

## **Community Health Paper Part II**

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HIV has emerged as one of the most pressing public health problems worldwide. Despite significant progress, HIV continues to be highly alarming among vulnerable populations. Our group health group focused on increasing health literacy and promotion in HIV prevention as well as medications to decrease the risk of contracting HIV. In this paper, we will discuss the significant impact HIV has on the population of young college students as well as the interventions we instilled to increase health education about HIV.

### **Health Problem**

Human immunodeficiency virus, or commonly known as HIV, is an infectious disease that continues to be a health-related concern in the Hampton Roads area. When looking at HIV cases across the board, there are multiple observable disparities. According to data from AIDS Vu, among the 7,580 individuals living with HIV in 2021, around 74 percent are males (AIDS Vu, 2021). In addition, around 68 percent of individuals living with HIV are black. Looking at total population, per U.S. Census Data for 2020, roughly 1.7 million people live in the Hampton Roads area (U.S. Census Bureau, 2022). Considering that the black population only accounts for 30 percent of the total Hampton Roads population, it becomes evident that black males are significantly overrepresented in current HIV cases. More specifically, black men who have sex with other men (BMSM). With collaborative efforts with TMM Medical Group and LGBT LifeCenter, potential causes for the disparity were identified. Lack of education regarding HIV transmission, prevention, and treatment was considered to be a priority cause.

### **Health Planning Needs**

The priority nursing diagnosis for our aggregate is Deficient Knowledge. Deficient knowledge for the aggregate is related to the transmission of HIV and knowledge related to PrEP medication; a necessary preventive medication for reducing HIV transmission. This diagnosis is also supported in other research conducted by Macounová et al. (2021) and Sun et al. (2022) where they also observed in their framework that education related to HIV and PrEP, respectively, is low. Their interventions show that education greatly increases knowledge related to HIV and PrEP whereas Sun et al. (2022) shows a statistically significant increase in starting PrEP regimens once education was delivered. These findings inform our objective for this nursing diagnosis of deficient knowledge.

The seminar participants will show increased knowledge related to HIV transmission and knowledge related to PrEP medications after the seminar. Our seminar findings support this objective as we observed low knowledge related to our objectives but after the seminar in the post-test, we observed increased knowledge related to your objectives. For future seminars it would be beneficial to expand the forum to include online modalities to reach the aggregate more effectively.

### **Alternative Interventions**

While the methods primarily used to reach our goal of increasing knowledge related to HIV transmission and knowledge related to PrEP medications among our target aggregate were focused on constructing and implementing seminars, other methods could be used to reach our goal. The integration of mobile health interventions, including telemedicine appointments and teaching sessions, and mobile health clinics, has shown promise in promoting HIV prevention behaviors. Using telemedicine, we can reach a much larger fraction of our target aggregate while

decreasing the barriers of entry related to travel and proximity. In addition, using telemedicine also allows us to engage with our aggregate in large groups, similar to the seminar we implemented, or do one-on-one sessions focused on providing individualized education and prophylactic care. These technologies can enhance adherence to prevention strategies and provide accessible information to our target aggregate.

Looking at another possible approach, using the resources available to the Old Dominion University (ODU) School of Nursing (SON) we could take our resources to our aggregate using the ODU mobile health clinic. Using this state-of-the-art van containing spaces for blood draws and testing as well as two patient rooms not only can we deliver education to our aggregate in a more direct format, but we can also deliver care and consultation in the early stages of HIV testing and treatment. Through the act of driving directly into communities' mobile clinics have been shown to be able to engage and gain the trust of vulnerable populations (W.Y. YU, 2017). Serving as a stepping-stone between the clinic and the target aggregate, the ODU mobile health clinic can address both medical and social determinants of health (W.Y. YU, 2017).

### **Implementations**

In response to the pressing need for enhanced HIV education and prevention strategies within the college community, our community health group implemented a comprehensive intervention plan. Collaborating with the LGBTQ+ non-profit organization, Life Center, we orchestrated a series of engaging seminars aimed at equipping college students with critical knowledge on HIV prevention. Our strategic approach involved a careful planning process, including a thorough needs assessment, content development, and logistical coordination. We focused not only on general HIV prevention but also on the crucial information surrounding pre-

exposure prophylaxis (PrEP) medications such as Truvada and Descovy. Our interventions aimed to empower students with the tools necessary for informed decision-making and proactive health management. Through interactive presentations, group discussions, and accessible resources, our community health group created a supportive environment for HIV education.

