Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis

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Elizabeth M Smout
Janet M Turan
Nicola Christofides
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FIG. 1 Engagement in Care
adapted from Gardner et al. (2011) Clinical Infectious Diseases
FIG. 2 Engagement Cascade (U.S.)
adapted from CDC (2013) Today’s HIV/AIDS epidemic
Medical factors
- Daily dosing frequency
- Pill burden
- Time since HIV diagnosis

Individual factors
- Current substance use
- Depressive symptoms

Household/Social factors
- Financial constraints
- Food insecurity
- HIV stigma
- Social Support

**FIG. 2 Engagement Cascade (U.S.)**
adapted from CDC (2013) Today’s HIV/AIDS epidemic
An estimated 30% of women around the world experience intimate partner violence (IPV) in their lifetime.
Clinical samples suggest that in the U.S., 68-95% of HIV-positive women experience IPV in their lifetime (1-5).

Global prevalence of intimate partner violence

- 24.6%
- 25.4%
- 29.8%
- 36.6%
- 37.0% +


2. Brady (2002) AIDS Pat Care STD
5. Borwein (2013) AIDS Care
IPV is associated with incident HIV infection among women

**1. Physical IPV and HIV infection among women**

<table>
<thead>
<tr>
<th>Cohort studies</th>
<th>Weight</th>
<th>Risk Ratio (M-H, Random, 95% CI)</th>
<th>Risk Ratio (M-H, Random, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kouyoundjian, 2013 [56]</td>
<td>8.1%</td>
<td>1.18 [0.95, 1.47]</td>
<td>1.17 [0.93, 1.43]</td>
</tr>
<tr>
<td>Van der Straten, 1998 [53]</td>
<td>6.7%</td>
<td>1.31 [0.97, 1.76]</td>
<td>1.32 [0.94, 1.84]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>13.8%</td>
<td></td>
<td>1.22 [1.02, 1.46]</td>
</tr>
</tbody>
</table>

Total events:
Heterogeneity: Chi² = 0.27, df = 1 (P = 0.60); I² = 0%
Test for overall effect: Z = 2.13 (P = 0.03)

**3. Any type of IPV and HIV infection among women**

<table>
<thead>
<tr>
<th>Cohort studies</th>
<th>Weight</th>
<th>Risk Ratio (M-H, Random, 95% CI)</th>
<th>Risk Ratio (M-H, Random, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jewkes, 2010 [35]</td>
<td>3.0%</td>
<td>1.52 [1.05, 2.20]</td>
<td>1.51 [1.04, 2.19]</td>
</tr>
<tr>
<td>Kouyoundjian, 2013 [56]</td>
<td>3.8%</td>
<td>1.18 [0.96, 1.45]</td>
<td>1.17 [0.94, 1.42]</td>
</tr>
<tr>
<td>Were, 2011 [34]</td>
<td>2.8%</td>
<td>0.91 [0.59, 1.38]</td>
<td>0.91 [0.58, 1.37]</td>
</tr>
<tr>
<td>Zablotska, 2007 [40]</td>
<td>2.6%</td>
<td>1.80 [1.13, 2.88]</td>
<td>1.80 [1.12, 2.87]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>12.2%</td>
<td></td>
<td>1.28 [1.00, 1.64]</td>
</tr>
</tbody>
</table>

Total events:
Heterogeneity: Tau² = 0.03; Chi² = 5.93, df = 3 (P = 0.12); I² = 49%
Test for overall effect: Z = 1.96 (P = 0.05)

Li (2014) JIAS
Preliminary evidence suggests a link between IPV and engagement in care

- Anticipated IPV is associated with refusing HIV testing (1, 2)
- Anticipated violence lengthens time to linkage to care (3)
- History of physical or sexual IPV worsens health outcomes:
  - virologic failure (4, 5)
  - lower CD-4 counts (4)
  - higher incidence of opportunistic infection (5, 6)
  - greater risk of mortality (7)

Original Search n=757
- PubMed (133)
- Web of Sci (459)
- PsycInfo (86)
- CINAHL (79)

