?

De Walque and J Whitworth, MRC Uganda (2002)
### Table 1. Association between school attendance and HIV awareness, sexual behavior and HIV infection among 3682 females aged 15-19 from South Africa.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Currently Attending School</th>
<th>Dropped out or Never Attended</th>
<th>Adjusted for age, province and urban/rural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Total N</td>
<td>2800</td>
<td>95.5</td>
<td>882</td>
</tr>
<tr>
<td>Knows ways to prevent HIV infection</td>
<td>2672</td>
<td>95.5</td>
<td>814</td>
</tr>
<tr>
<td>Lack of Parental Communication</td>
<td>1448</td>
<td>52.0</td>
<td>503</td>
</tr>
<tr>
<td>Not Had an HIV test</td>
<td>2484</td>
<td>89.2</td>
<td>650</td>
</tr>
<tr>
<td>Ever had sex</td>
<td>1075</td>
<td>36.5</td>
<td>666</td>
</tr>
<tr>
<td>Unwanted sex at debut*</td>
<td>77</td>
<td>7.1</td>
<td>37</td>
</tr>
<tr>
<td>More than 1 partner during previous year*</td>
<td>161</td>
<td>17.0</td>
<td>94</td>
</tr>
<tr>
<td>Early Debut*</td>
<td>159</td>
<td>13.2</td>
<td>115</td>
</tr>
<tr>
<td>Ever pregnant</td>
<td>207</td>
<td>17.6</td>
<td>351</td>
</tr>
<tr>
<td>Pregnant &lt; 18</td>
<td>150</td>
<td>11.3</td>
<td>221</td>
</tr>
<tr>
<td>Partner Age Difference*</td>
<td>105</td>
<td>8.6</td>
<td>121</td>
</tr>
<tr>
<td>No condom use at least sex*</td>
<td>428</td>
<td>34.7</td>
<td>400</td>
</tr>
<tr>
<td>HIV-positive</td>
<td>180</td>
<td>5.8</td>
<td>121</td>
</tr>
</tbody>
</table>
Impact of education extends to almost every health and development outcome

- Better educated women are more likely than their less educated peers to delay coital debut, use condoms more often, delay marriage and childbearing, have fewer children and healthier babies, and enjoy better earning potential.

Educational Attainment

Epidemic Maturity

Exposure to HIV messages
Understanding HIV messages

Social Network
Behavioral Norms

Behavioral Intentions
Knowledge Attitudes
Self-esteem Self-efficacy

Socio-economic status
Control over behavior

Sexual Behavior

Sexual contacts
Transmission probability

HIV Infection

Jukes M et al. AIDS 2008
Barriers to Education

- Costs associated with school are a major barrier.
- In South Africa, 65% of young people who were not in school indicated that they did not have enough money to continue their education.
  - Hidden costs: uniforms, books/supplies, transport, food, etc.
- Young women are often taken out of school to find employment to support the family or to care for children or sick family members.
- Family commitments cited as barrier by 9% of non-school attending South African females, as opposed to <1% of non-attending males.

Samson M et al. The social and economic impact of South Africa’s social security system. 2004
Cash Transfers to keep young women in school

- In Mexico, the Oportunidades program, which provides conditional cash transfers to poor families to send their children to school, has found that the program increases school enrollment, particularly for girls (Schultz T IFPRI 2000).

- Children in South African households that receive government social welfare grants are more likely to attend school and the observed effects are greater for young women than young men (Samson M et al. 2004).
  - The greatest benefit of social welfare grants on educational outcomes appears to be for young women from the poorest households.
Why target girls?

- HIV incidence highest in young women
- Barriers to school attendance and drop out appear greater for girls than boys
- Observed effects on education and HIV are greater for girls than boys
- Programs that have reduced barriers to education have had greater effects for girls than boys
## Building evidence on CTs

<table>
<thead>
<tr>
<th>Study Design</th>
<th>Measures/Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study</strong></td>
<td><strong>Focus</strong></td>
</tr>
<tr>
<td>SIHR (Malawi)</td>
<td>A</td>
</tr>
<tr>
<td>HIV Education (Kenya)</td>
<td>S</td>
</tr>
<tr>
<td>Education for Orphan Girls (Zimbabwe)</td>
<td>S, N</td>
</tr>
<tr>
<td>Swa Koteka (South Africa)</td>
<td>A</td>
</tr>
<tr>
<td>CAPRISA 007 (South Africa)</td>
<td>HP, A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Transfer Type</strong></th>
<th><strong>Conditional</strong></th>
<th><strong>Unconditional</strong></th>
<th><strong>Outcome</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>Health Promotion</td>
<td>S School costs</td>
<td>+ positive impact</td>
</tr>
<tr>
<td>A School Attendance/Performance</td>
<td>N Nutrition</td>
<td>-- negative impact</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>? Impact unknown</td>
<td></td>
</tr>
</tbody>
</table>