### **Addressing Knowledge Gaps**

Our group recognized that health literacy has a profound impact on public health outcomes. We developed targeted interventions that we predicted would increase health literacy on HIV prevention within the college community. We began by conducting a thorough needs assessment to identify specific gaps in knowledge and misconceptions surrounding HIV transmission and prevention methods among college students. Armed with these insights, we tailored our educational content to address these specific challenges, ensuring that it was clear, culturally sensitive, and inclusive. Our approach aimed not only to disseminate the most evidence-based information but also to enhance comprehension.

Many individuals, particularly within college populations, may lack comprehensive and accurate information about HIV transmission and prevention. Addressing these knowledge gaps is crucial for dispelling myths, reducing stigma, and empowering individuals to make informed decisions about their sexual health. By providing accurate and accessible information, the intervention aims to equip participants with the knowledge needed to engage in safer practices and contribute to a healthier community. The goal of these interventions was to empower students to make evidence-based decisions about their sexual health.

### **Interactive Learning**

As part of our health literacy initiative, we developed engaging and accessible educational materials that were disseminated through multiple channels, including seminars, workshops, and online platforms. Our content covered a range of topics, from the basics of HIV transmission to the importance of regular testing and the role of safer sex practices. Emphasizing evidence-based information, we debunked common myths and misconceptions, fostering an environment of understanding and openness. By utilizing interactive methods such as role-playing, group discussions, and Q&A sessions, we encouraged active participation, enabling students to internalize key concepts and feel more confident in their ability to navigate HIV prevention strategies effectively.

Traditional didactic methods may not be as effective in influencing behavior change as interactive and participatory approaches. By incorporating activities like role-playing, group discussions, and Q&A sessions, the intervention encourages active engagement. This interaction not only reinforces learning but also provides a platform for individuals to share experiences, ask questions, and collectively problem-solve.

### **Pre and Post Tests**

Pre- and post-seminar assessments were conducted to gauge the immediate increase in knowledge among participants, while follow-up surveys and focus group discussions provided deeper insights into the sustained impact of our intervention on participants' behaviors and attitudes towards HIV prevention. Through our concerted efforts in increasing health literacy, we aspire to contribute to the reduction of HIV prevalence within the college community, fostering a generation of well-informed individuals equipped to protect themselves and their peers from the transmission of HIV.

The pretests served as a crucial baseline assessment, allowing our group to understand the initial knowledge levels of participants regarding HIV prevention and PrEP medication. The posttests provided a direct measure of the immediate impact of the intervention. Comparing the pretest and post-test results allowed our group to measure how much the participants' knowledge had increased. This allowed for an objective evaluation of the seminar's effectiveness in conveying key information and dispelling misconceptions.

### **Literature Review**

Among the identified barriers in PrEP uptake and usage, we identified stigma, misconceptions, and general lack of knowledge regarding PrEP as a target for our intervention given our resources and timeline.

The inclusion of 'general lack of knowledge' as a key barrier directly aligns with the focus of our educational intervention. A pivotal aspect of addressing these barriers is understanding the specific misconceptions prevalent among different demographics. Oscar Javier Pico-Espinosa et al. (2023) identified misconceptions about the adverse effects of PrEP as the single most identified concern among non-users, indicating that education is likely to have a significant impact on views regarding PrEP use.

Our intervention is specifically designed to address these gaps in knowledge, particularly among college-level MSM, who are often at the crossroads of misinformation and vulnerability regarding HIV prevention. Non-PrEP users reported lack of awareness regarding PrEP availability, a perception that PrEP is ineffective, and concerns that usage would come with significant side effects and a feeling that they were not at high risk for HIV transmission (Oscar Javier Pico-Espinosa et al. 2023).

The findings from Pico-Espinosa et al. (2023) support the necessity of our intervention in the educational landscape, highlighting the importance of tailored messaging that resonates with the unique needs and concerns of young MSM. Out of 251 participants, a significant portion identified various educational interventions as being more likely to lead to PrEP usage (Oscar Javier Pico-Espinosa et al. 2023). Factors that were identified as likely to lead to PrEP usage were information about their HIV risk, public speaking about PrEP, identification funding for PrEP, a list of PrEP positive healthcare providers, and counseling about adverse effects. These factors were rated positively by more than 55% to 63% of participants.

This preference for specific types of information and support mechanisms indicates that our intervention's focus on comprehensive education, including addressing misconceptions, enhancing awareness of PrEP availability, and providing guidance on accessing PrEP, is well-targeted. The effectiveness of educational interventions is further emphasized when considering young MSM, a key demographic in HIV prevention. Closson et al. (2019) identified young MSM as those aged 15-29 years old. Trends indicate that HIV incidence in this age group is the main driver of new HIV infections. Additionally, it was observed that this group has the least amount of knowledge and the highest rate of misconceptions when compared to other age groups. Young MSM who attended HIV programming were significantly more likely to be knowledgeable about all aspects of PrEP than those who did not.