Duplicates n=136

Title / Abstract Screening n=621
- Non-peer review (1)
- No analysis (29)
- Pop <18 years (43)
- Men only (20)
- Childhood Sexual Abuse only (40)
- Adherence to non-HIV medication (7)
- Adherence/uptake of post-exposure prophylaxis (49)
- Qualitative (31)
- Irrelevant (eg. animal research) (313)

Full Text Review (up to January 2015) n=75
- TOTAL Excluded (62)
- No primary data (36)
- Lacked predictor or outcome of interest (51)
- IPV measured as composite with other types of violence (7)
- No women studied (3)
- Paper unavailable (0)

Included n=13*

Retention in HIV Care n=5
Current ART Use n=5
ART Adherence n=7
Viral Load Suppression n=7

* 5 studies examined more than one outcome
Study Characteristics

- n=13 studies
- Published recently (2010 – 2015)
- All cross-sectional, with relatively small samples (median n=234)
- Even among those with men and women (n=4), we analyzed woman only

1. Blackstock (2015) AIDS Pat Care STDs
2. Blank (2015) AIDS Pat Care STDs
3. Ryerson Espino (2015) AIDS Pat Care STDs
5. Kalokhe (2012) AIDS Pat Care STDs
9. Rose (2010) Psych Trauma
10. Schafer (2012) AIDS Pat Care STDs
13. Trimble (2013) JANAC
Retention studies (n=5)

- Interruptions (>365 days) in clinical care
- Out of care in the past 12 months
- Self-reported medical care in the past 6 months
- No show rate

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a. Siemieniuk (2013) JAIDS
b. Kalokhe (2012) AIDS Pat Care STDs
c. Blackstock (2015) AIDS Pat Care STDs
d. Blank (2015) AIDS Pat Care STDs
e. Schafer (2012) AIDS Pat Care STDs
ART uptake studies (n=5)

- Lower current ART use a,b
- Self-reported ART use c,d,e

a. Kalokhe (2012) AIDS Pat Care STDs
b. Ramachandran (2010) AIDS Care
c. Siemieniuk (2013) JAIDS
e. Blank (2015) AIDS Pat Care STDs
### Meta-analysis of studies examining association between IPV and current ART use (n=5)

<table>
<thead>
<tr>
<th>Citation</th>
<th>OR (95% CI)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illangesekare (2012)</td>
<td>1.48 (0.65, 3.34)</td>
<td>6.55</td>
</tr>
<tr>
<td>Kalokhe (2012)</td>
<td>0.47 (0.29, 0.75)</td>
<td>19.44</td>
</tr>
<tr>
<td>Ramachandran (2010)</td>
<td>0.14 (0.02, 1.16)</td>
<td>0.96</td>
</tr>
<tr>
<td>Siemieniuk (2013)</td>
<td>0.65 (0.41, 1.03)</td>
<td>20.69</td>
</tr>
<tr>
<td>Blank (2015)</td>
<td>0.98 (0.73, 1.30)</td>
<td>52.37</td>
</tr>
<tr>
<td>Subtotal (I-squared = 67.4%, p = 0.015)</td>
<td>0.79 (0.64, 0.97)</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Heterogeneity between groups: p = .

Overall (I-squared = 67.4%, p = 0.015) 0.79 (0.64, 0.97) 100.00

Hatcher (2015) AIDS
ART adherence studies (n=7)

- Lower self-reported adherence (MMAS\textsuperscript{a}; CAI\textsuperscript{b})
- Lower physician-reported adherence\textsuperscript{c}
- Self-reported ART use (ACTG\textsuperscript{d,e}; VAS\textsuperscript{f})

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a. Trimble (2013) JANAC
b. Blank (2015) AIDS Pat Care STDs
c. Rose (2010) Psych Trauma
d. Lopez (2010) AIDS Educ
e. Ryerson Espino (2015) AIDS Pat Care STDs
f. Malow (2013) Aids Beh
Meta-analysis of studies examining association between IPV and ART Adherence (n=6)

Hatcher et al. (2015) AIDS
Viral suppression studies (n=7)

- Lower viral suppression a,b,c
- Viral suppression d,e,f,g

- IPV

N.S.

