

HIV AND MINORITY YOUTH

Mandakini Sadhir¹, MD and Hatim Omar¹, MD

¹ Kentucky Children's Hospital, UK Healthcare, Department of Pediatrics, University of Kentucky College of Medicine, Lexington, KY 40536, United States.

Address for correspondence: Professor Hatim A Omar haomar2@uky.edu

Received: 19/1/2015; Revised: 12/2/2015; Accepted: 12/3/15

Human Immunodeficiency virus (HIV) infection is a major public health problem with the burden of disease increasing in adolescents and young adults particularly among black males and males who have sex with males (MSM).¹

Natural History of HIV Infection and development of AIDS

HIV is a single-stranded RNA retrovirus with HIV-1 subtype infection being more common in US. HIV infection is usually acquired through sexual intercourse, exposure to contaminated blood or perinatal transmission. The virus infects and leads to the destruction of immune cells particularly CD4+ lymphocytes.² Symptoms of acute infection develop 2-4 weeks after exposure to the virus and can last up to 1-2 weeks. After acute infection, virus continues to replicate resulting in sero-conversion and its detection in blood 4-6 weeks after exposure.^{2,3} In untreated HIV infection, viral load progressively increases with subsequent depletion of CD 4+ T lymphocytes. As a result, immune system becomes susceptible to opportunistic infections. Symptomatic and life threatening condition known as AIDS (Acquired immunodeficiency Syndrome) can develop when CD4+ counts falls below 200 cells/ μ l. AIDS can develop within few months to few years (median time 11 years) after HIV infection and has nearly 100% mortality without treatment. High viral load also increases the risk of transmission.^{2,3} Early diagnoses and treatment of HIV infection is thus essential to decrease viral load, minimize risk of transmission, and prevent AIDS. With medical care and

adherence to anti-retroviral treatment (HAART), HIV infection manifests as chronic and clinically latent illness with near normal life expectancy.⁴

Burden of disease and Risk Factors for HIV infection in Youth.

Incidence of HIV infection has remained stable in the United States with approximately 50,000 new cases diagnosed each year. However, one in every four new HIV infections (26%) now occurs in 13-24yrs of age. Recent statistics show that youth comprise of 7% of 1.1 million people infected and living with HIV infection.¹ Racial disparity among youth with HIV infection is remarkable. Among 13-24years old youth, blacks comprise of 15% of total population but have high disease burden with 58%-67% diagnosed with HIV are of black youth⁵. HIV infection is also more common in males than females. Most common mode of transmission in young males for HIV infection is male-male sexual contact (90-92%) followed by heterosexual contact (3-4%) and injection drug use (1-2%). Both male-male sexual contact and injection drug use are implicated in 2-3% of HIV cases.⁵ Young black MSM (13 -24yrs) accounted for 55% of new HIV infection in 2010, an increase of 22% since 2008.¹

Risk factors: Lack of awareness of HIV positive status, unprotected anal sex, and increased viral load among HIV-positive MSM not on antiretroviral treatment contribute substantially to new infections among MSM population.⁶ According to National HIV surveillance, unprotected anal sex among MSM in the last 12 months increased from 48% in 2005 to 57% in 2011. Only 67% of MSM had been tested for HIV. MSM who were unaware of their HIV-positive status were found twice as likely to have unprotected discordant anal sex at last sex when compared to MSM who were either HIV-negative or HIV-positive aware.⁶

Discrimination and stigma faced by MSM population in all races and age groups may also influence their health care access and utilization including HIV testing, treatment and other services. Socio-economic factors such as poverty, low educational attainment,

unemployment, and incarceration and limited high quality health care access are implicated as risk factors for HIV infection and AIDS in Black males.⁷

Preventative measures and interventions:

Preventative measures have resulted in dramatic reduction of maternal-infant transmission and decreased HIV infection among heterosexuals, African American women and injection drug user.⁹ Interventions for reducing HIV infection include risk reduction education and counseling, accessibility to confidential HIV and sexually transmitted disease screening, access to condoms, availability of sterile syringes and substance abuse treatment.⁸ National HIV/AIDS Strategy (NHAS) was released in July 2010 to provide basic framework and coordinated plan to improve existing programs and develop targeted approach to achieve measurable goals by 2015.¹⁰ Center of disease Control(CDC) developed High Impact HIV Prevention Program focused on providing large scale, cost effective interventions such HIV testing and condom distribution.⁸ It recommends opt-out HIV testing for all youths regardless of risk in health care settings to identify undiagnosed HIV infection. Further, funding is provided to expand community based HIV prevention efforts for young MSM and transgender racial minority.⁸ Based on recent studies, CDC has also provided guidelines for using once daily combination antiretroviral therapy known as pre-exposure prophylaxis (PrEP) in HIV negative MSM and heterosexual at risk individuals to reduce HIV infection.¹¹

Behavioral Intervention Study in young males who have sex with males

*Feasibility, Acceptability, and Preliminary Efficacy of an Online HIV Prevention Program for Diverse Young Men who have Sex with Men: The Keep It Up! Intervention.*¹²

Design of the Study: Keep it Up (KIU)! Is an online module for young males who have sex with males (YMSM) focused on improving HIV knowledge, motivate safe sexual behavior, teach behavioral skills and develop self-efficacy for preventative behaviors. The study was designed as a randomized controlled trial and was conducted over one year period. It

involved 2 groups: KUI! Intervention and Control group. Participants were enrolled from several community based organizations in Chicago where Young MSM presented for HIV testing and counseling.