Given these trends, our intervention is poised to make a significant impact in this crucial demographic by enhancing understanding and addressing the specific barriers and concerns they face in relation to PrEP usage. Misconceptions are not only prevalent among non-users but also affect current users, influencing their continuation with the treatment. An examination of a study focusing specifically on PrEP adherence identified many of the same misconceptions for



discontinuation (Sidebottom et al. 2018). Particularly concerning was that there was a high association between those who discontinued PrEP use and a false perception of being low risk for HIV exposure or perceived low efficacy of PrEP. Other reported reasons were the perceived social stigma of using PrEP, concerns about long-term side effects, and symptoms related to starting a new medication regime such as nausea and vomiting. This indicates that HIV and PrEP education has value even to current users of PrEP and should be targeted for on-going education and HIV exposure risk assessments.

Thus, our intervention is not only crucial for initiating PrEP use but also for sustaining it by continuously educating both potential and current users. The intersection of psychological factors and stigma plays a significant role in PrEP usage and adherence. Protière et al. (2023) observed that youth, low self-esteem, or higher depression scores were all associated with having a greater concern about perception regarding their usage of PrEP. This same population was also more likely to engage in high-risk sexual behavior and less likely to be encouraged by their primary sexual partner or friends to use PrEP. This suggests that PrEP education, even for non-candidates, can lead to greater social acceptance of PrEP use and thus increase its adoption and adherence.

In essence, our intervention's comprehensive approach to addressing misinformation, stigma, and psychological barriers places it at the forefront of efforts to increase PrEP usage and adherence among college-level MSM, thereby contributing significantly to HIV prevention strategies.

## **Barriers**

As a broad look at the barriers surrounding HIV prevention and education, HIV education barriers are diverse and can impede efforts to raise awareness and promote prevention in various regions and populations (Jaafari, 2022). Stigma and discrimination, both social and self-inflicted, create an atmosphere of fear and judgment surrounding discussions about HIV. Cultural and religious beliefs may stigmatize or misinterpret conversations about sex, hindering effective education initiatives. Limited access to education, particularly in vulnerable populations, contributes to a lack of awareness about HIV and its barriers (Gwadz, 2018). Also, gender inequalities affect the dissemination of information, with women and girls often having limited access to resources and decision-making power regarding sexual health. Misinformation and myths about HIV transmission and prevention abound, contributing to the spread of inaccurate information. Inadequate resources allocated to HIV education programs, coupled with the absence of comprehensive sex education in schools, limit the impact of awareness campaigns. So, addressing these barriers necessitates a comprehensive and culturally sensitive approach, involving collaboration among governments, non-governmental organizations, healthcare providers, and communities to develop effective HIV education strategies.

Concerning our target demographic of the people of Hampton Roads, to include African American men who have sex with men, some barriers existed concerning the placement of our educational seminar and readiness to learn. For combating these issues, we held the seminar on main campus located in Norfolk to allow a central Hampton Roads location to serve as a neutral location for our community. With the implementation of the pre and post test we were able to assess the willingness and readiness to learn by examining the level of knowledge before and after the education provided. The team made sure that each person in attendance was afforded access to the information through interactive presentations and pamphlets as well. The

information presented was written for the level of a traditional college age student as this is a key age group that represents risk taking behaviors when it comes to sexuality. Through the breakdown of these barriers mentioned, we were able to achieve the desired result of increased level of knowledge and preparedness.

### **Evaluation Plan**

This section will outline the methods for assessing the effectiveness of our HIV prevention seminar conducted for college students in the Hampton Roads area. This evaluation will focus on the data collection methods used, as well as how effective they were at assessing our goal of increasing knowledge about HIV transmission, prevention, and prophylaxis.

### **Evaluation Objectives**

The objectives of this evaluation are to assess the immediate increase in knowledge among participants regarding HIV transmission and PrEP medication measured through pre- and post-test scores given to all participants. Additionally, we will be evaluating the reach and effectiveness of our intervention in actively engaging the audience and target population. This result was measured through a survey completed by all participants at the end of the teaching.

### **Reach and Engagement**

Reach and engagement was ultimately assessed by the number of individuals who attended both seminars. This was achieved by word-of-mouth, flyers posted throughout the campus of the target university, and social media posts.