Viral suppression studies

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a. Siemieniuk (2013) JAIDS
b. Rose (2010) Psych Trauma
c. Ryerson Espino (2015) AIDS Pat Care STDs
d. Blank (2015) AIDS Pat Care STDs
e. Illangesekare (2012) Womens Health Issues
f. Schafer (2012) AIDS Pat Care STDs
g. Sullivan (2015) AIDS Pat Care STDs
### Meta-analysis of studies examining association between IPV and Viral Suppression (n=7)

<table>
<thead>
<tr>
<th>Citation</th>
<th>OR (95% CI)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank (2015)</td>
<td>0.82 (0.49, 1.37)</td>
<td>20.65</td>
</tr>
<tr>
<td>Espino (2015)</td>
<td>0.23 (0.05, 1.07)</td>
<td>4.30</td>
</tr>
<tr>
<td>Illangeskare (2012)</td>
<td>0.91 (0.48, 1.74)</td>
<td>16.01</td>
</tr>
<tr>
<td>Rose (2010)</td>
<td>0.04 (0.00, 0.37)</td>
<td>2.20</td>
</tr>
<tr>
<td>Schafer (2012)</td>
<td>0.88 (0.33, 2.37)</td>
<td>8.91</td>
</tr>
<tr>
<td>Siemieniuk (2013)</td>
<td>0.58 (0.36, 0.94)</td>
<td>21.76</td>
</tr>
<tr>
<td>Sullivan (2015)</td>
<td>0.63 (0.43, 0.92)</td>
<td>26.18</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>0.64 (0.46, 0.90)</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>0.64 (0.46, 0.90)</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**NOTE:** Weights are from random effects analysis
Gaps in the Evidence

- No longitudinal studies
- Inconsistencies with IPV measurement
- ART retention in care not feasible to measure meta-analytically
- Geographic skew
### Small to medium effects

<table>
<thead>
<tr>
<th>Condition</th>
<th>Standard mean difference (SMD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate partner violence</td>
<td>-0.404</td>
</tr>
<tr>
<td>Current substance use</td>
<td>-0.395</td>
</tr>
<tr>
<td>Depressive symptoms</td>
<td>-0.305</td>
</tr>
<tr>
<td>HIV stigma</td>
<td>-0.282</td>
</tr>
<tr>
<td>Lacks social support</td>
<td>-0.237</td>
</tr>
</tbody>
</table>

### Small effects

<table>
<thead>
<tr>
<th>Condition</th>
<th>Standard mean difference (SMD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily dosing frequency</td>
<td>-0.193</td>
</tr>
<tr>
<td>Financial constraints</td>
<td>-0.187</td>
</tr>
<tr>
<td>Pill burden</td>
<td>-0.124</td>
</tr>
<tr>
<td>Time since HIV diagnosis</td>
<td>-0.116</td>
</tr>
</tbody>
</table>

Less than 0 means that condition greater than 0 means that condition worsens ART adherence improves adherence

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**Fig 5. Comparing effect size of various correlates with ART adherence**
Adapted from Hatcher (in press) AIDS; Langebeek (2014) BMC Medicine
Conclusion

- IPV reduces the odds of ART adherence among women.
- Meta-analytic finding is consistent when adherence is measured by:
  - self-reported adherence (OR=0.48, 95%CI 0.30-0.75)
  - viral load suppression (OR=0.64 95%CI 0.46-0.90)
- Effect size is greater than other factors regularly addressed in HIV clinical care:
  - Substance use
  - Depression
  - Dosing and pill burden
What next?

- Clinical programs should address IPV within HIV care
  - Guidelines already exist a,b
  - HIV-specific interventions are starting to be developed c,d

- What about IPV – HIV link other crucial populations?
  - MSM
  - Injecting drug users
  - Female sex workers
  - Adolescents

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d. Turan (2013) AIDS Res Tx
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• University of Witwatersrand School of Public Health Interdisciplinary PhD program
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  – Globalhealthnow.org

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