Subject Selection: Eligibility criteria included 18-24 years old males ; HIV negative test result; had sex with male in last 3 months; had one act of unprotected anal sex; not in monogamous relationship lasting for 12 months ; able to read and accessed internet several times in the past month. Out of 406, 102 eligible participants were enrolled in the study.

Baseline assessment data was collected and participants were randomized to intervention and control group. Participants in both groups also completed assessment immediately post-test, at 6 weeks and 12 weeks after intervention. Data was collected on general demographics, intervention acceptability, sexual risk behaviors, condom errors, intention to use condom, HIV knowledge and self-efficacy.

Exposure of Interest: KIU! Intervention group was required to complete 7 online modules across 3 sessions (each session took 2 hrs.) done at least 24 hours apart. Module content was based on Information- motivation –behavioral skills model. Modules were interactive and used different methods such as videos, games, animation etc. set in a background of particular situation that commonly occur in daily lives of YMSM. On the other hand, Control group received 7 didactic, non- interactive modules over 3 sessions. The modules contained general information about condom use, statistics and risk of transmission for HIV and sexually transmitted infection in YMSM.

Outcome of Interest: A) Primary outcome: The study measured number of unprotected anal sex acts among sexually active participants in both groups. Intervention group had a decrease in number of unprotected anal sex acts as compared to control group at 12 weeks. Rate ratio was 0.56 with $p < 0.05$. There was 44% reduction in unprotected anal sex acts in the intervention group, representing possible association of KIU! Intervention and unprotected

anal sex act. B) Secondary outcome: Both study groups had increase in HIV knowledge and decrease in condom with no significant difference between 2 arms. There was no change in condom use intention. Overall, there was greater retention and acceptability of the intervention throughout the study.

Limitation/Bias: The study had a small sample size and was done in a very controlled setting. Participants were given multiple reminders and incentives to complete the modules and assessment. Thus the study results and implementation of KUI! Intervention cannot be generalized for general population. All assessments were done based on self- reports and can have recall bias. Further, there may be social desirability bias in response to the question for use of condoms. The study had majority participants as White. This could represent confounding variable for improved condom use. The results may not represent behavior change in black YMSM. **Policy/ Future Implications:** Based on the safety, feasibility and acceptability of the study, innovative and internet based approach can be useful to increase HIV awareness and promote safe sexual behaviors in YMSM. Even though longitudinal population based study is needed to validate the results; such an intervention can be a cost effective measure. User friendly, cultural appropriate online HIV reduction intervention can be more accessible and reach out to much greater and diverse youth population.

References:

1. HIV in the United States: *At A Glance*; Center for Disease Control and Prevention. <http://www.cdc.gov/hiv/statistics/basics/ataglance.html>
2. Barlett, JG et al ,The Stages and natural history of HIV infection, UpToDate.com
3. Sax, PE et al Acute and early HIV infection: Clinical manifestations and diagnosis UpToDate.com (Topic 86984 Version 6.0)
4. HIV Infection: Detection, Counseling, and Referral, Sexually transmitted disease treatment Guidelines 2010, Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of STD Prevention
5. HIV Surveillance among Adolescent and Young Adults, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention, Division of HIV/AIDS Prevention. Available http://www.cdc.gov/hiv/pdf/statistics_surveillance_Adolescents.pdf

6. HIV Testing and Risk Behaviors Among Gay, Bisexual, and Other Men Who Have Sex with Men — United States, MMWR November 29, 2013 / 62(47):958-962
7. Millett GA et al, Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: a meta-analysis. *Lancet*. 2012 Jul 28; 380(9839):341-8. doi: 10.1016/S0140-6736(12)60899-X.
8. High Impact HIV Prevention, CDC's Approach to Prevention of HIV in United States, August 2011. Available at http://www.cdc.gov/hiv/strategy/dhap/pdf/nhas_booklet.pdf
9. National HIV Prevention Progress Report, US Department of Health and Human Services CDC December 2013. Available at http://www.cdc.gov/hiv/pdf/policies_NationalProgressReport_brief.pdf
10. [National HIV/AIDS Strategy, July 2010](http://www.cdc.gov/hiv/pdf/policies_nhas.pdf)
http://www.cdc.gov/hiv/pdf/policies_nhas.pdf
11. PrEP: A new tool for HIV prevention, CDC Fact Sheet, August 2012. Available at http://www.cdc.gov/hiv/pdf/prevention_PrEP_factsheet.pdf
12. Mustanski, B, Garofalo, R et al ;Feasibility, Acceptability, and Preliminary Efficacy of an Online HIV Prevention Program for Diverse Young Men who have Sex with Men: The Keep It Up! Intervention; *AIDS Behav* (2013) 17:2999–3012 DOI 10.1007/s10461-013-0507-z