### **Quantitative Evaluation Methods**

Two forms of quantitative data collection were used to assess knowledge increase in this study in the form of pre-seminar tests and post-seminar tests administered to all participants. The pre- and post-seminar tests were identical, consisting of six multiple choice questions and four true or false questions. To assess the effectiveness of these evaluation methods, scores from both tests were documented then compared against one another to determine if knowledge was gained from the HIV awareness presentation.

### **Qualitative Evaluation Methods**

Qualitative data was collected through the means of a seminar feedback survey administered to each participant at the end of the presentation. This form consisted of 10 total questions, collecting anonymous data on age, gender, and sexual orientation, and asked patients to answer how they heard about the seminar, how informative they believed the seminar to be, if they believed the seminar was biased or not, how they would rate their understanding of the information presented, and additional comments on how the seminar could have been improved.

### **Evaluation of results**

Success of the evaluation will be measured by the following means: significant increase in participants' knowledge about HIV transmission and PrEP medication as evidenced by higher average post-test scores; high levels of satisfaction with the seminar content and delivery; positive changes in participants attitudes and behaviors related to HIV evidenced by positive responses on the seminar feedback forms.

### **Rationale**

The purpose of administering pre and post-tests was to quantitatively assess whether HIV seminars effectively communicate intended information and how immediate knowledge increase

can occur. The administered questionnaires served as standardized tools that were objective and reliable, allowing for comparisons of knowledge levels before and after the seminar, as well as helping to determine if the intervention met our short-term objective. Our follow-up surveys were an efficient and cost-effective means of reaching immediately assessing the quality of our intervention and attitudes towards information presented and knowledge gained. Through this we were able to collect qualitative data on participants' experiences and perspectives on the subject presented, as well as provide us with deeper insights and critique into what questions they still had about HIV related matters, and how we can further improve this quality of our presentations in the future to reach audiences more effectively.

### **Limits of Evaluation**

The interventions we implemented were impacted by a number of different variables, some that we could control and others that we could not. Our interventions were limited to educating the population that our community health deemed the most needed for education. The education implemented focused on HIV prevention and PrEP medication usage. The target aggregate we focused on was limited to men who have sexual relations with other men, due to them being at the highest risk for exposure and transmitting the disease to other men.

One limitation our study faced was the advertising and outreach of our educational sessions. Generating interest among our target aggregate was extremely difficult, mostly due to location and some age-related factors. We used several different forms of media and word of mouth to try and generate interest and boost attendance figures. Flyers were placed around both the Virginia Beach ODU campus as well as the Norfolk campus. In addition, details about the time, place, and content of our seminars were included in the university announcements sent out

daily to all active ODU student emails. Lastly, we invited family and friends to attend both sessions to show support and gain some education on the topic. Despite our efforts, numbers for both sessions were relatively low. 17 people were in attendance for the first session while zero people were I attendance for the second.

## **Recommendations**

### **Involving Outside Resources**

Incorporating trained healthcare staff into the community health group's interventions would have brought a wealth of specialized knowledge and practical experience to the seminars on HIV prevention and PrEP medication. These professionals could provide in-depth insights into the medical aspects of HIV, clarifying complex topics and ensuring the accuracy of information presented. A meta-analysis by (Fonner et al., 2014) reviewed interventions that were effective for school based sexual education related to HIV knowledge and risk behaviors. This meta-analysis showed that involving resources outside of the school environment such as trained healthcare professionals produced some of the most significant changes in sexual risk-taking behaviors (Fonner et al., 2014). Moreover, their presence would have offered a direct link to local healthcare resources, facilitating seamless referrals for participants seeking further guidance or medical support. The inclusion of healthcare staff could also enhance the credibility of the intervention, instilling greater confidence among participants in the accuracy and reliability of the information shared.

### **Increased Preparation on Advertisements**

Being better prepared to spread the word about the community health group's seminars on HIV prevention and PrEP medication would have undoubtedly attracted a larger and more

diverse participant base. A comprehensive and targeted marketing strategy, utilizing various communication channels such as social media, campus bulletin boards, and local community networks, could have heightened awareness and engagement. By tailoring promotional materials to resonate with the specific interests and concerns of the college demographic, the community health group could have captured the attention of a wider audience. Additionally, forming strategic partnerships with key student organizations and LGBTQ+ specific academic departments could have amplified the reach of the message, leveraging existing networks to generate enthusiasm and encourage participation.

