

Developing a comprehensive understanding of the substance use and sexual risk profile for female partners of Black MSM/W

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Leadership involved with HPTN 064 (TBD)

Justification

Applicant Qualifications and Past Research:

Dr. Typhanye V. Penniman received her PhD from the UCLA School of Public Health within the Department of Community Health Sciences, where she developed a keen interest in HIV research focusing on disparities within underserved segments of the population, specifically women of color.

Success in obtaining funding for Early Career Development:

During her first portion of academic training (2002-2006), Dr. Penniman received multiple funding awards to support her research. She received a 4-year traineeship funded through the National Institute of Mental Health, for which Oscar Grusky, PhD was the director. During her time as a trainee, Dr. Penniman was mentored by William E. Cunningham, MD. Under his mentorship, Dr. Penniman worked on a Health Services Resource Administration, Special Projects of Significance (HRSA SPNS) intervention designed to improve HIV patient case management and navigation of the healthcare system. Dr. Penniman's specific role was as an interviewer and a medical chart abstractor, skills she carries with her as she pursues her research career in HIV research.

Experience with Secondary Datasets:

During 2006 through 2008, Dr. Penniman received the Association for Schools of Public Health, Centers for Disease Control and Prevention, Prevention Research Centers Minority Fellowship where she successfully proposed and implemented a study examining the role of social support on medication adherence among HIV positives in Los Angeles, under the mentorship of William E. Cunningham, MD. The project consisted of a

secondary analysis of data from the HRSA SPNS project. The ASPH/CDC/PRC Fellowship was supported through the UCLA/RAND Center for Adolescent Health Promotion, under the direction of Dr. Mark Schuster, who is now at Harvard. From this project, Dr. Penniman presented at three national conference findings that suggest social support positively impacts both engagement in care, as well as medication adherence.

Research that lead to proposing this study:

During this time period, Dr. Penniman was productive. She successfully submitted and published her first lead-authored manuscript to a peer-reviewed journal. The paper, which was a secondary analysis of the HIV Cost and Services Utilization Study (HCSUS) dataset, focused on the associations of gender, sexual identity and competing needs on health service utilization among HIV positive people in the United States. Findings showed that disparities existed in both gender and sexual identity, suggesting that research in this area should focus not only on gender differences but take into account differences in behavior versus how one identifies sexually. More specifically, women and heterosexual men had poorer health service use, which could lend support for examining sexual orientation in new interventions to increase utilization of services (Table 1). The results of this paper, piqued Dr. Penniman's interest in examining gay/bisexual males, as well as women, with respect to HIV prevention and HIV health outcomes.

Current Research:

Dr. Penniman is a returning HPTN Scholar. During her first year as a Scholar, she was very successful in meeting all required deadlines in order to successfully complete her year 1 project, which examined internalized homophobia, substance use and sexual risks comparing mwn who have sex with men and men who have sex with men and women in the HPOTN 061 study. She is currently writing up her results and anticipates having the manuscript to the HPTN 061 manuscript writing team within the month.

Dr. Penniman also recently completed a 2-year post-doctoral fellowship in Drug Dependence and Infectious Disease Epidemiology and Johns Hopkins, where she successfully submitted and published 4 papers. Two on sex trade among drug dependent women and two on social networks of MSM and MSMW.

Dr. Penniman recently took a position at the University of Maryland, Department of Epidemiology and Biostatistics within the School of Public Health, where she will be working on exploring substance use, psychosocial factors and mental health of MSM, MSMW and MSW across multiple data sets in order to serve as preliminary studies for a K-01 application to continue her independent research career.

The HPTN Scholar program has been instrumental in guiding Dr. Penniman's research career and positioning her for a successful career in HIV research.