* Other measures/outcomes include: school attendance, enrollment, or matriculation, and contributing to educational savings accounts
Current Evidence: reducing economic barriers to schooling

- **Education and HIV/AIDS Prevention Study – Kenya**
  - **PI:** Esther Duflo (MIT)
  - **Overview:** RCT. Reduced the cost of education by paying for school uniforms.

- **Supporting Adolescent Orphan Girls to Stay in School as HIV Risk Prevention – Zimbabwe**
  - **PI:** Denise Hallfors (PIRE)
  - **Overview:** RCT, 105 OVC ages 12-14. Feeding program, free uniforms, fees, school supplies, and helpers to monitor and encourage attendance.
  - **Results:** Those in the intervention group were less likely to drop out of school (4% vs 12%, p<0.05) and less likely to have initiated sexual debut (19% vs. 33%, p<0.05). (Cho H, Hallfors D, et al. Keeping Adolescent Orphans in School to Prevent Human Immunodeficiency Virus Infection: Evidence From a Randomized Controlled Trial in Kenya. J Ad Health. 2011)
Current Evidence: CCT

- **Progressa/Oportunidades – Mexico**
  - **PI:** Omar Galárraga (Brown University) and Paul Gertler (UC Berkely)
  - **Overview:** Cash transfers to poor families with children (age 12-24) conditional on school attendance and utilization of free preventative health care services; non-conditional transfers to support nutrition; education transfers increase with grade level (slightly higher transfers for girls than boys)
  - **Results:** 40% reduction in alcohol use among females (13% in intervention vs. 22% in controls); 46% reduction in smoking in males (16% in intervention vs. 30% in controls); no impact on sexual initiation or condom use among males or females (Galárraga O, Gertler PJ. Conditional Cash & Adolescent Risk Behaviors: Evidence from Urban Mexico. American Economic Association. www.aeaweb.org/aea/conference/program/retrieve.php?pdfid=261).
Schooling Income and HIV Risk (SIHR) – Malawi

**Overview:** 176 enumeration areas in Zomba (3796 girls ages 13-22 years, not married). 3 “arms”: conditional cash transfers, unconditional transfers, control. Amount to parent varied from USD 4-10 per month. Amount to girl varied from USD 1-5 per month.

**Results:** Higher rates of school enrollment after 1 year (95% in intervention vs. 89% in control); lower rates of HIV prevalence after 18 months (1.2% in intervention vs. 3% in control); lower rates of HSV-2 infection after 18 months (0.7% in intervention vs. 3% in control); younger sexual partners (2 year difference in intervention vs. 3 year in control)

No difference between conditional and unconditional arm. Change in partnership characteristics appeared to drive reduction in risk.

Ongoing Studies

- **HPTN 068, Swa Koteka – South Africa**
  - **PI:** Audrey Pettifor (UNC), Catherine MacPhail (WRHI), Kathleen Kahn (AHPU)
  - **Overview:** RCT to examine effect of cash transfer conditional on school attendance. Young women ages 13-20 years old (grades 9-11) and their parent guardian each receive a monthly payment. Primary endpoint is HIV and HSV-2 incidence in young women.

- **Reducing HIV in Adolescents (CAPRISA 005) – South Africa**
  - **PI:** Quarraisha Abdool Karim (CAPRISA)
  - **Overview:** RCT. Cash transfers to boys and girls, school based. Incentives for school performance, HIV testing, etc. Primary endpoint HIV incidence.
Summary

- Young women are at high risk of HIV infection in sub-Saharan Africa
- Observational data suggests that schooling is protective with regard to HIV
- Reducing economic barriers to schooling and providing cash transfer conditioned on schooling increase attendance and appear to reduce HIV risk
- 2 RCTs with HIV incidence endpoints in youth are currently underway in South Africa
Acknowledgements

- Catherine MacPhail, WRHI
- Kathy Kahn, AHPU
- Nadia Nguyen, UNC
- Myron Cohen, UNC
- Helen Rees, WRHI
- HPTN, NIH