Attitudes and Beliefs about Antiretroviral Therapy are Associated with Risky Sexual Behavior in Kisumu, Kenya

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Background
Research from the developed world suggests the introduction of antiretroviral therapy (ART) results in decreased concern about HIV that leads to increases in risky sexual behavior.
No studies have assessed the association of the attitudes and beliefs about ART with sexual risk behaviors in sub-Saharan Africa during the scale-up of ART and HIV treatment.

Methods
Cross-sectional population-based study conducted in Kisumu, Kenya.
Participants interviewed regarding attitudes and beliefs (AB) about ART and their sexual behaviors.
Factor analyses of AB about ART produced two factors:
- Factor 1: Perceptions that HIV is controllable since the increased availability of ART, and
- Factor 2: Increased risk compensation – the effect whereby individuals adjust their behavior in response to perceived changes in risk – because ART is available.

Results
- 1,655 of 1,833 (90%) people contacted consented to participate in the study.
- Table 2. Outlines the demographic composition of the study population.
- Graph 1. Shows the prevalence of selected knowledge and beliefs among the study population.
- Certain beliefs about ART were associated with increased risky sexual behavior among men and women, as shown in Table 3.

Conclusion
- The findings were most significant among young women and men aged 15–29 years.
- Women aged 15–24 who perceived HIV was controllable had a younger age of sexual debut (p<0.04, p=0.05).
- Men aged 15–24 who believed that ART cured HIV also had a younger age of sexual debut (p=0.25, p=0.05).
- Men aged 25–29 were more likely to have exchanged gifts for sex at last sex (AOR=0.3, 95% CI 1.0–8).
- Men aged 25–29 were more likely to have exchanged gifts for sex in the last 12 months (AOR=3.9, 95% CI 1.2–13).

Method
- Logistic regression used to determine associations of factors with sexual behavior while controlling for age.
- Factor analyses of AB about ART produced two factors:
  - Factor 1: Perceptions that HIV is controllable since the increased availability of ART, and
  - Factor 2: Increased risk compensation – the effect whereby individuals adjust their behavior in response to perceived changes in risk – because ART is available.
- Logistic regression used to determine associations of these factors, as well as the belief that ART cures HIV, with sexual behavior while controlling for age.

Table 1. Factors derived from ART-related attitudes and beliefs

Factor 1: Belief that HIV is a more controllable disease due to ART availability (a = .81)
- Note that ART is available, HIV is less dangerous than it used to be.
- Note that ART is available, it is more important for people to know their HIV status.
- Note that ART is available, people are more willing to get tested for HIV.
- Factor 2: Increased risk compensation – the effect whereby individuals adjust their behavior to respond to perceived changes in risk – because ART is available.
- Note that ART is available, people do not need to be as concerned about becoming HIV positive.
- Note that ART is available, condom use during sex is not necessary.
- Note that ART is available, you are less worried about HIV infection.
- Note that ART is available, you are more likely to have less than one sexual partner.
- Note that ART is available, you are more willing to take a chance of getting infected or infected more.
- Note that ART is available, someone who is HIV-positive does not need to worry as much about spreading the disease.
- Note that ART is available, you are more likely to have sex without a condom.

Table 2. Demographics of the Study Population

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>906 (55)</td>
</tr>
<tr>
<td>Male</td>
<td>749 (45)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>420 (25)</td>
</tr>
<tr>
<td>25-29</td>
<td>309 (18)</td>
</tr>
<tr>
<td>30-39</td>
<td>297 (17)</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>420 (25)</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>253 (15)</td>
</tr>
<tr>
<td>Primary school</td>
<td>276 (16)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>243 (14)</td>
</tr>
<tr>
<td>Post-secondary school</td>
<td>130 (8)</td>
</tr>
</tbody>
</table>

Table 3. The Association between ART-related attitudes and beliefs, and sexually risky behavior stratified by gender

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV more Controllable</td>
<td>-0.07 (0.05, 0.15)</td>
</tr>
<tr>
<td>ART cures HIV/AIDS</td>
<td>-0.14 (0.03, 0.26)</td>
</tr>
<tr>
<td>ART prolongs life</td>
<td>1.0 (0.5-2)</td>
</tr>
<tr>
<td>ART has no side effects*</td>
<td>1.4 (0.9-2.2)</td>
</tr>
<tr>
<td>ART is a cure for HIV/AIDS*</td>
<td>1.1 (0.6-2.1)</td>
</tr>
</tbody>
</table>

* Among those who had heard of ART

Graph 1. Selected beliefs and knowledge about Antiretroviral Therapy (ART) among men and women in Kisumu, Kenya

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- Men's beliefs were more likely to be associated with exchanging gifts for sex and non-use of condoms at last sex.
- Women's beliefs were more likely to be associated with age of sexual debut and number of partners in the last 12 months.
- Men's beliefs were more likely to be associated with exchanging gifts for sex and non-use of condoms at last sex.

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In high HIV seroprevalence populations with expanding access to ART, these findings suggest that prevention programs must ensure their content counters perceptions of misinterpretation in order to reduce risk of high risk sexual behaviors, especially among young adults.

While men and women have similar knowledge and beliefs about ART, these beliefs are associated with very different risky sexual behavior.
- Women's beliefs were more likely to be associated with age of sexual debut and number of partners in the last 12 months.
- Men's beliefs were more likely to be associated with exchanging gifts for sex and non-use of condoms at last sex.

Now that ART is available, you are more likely to have sex without a condom.
Now that ART is available, you are more willing to take a chance of getting infected or infecting someone else with HIV.
Now that ART is available, you are more likely to have more than one sexual partner.
Now that ART is available, condom use during sex is less necessary.
Now that ART is available, HIV/AIDS is a more controllable disease.
Now that ART is available, it is more important for people to know their HIV status.
Now that ART is available, HIV is less serious than it used to be.
Now that ART is available, condom use during sex is less necessary.
Now that ART is available, HIV/AIDS is a more controllable disease.
Now that ART is available, it is more important for people to know their HIV status.