Benefits:

As a Year 2 Scholar, Dr. Penniman will benefit from gaining more experience in using 061 data to answer longitudinal questions that focus on behavior and attitudinal change. Additionally, being a Year 2 Scholar will further provide opportunities to deepen my mentoring relationship with Steve Shoptaw and the larger group of investigators, as well as other scholars in HPTN. Year 2 will also provide the opportunity to work with data that is going to lead me to my research questions of interest (i.e., HIV and risk behaviors in AA women), which is my primary area of interest.

To ensure my success as a Year 2 Scholar I will allocate funds to visit my primary mentor, Steve Shoptaw, at UCLA, several times throughout the year to stay on task in the context of a growing academic and personal life; I will have enhanced experiences with the world class biostatisticians in 061 who can aid in developing the data tables and in interpreting the data to answer my research questions. I have had experience with the process, so I am well positioned for the increased challenges and increased demands for productivity that would be difficult for new scholars to be able to do.

The final set of markers to measure my success as an HPTN Y2 scholar would include at least 2 papers, one from my Scholars project and another with my mentor, Steve Shoptaw. Additionally, I am currently working on 4 papers with my mentor at University of Maryland, I would like to present data at several conference over the next year including American Public Health Association, Society for Prevention research, Population Association of America and HPTN Annual Meeting. My ultimate goal is to apply for a K-Award where I can collect my own data on cultural, psychosocial and substance use factors that impact women's risk for infectious disease.

Rationale:

The HPTN 061 dataset, while having limited generalizability to all Black MSM, is one of the few, if there exist any datasets that includes psychosocial and sexual behavioral data from Black MSM across multiple sites in the United States. As the study is now closing, the unique HPTN 061 dataset now allows the opportunity to ask research questions across time and to analyze data across multiple time points over a year in order to answer those questions.

In the prior year as an HPTN scholar, research questions focused on the experiences and self-ratings of men who have sex with men and women (MSMW) that corresponded with reported high-risk sexual behaviors, including behaviors that involved substance use during sex. In this application for an additional year as an HPTN scholar, the team above and I are interested in examining MSMW whether changes occur in terms of interactions between reported substance use (both overall and within last sexual events), experiences with stigma (both gay- and race-related experiences) and homophobia with sexual risk as measured using the repeated measures of HPTN 061 (Baseline and Times 2 and 3). The primary research question for this project is whether associations measured at baseline in my initial analyses from HPTN Scholars Project, Year 1 change over time. To complement these analyses I also propose to examine women's self-reports

homophobia, as well as their knowledge of their male sexual partners' sexual risk and substance use behaviors, using the HPTN 064 data in order to begin to assess how Black women come to understand and accept (or not) same gender sexual behaviors of their sexual partners.

The rationale for this set of studies is solid. African-American females are disproportionately impacted by the HIV epidemic compared to White or Latina women.¹ In 2006, Black women accounted for 61% of new HIV cases among women, but make up only 12% of US female population. Recent findings suggest that gender and culturally appropriate HIV prevention interventions can significantly reduce HIV-associated sexual risk behaviors among women. However, African-American females are not a homogeneous group. Rather they consist of subgroups of women, some aware of their partners sex and drug risk and some unaware, in addition these women live very rich lives and thus present with very diverse risk profiles and, as a consequence, a differential likelihood of HIV acquisition, which currently is 1 in 30 for African American females.¹ For African American women, there are myriad social, cultural and economic factors that result in higher levels of sexual HIV transmission, including stigma and homophobia. The purpose of including a set of analyses focusing on female African American reports of homophobia and of their male sexual partners' sexual behaviors with other men is to gather initial evidence to describe these women, their male sexual partners and some of the contextual information that affects them. In such a way, the project is geared towards developing a better understanding of the ways in which risk is expressed in the women, especially how the women's sexual network norms and behaviors impact the risk evident in their sexual behaviors. As such, this project would make a significant addition to the understanding of whether there are longitudinal patterns of psychosocial factors and substance use behaviors that may exaggerate sexual risks for such Black women putting them at disproportionately high risk for HIV.

