The Role of Religious Involvement and Social and Behavioral Determinants of Antiretroviral Therapy (ART) Adherence

Results from HPTN 063

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April 11, 2017
• Early initiation and sustained antiretroviral therapy (ART) adherence among HIV-infected individuals can reduce sexual transmission of HIV in the population.

  – HPTN 052, ART reduces sexual transmission of HIV in serodiscordant couples > 96% (Cohen et al, 2012)
  – Individuals in KawZulu-Natal, SA in community with high 30 – 40% of individuals on ART were 38% less likely to acquire HIV (Tanser et al, 2013)

• Worldwide, 84% of individuals identify with a religious group (Pew Research Center, 2012)
Introduction cont’d

• Challenges remain in ART adherence
  – Age, Education, Health Care Access
  – Chronicity of disease

• Facilitators of ART adherence
  – Social support (MSPSS)

• Barriers of ART adherence
  – Excessive alcohol use (AUDIT)

• AIM 1
  – Investigate the relationship between religious service attendance and ART medication adherence.

• AIM 2
  – Investigate the relationships among religious service attendance, social support, and excessive alcohol use on ART medication adherence.
Methods

HPTN 063 longitudinal, observational study (n=749) HIV-infected individuals in HIV care in three countries: Brazil, Thailand, Zambia

Religious service attendance:
How often do you attend religious services? (range 1 = once per week to 6 = never)

Antiretroviral medication adherence:
• In the last three months, on average, how would you rate your ability to take all your antiretroviral drugs as your doctor prescribed? 1=poor to 5=excellent (ordinal)
• Plasma HIV-RNA

Country combined model:
• Effect modification by gender, religious tradition, and country
• Covariates: age, marital status, education and self-rated health

Country specific models:
• Effect modification by gender, tradition
• Covariates include education, self-rated health, and (age, marital status)

GEE and GSEM; cluster by study visit ordinal logistic link
# Results

*Baseline, n (%)*  
|                | Brazil  
 n=263 | Thailand  
 n=300 | Zambia  
 n=186 |
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<tbody>
<tr>
<td>Attend religious services (about once per week)</td>
<td>36 (13.69%)</td>
<td>33 (11.00%)</td>
<td>47 (25.27%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>Women</td>
<td>101 (38.40%)</td>
<td>103 (34.33%)</td>
<td>100 (53.76%)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (0.75%)</td>
<td>77 (25.67%)</td>
<td>NA</td>
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<tr>
<td>Religious Tradition</td>
<td></td>
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<tr>
<td>Christianity</td>
<td>143 (54.37%)</td>
<td>12 (04.00%)</td>
<td>173 (93.01%)</td>
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<tr>
<td>Other</td>
<td>70 (26.62%)</td>
<td>288 (96.00%)</td>
<td>4 (02.15%)</td>
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<tr>
<td>ART adherence (good/very good/excellent)</td>
<td>156 (84.32%)</td>
<td>243 (83.79%)</td>
<td>163 (94.77%)</td>
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Combined model: Religious service attendance
- Associated with lower ART likelihood. Stronger for Other vs Christianity (OR: 0.84; 95%CI [0.79, 0.89])
- Associated with higher ART likelihood. Stronger for Thailand vs Brazil (OR: 1.55; 95%CI [1.32, 1.82])

Site specific model: Brazil:
- Associated with lower ART likelihood. Stronger for Other vs Christianity (OR: 0.72; 95%CI [0.53, 0.98])
- Associated with lower ART likelihood. Stronger for Women vs Men (OR: 0.79; 95%CI [0.66, 0.96])

Site specific model: Thailand:
- Associated with higher ART likelihood. Stronger for Other gender vs Men (OR: 1.79; 95%CI [1.07, 3.45])

In Zambia, religious attendance statistically unrelated to ART adherence
Arrows represent paths from religious attendance to the outcome. B is mediating path, C is moderating path D is pathways combined.

BIC: Bayesian Information Criterion used to assess relative model fit with the data. Lower means stronger fit to the data.
Conclusions

Implications
• Religious service attendance associated with ART adherence, but the direction of association is modified by gender and by religious tradition.
• Country specific as well as subgroup focus may be necessary.
• Religious attendance buffers excessive alcohol use to impact ART adherence.

Limitations
• Crude proxy for the religious experience, limited knowledge about other domains (e.g., prayer, spirituality).
• Support for biological marker of adherence (HIV-RNA), limited sample size.

Strengths
• Strong study design, longitudinal association, close to real-world setting.
• Examination of mechanisms/indirect-effects pathways contribute to literature.
ACKNOWLEDGEMENTS

The HIV Prevention Trials Network is sponsored by the National Institute of Allergy and Infectious Diseases, the National Institute of Mental Health, and the National Institute on Drug Abuse, all components of the U.S. National Institutes of Health.

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