Adverse Implications of Heterosexism for PrEP Clinical Decision-Making & Considerations Regarding Provider Education


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Sarah Calabrese has no real or apparent conflicts of interest to report.
Background
U.S. MSM & Access to PrEP

- U.S. MSM are a PrEP priority population
  - MSM account for 70% of new HIV infections in U.S.\(^1\)
  - 1 in 4 MSM are indicated for PrEP\(^2\)

- PrEP access depends on provider uptake

- Concerns about patient behavior may interfere with providers’ willingness to prescribe PrEP
  - Sexual risk compensation\(^3-5\)
  - Adherence\(^3,4\)

1 CDC, 2015  2 Smith et al., 2015  3 Adams et al., 2015  4 Krakower et al., 2014  5 Tripathi et al., 2012
Prejudice has previously been implicated in med students’ assumptions about patient behavior and PrEP Rx willingness. 

Heterosexism = prejudice against sexual minorities

High implicit heterosexism among med students

Med students are the next generation of physicians
- Many years of service ahead
- Potential recipients of formal PrEP education

9 Calabrese et al., 2014
10 Burke et al., 2015
To examine the relationship between heterosexism and PrEP clinical decision-making among med students

**Hypothesis:**

- Heterosexism → Increased Condomless Sex
- Increased Condomless Sex → Extra-Relational Sex
- Extra-Relational Sex → PrEP Rx Willingness
- PrEP Rx Willingness → PrEP Adherence
- Heterosexism → PrEP Adherence
Objective 2

- To explore PrEP education as a potential buffer.
METHODS
Study Design & Participants

- Online, vignette-based survey
- Participants recruited via mass email to all students enrolled at 2 Northeastern medical schools (Fall 2015)
  - $n = 115$ U.S. medical students
Clinical Vignette*

- 31-year-old male patient requesting PrEP Rx
  - Confirmed HIV-
  - Insured

- Monogamous with 1 male sex partner
  - Partner is HIV+ and not virally suppressed
  - Inconsistent condom use

- In good health
  - No physical complaints
  - No history of STIs, surgery, or hospitalization
  - No medications, drug use, or drug allergies

*Adapted from Bogart et al., 2001 and Calabrese et al., 2014
PrEP familiarity and prior education

Have you learned about PrEP as part of your medical or nursing school training?

- Yes
- No
Survey Measures

- PrEP familiarity and prior education
- Clinical judgments of vignette patient:
  - Increased condomless sex
    - How likely would this patient be to have MORE unprotected sex (sex without condoms) if he started taking Truvada as PrEP?
      - Not at all likely
      - A little bit likely
      - Somewhat likely
      - Very likely
      - Extremely likely
Survey Measures

- PrEP familiarity and prior education
- Clinical judgments of vignette patient:
  - Increased condomless sex
  - Extra-relational sex
  - PrEP adherence
  - PrEP Rx willingness
- Other survey measures:
  - Heterosexism (5-item scale: ATG-R-S5; Herek, 1994)
    - Rating of agreement with attitudes toward MSM
    - Ex. *I think male homosexuals are disgusting.*
Survey Measures

- PrEP familiarity and prior education
- Clinical judgments of vignette patient:
  - Increased condomless sex
  - Extra-relational sex
  - PrEP adherence
  - PrEP Rx willingness
- Other survey measures:
  - Heterosexism
  - Relevant background characteristics
    - Gender, race, sexual orientation, years of med school
Participant Characteristics ($n = 115$)

- **Gender**
  - 67% female
  - 32% male
  - 1% other

- **Race**
  - 62% White
  - 26% Asian
  - 6% Black
  - 4% Latino
  - 2% Other

- **Sexual Orientation**
  - 86% heterosexual
  - 5% gay/lesbian
  - 5% bisexual
  - 4% other

- **Year in Medical School**
  - 23% 1st
  - 33% 2nd
  - 24% 3rd
  - 21% 4th+
PrEP Familiarity & Prior Education

- **PrEP Familiarity**
  - 85% of participants had heard of PrEP

- **Prior PrEP Education**
  - 50% had been educated about PrEP in med school
Clinical Judgments of Patient