Background:

Unprotected sex with a man is the leading cause of HIV infection among both females and males.¹ In 2005, 80% of Black women were infected with HIV through heterosexual contact and 18% through injection drug use. In 2006, it was estimated that African American males between the ages of 13 and 29 had higher rates of infection with HIV than any other age group, including of other races.¹ Furthermore, the HIV epidemic among African Americans is growing. For instance, between 2001 and 2006 annual HIV diagnoses among black MSM aged 13-24 grew by 93%. Among black MSM of all ages the figure was 12%.¹ One study cited in the National HIV/AIDS Strategy revealed 50 percent of black gay and bisexual men in five major US cities were HIV positive.^{1, 2} There is a small but growing literature, which suggests that heterosexually-identified African American men who have sex with men and women have more female partners,³ however they also engage in risky sexual behavior with their male partners,⁴ and are less likely to disclose their HIV status to their female partners⁵ out of concern for being stigmatized.⁶ There is an important research agenda in articulating the ways in which societal, institutional, interpersonal, and individual factors affect sexual decision making as expressed via behaviors among Black men and their male and female sexual partners

that place women--in particular, African American women--at disproportionate risk for contracting HIV.

Black women's susceptibility to HIV is most likely through heterosexual sex. Eighty-five percent of Black women living with HIV reported that unprotected heterosexual sex was their route of transmission, and this accounts for nearly half of the country's entire female epidemic. Of Black men living with HIV, only 22 percent were infected through heterosexual contact, which translates into a disproportionate burden of disease via heterosexual transmission for Black women. **Thus, there is a need of to develop data to inform evidence-based approaches to mitigating risks in these women. In order to achieve this goal, there needs to be a more comprehensive understanding of the risk profile for these women, including the sex and substance use patterns of their partners, and their knowledge of these factors among their sex partners.**

Study Purpose/Objectives

Aim 1: To identify whether differential reductions in rates of reported substance use (overall and during sex) and self-reports of internalized homophobia are observed over a one-year period in Black men who at baseline report having active/current female sex partners (MSMW) compared to men who report having sex only with men (MSM). The following **Hypotheses** will be examined:

Substance Use:

H1.1 Crack/cocaine use is less likely to be more prevalent among those men reporting that they only have sex with men compared to those men reporting having active/current female sex partners at T1 (findings from Scholar Y1 project) but decrease over subsequent time points (T2 and T3).

H1.2 Among men who have sex with men only, methamphetamine use will be more prevalent than those who report having sex with both men and women at T1 (findings from Scholar Y1 project) but decrease over subsequent time points (T2 and T3).

Homophobia:

H2.1 Based on earlier findings (Shoptaw et al., 2009), men who have higher ratings of homophobia are expected to be significantly more likely to report having active/current female partners compared to men with lower ratings of homophobia. Men with lower ratings of homophobia are significantly more likely to report to having more male partners. This association will be observed as stable over time for both MSMW and MSM only.

Sexual Risk:

H3.1 Based on previous findings (Gorbach et al., 2009), men who report having active/current female sex partners are more likely to report engaging primarily in insertive sexual behaviors with both men and women (either oral or anal) compared to men who

report only having sex with men at T1 (findings from Scholar Y1 project). It is expected that, among the MSMW, the use of alcohol with unprotected anal insertive intercourse with both male and female partners will decrease at T2 and T3.

Exploratory Analysis utilizing HPTN 064

Substance Use:

H1.1

There will be more crack/cocaine use among women who report engaging in sex with men who disclose also having sex with men compared to women who report having sex with men who do not report having sex with other men

Sexual Risk:

There will be more exchange sex among women who report engaging in sex with men who disclose also having sex with men compared to women who report having sex with men who do not report having sex with other men, and this relationship will be moderated by substance use.

Homophobia and Stigma:

H3.1

There will be less homophobia among women who report engaging in sex with men who disclose also having sex with men compared to women who report having sex with men who do not report having sex with other men

H3.2 There will be less stigma among women who report engaging in sex with men who disclose also having sex with men compared to women who report having sex with men who do not report having sex with other men

Methods:

I propose to utilize the HPTN061 data to extend research conducted during year 1 of the Scholars program to explore the stability of substance use and behavioral risks linked to unprotected sex among MSMW in the Brothers Study from baseline (T1) through follow-up visits (T2 and T3). Based on data showing that involvement in HIV prevention research reduces risk behaviors, I predict that unprotected sex risk behaviors will decrease over time for MSMW. Main outcome measures will be unprotected anal insertive intercourse with male and female partners. As well, I expect to see significant reductions in substance use (both overall and during sexual encounters), and ratings of depression.

In this second year, I seek support to begin to investigate the experience of women who engage sex with male partners, with a focus on men who have sex with men, as well. To do this, I would seek an opportunity to utilize HPTN 064 data, limiting the analytic sample to women in the study who report having partners that engage in concurrent sexual

relationships with other men and women. As less is known about women who knowingly have sex with behaviorally bisexual male partners, these analyses will be exploratory (i.e., used to develop hypotheses that can be tested in a future prospective study). Analyses will be conducted to determine whether there are factors that distinguish Black women who report engaging in sex with men who disclose also having sex with men from women who report having sex with men who do not report having sex with other men. Using findings from our Year 1 work that highlight risk factors for MSMW who engage in high risk sex as a guide, I would include factors that covary with knowingly having sex with male partners who disclose having sex with men would include substance use, exchange sex, homophobia, and stigma.

- Regular consultation with Shoptaw and the mentor team to keep progress moving and to ensure comprehensive consideration of the variables and their predicted associations.
- Initial consultation HPTN 064 leadership to ensure that my proposed work with 064 does not encroach upon topics that have already been proposed.
- Development of data tables to be run by SCHARP to conduct univariate analyses of the variables described above.
- Using results from these, select variables to be included in multivariate regressions to get most conservative answer regarding the strengths of these associations.
- Draft initial papers and iterate with Shoptaw. Then to larger group for feedback/input.
- Publish

Implications:

- Extends and deepens the multiple experiences in Year 1 of the Scholar program
- Investigates whether findings from Year 1 that associated with risk in MSMW, are stable across time in predicting high-risk sex in this group
- Initial exploration to determine whether the factors that predict risk in MSMW are also parallel sets in predicting likelihood of Black women to have sex with Black MSMW
- These experiences provide a coherent set of activities that provide grounded, mentored and supported activities to developing an evidence-based understanding of the risks engaged by Black women who have sex with Black MSMW. Completion of these activities would provide an outstanding, evidence-based point of departure in developing HIV prevention strategies for Black women, a group that is highly and disproportionately affected by HIV.

Assessments To Be Performed

No additional assessments will be performed.

Necessary Staff and Other Resources

The core team for this ancillary study includes Dr. Steve Shoptaw serving as senior advisor and mentor and Drs. Nina Harawa and Regan serving as content and

methodological expert consultants. Dr. Harawa, is an epidemiologist with whom the Scholar has collaborated on studies involving MSMW and Dr. Regan is a colleague from the University of California San Francisco (Center for AIDS Prevention Studies) who has expertise in community health and social epidemiology, as well as HIV prevention interventions in communities of color. Additionally, Georgette King had expertise in investigating how MSMW and women's health are intertwined and has expressed interest in examining these contexts further. We will also make a general invitation for other HPTN affiliated researchers to express their interests in contributing to this ancillary study. Dr. Lei Wang will provide the statistical analysis to be performed to meet the study aims and objectives. Working closely with leadership in HOTN 064 is crucial to success in the exploratory analysis (TBD).

Where Activities Will Be Carried Out

No additional data collection will be conducted.

Impact on Primary Study

This proposed ancillary study will have no impact on the primary study.

Description of laboratory assays if indicated below in question 7

Not applicable

Description of Data Management/Statistical Assistance Needed

All data analysis will be conducted at SCHARP and will rely on lei Wang to receive a dataset that includes our variables of interest.