- **Anticipated Risk Compensation**

  - Increased Condomless Sex
    - Not at all likely: 10%
    - A little bit/somewhat likely: 55%
    - Very/extremely likely: 35%

  - Extra-Relational Sex
    - Not at all likely: 69%
    - A little bit/somewhat likely: 29%
    - Very/extremely likely: 2%
Clinical Judgments of Patient

- **Anticipated PrEP Adherence**
  - 3% Not at all adherent
  - 50% A little bit/somewhat adherent
  - 47% Very/extremely adherent

- **Willingness to Prescribe PrEP**
  - 4% Definitely not
  - 19% Probably not
  - 53% Maybe
  - 24% Probably yes
  - 8% Definitely yes
Objective 1: Unadjusted Mediation Analyses

- Bootstrapping test of parallel mediation model\(^{11}\) indicated all 3 indirect pathways were significant.

- 95% CIs of Indirect Effects:
  - \([-0.14, -0.01]\)
  - \([-0.11, < 0.00]\)
  - \([-0.19, -0.01]\)

11 Hayes, 2013

\(\text{Hayes, 2013}\)
Objective 1: Adjusted Mediation Analyses

- The top indirect pathway remained significant after adjusting model for relevant background characteristics

- Heterosexism ➔ Increased Condomless Sex ➔ Extra-Relational Sex ➔ PrEP Rx Willingness

- 95% CIs of Indirect Effects:
  - [-.13, -.01]
  - [-.07, .01]
  - [-.16, .01]

- PrEP Adherence ➔ Increased Condomless Sex ➔ Extra-Relational Sex ➔ PrEP Rx Willingness

- Cohen’s d:
  - .31 (.16)*
  - -.15 (.06)*
  - --.20 (.11)†
  - -.18 (.11)
  - .29 (.08)**

- p-values:
  - † p<.10
  - *p<.05
  - **p<.01
(Lack of) Mean Differences in Clinical Judgment Based on Prior PrEP Education

Increased Condomless Sex

Extra-Relational Sex

- Independent samples t-tests found no significant differences
(Lack of) Mean Differences in Clinical Judgment Based on Prior PrEP Education

**Anticipated PrEP Adherence**

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<th>Extremely Adherent</th>
<th>Not At All Adherent</th>
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<td>No PrEP Ed</td>
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<td></td>
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**PrEP Rx Willingness**

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<th>Definitely No</th>
</tr>
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- Independent samples t-tests found no significant differences
Objective 2: Moderated Mediation Analyses

Prior PrEP education failed to buffer any indirect effects

95% CI of Indices of Moderated Mediation:
[-.15, .06]
[-.07, .10]
[-.14, .20]
Summary of Findings

- Most participants had heard of PrEP and half had learned about it in med school.

- Participants expected behavioral challenges with PrEP:
  - Risk compensation was highly anticipated
  - Suboptimal adherence was predicted by most

- Heterosexism indirectly affected PrEP prescription willingness through clinical judgments about patient behavior:
  \[ \text{Heterosexism} \rightarrow \text{Predicted Condomless Sex} \rightarrow \text{Rx Willingness} \]

- Prior PrEP ed was unrelated to clinical judgments and failed to buffer the adverse impact of heterosexism.
Implications & Next Steps

- Heterosexism may compromise clinical judgment, ultimately diminishing PrEP access.

- **Future research** should assess differences in PrEP-related judgments & service provision by patient sexual orientation.

- Given the marginalized status of MSM and other PrEP priority populations, **cultural competence needs to be integral component of PrEP ed**.

- **Systematic evaluation** of PrEP ed within and beyond medical schools should be performed with respect to both clinical and cultural competence outcomes.
Acknowledgments

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Thank you!

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Supplementary Slides
Heterosexism Scale Items

1. I think male homosexuals are disgusting.
2. Male homosexuality is a perversion.
4. Sex between two men is just plain wrong.
5. Male homosexuality is merely a different kind of lifestyle that should not be condemned.

ATG-R –S5 subscale of ATLG-R-S5; Herek, 1994
PrEP Ed by Years of Med School Completed

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<th># Yrs. Med School Completed</th>
<th>% Reporting PrEP Ed</th>
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<tr>
<td>0</td>
<td>8%</td>
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<td>1</td>
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<td>3</td>
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