### **Implications**

The implications that the seminar and research provided are that there is an identified need for education related to HIV transmission, who is at risk, and knowledge related to PrEP medication such as its efficacy, dose schedule, and access. The aggregate itself has shown an increasing trend in new HIV transmission since 2020 in the Hampton Roads area and suggests that access to HIV education and PrEP access are an urgent health priority. Public health nursing stands to provide necessary interventions in upstream and downstream approaches. In an upstream approach public health nursing can advocate for the aggregate in state government to expand funding and advertisement of PrEP access to the aggregate. In downstream approaches the public health nurse can partner with support groups in the community to help implement education in how HIV is transmitted, debunk myths, and how to access necessary PrEP medication. Additionally, to provide materials and education to help remain adherent to dosing schedules for PrEP to attain the best protective potential as possible for the aggregate.

### **Reflections**

Our group community health intervention has brought a great deal of insight for everyone on the team. The work that was done to produce and carry out the education seminar fostered a greater appreciation for effective teamwork, which is a necessity in any healthcare setting. With different levels of understanding regarding PrEP and HIV in general, this project allowed for an opportunity to further our understanding of PrEP, PEP, and risk factors associated with HIV. The information learned will be applicable in our future nursing endeavors, as HIV patients can be encountered in all areas of healthcare, from inpatient hospital settings to home health and so on.



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## Appendix A

### Pre-Test Results

1. What does "PreP" stand for in the context of HIV prevention?
  - a) Post-Exposure Prophylaxis (7)
  - b) Primary Elimination Procedure (0)
  - c) Preemptive Protection (4)
  - d) Pre-Exposure Prophylaxis (6)
2. Can anyone use PreP medication for HIV prevention?
  - a) Yes, it's available to anyone who wants it. (7)
  - b) No, it's only for people already infected with HIV. (8)
  - c) Only healthcare workers can use it. (0)
  - d) Only individuals over the age of 50 can use it. (2)
3. Name at least two FDA-approved medications used for PreP.
  - a) Metamulin and Bectol (1)
  - b) Descovy and Truvada (3)
  - c) Bectol and Descovy (10)
  - d) Metropolol and Truvada (3)
4. How often should a person typically take PreP medication to maintain its effectiveness?
  - a) Once a month (4)
  - b) Once a year (0)

- c) Daily (7)
- d) Only when engaging in high-risk behavior (6)

6. Who is the MOST at risk for getting HIV?

- a) Black Gay, bisexual men. (5)
- b) Black Gay/bisexual women. (4)
- c) Transgender women. (2)
- e) People who inject drugs. (6)

7. Which age group is the most at risk for getting HIV?

- a) 55 years and older (10)
- b) 13-24 years (5)
- c) 25-34 years (1)
- d) 35-44 (1)

**Pretest - True or False:**

- 1) True or False: PreP medication should be taken after potential exposure to HIV.
  - a) True (11)
  - b) False (6)
- 2) True or False: Condom use is not necessary when taking PreP medication.
  - a) True (3)
  - b) False (14)
- 3) True or False: PreP medication can protect against other sexually transmitted infections (STIs).
  - a) True (9)
  - b) False (6)
- 4) True or False: PreP medication is a vaccine that provides complete protection against HIV.
  - a) True (14)
  - b) False (3)

## Appendix B

### Post-Test Results

1. What does "PreP" stand for in the context of HIV prevention?
  - a) Post-Exposure Prophylaxis (0)
  - b) Primary Elimination Procedure (0)
  - c) Preemptive Protection (0)
  - d) Pre-Exposure Prophylaxis (17)
2. Can anyone use PreP medication for HIV prevention?
  - a) Yes, it's available to anyone who wants it. (17)
  - b) No, it's only for people already infected with HIV. (0)
  - c) Only healthcare workers can use it. (0)
  - d) Only individuals over the age of 50 can use it. (0)
3. Name at least two FDA-approved medications used for PreP.
  - a) Metamulin and Bectol (0)
  - b) Descovy and Truvada (15)
  - c) Bectol and Descovy (0)
  - d) Metropolol and Truvada (2)
4. How often should a person typically take PreP medication to maintain its effectiveness?
  - a) Once a month (0)

- b) Once a year (0)
- c) Daily (14)
- d) Only when engaging in high-risk behavior (3)

6. Who is the MOST at risk for getting HIV?

- a) Black Gay, bisexual men. (15)
- b) Black Gay/bisexual women. (0)
- c) Transgender women. (1)
- e) People who inject drugs. (1)

7. Which age group is the most at risk for getting HIV?

- a) 55 years and older (0)
- b) 13-24 years (2)
- c) 25-34 years (15)
- d) 35-44 years (0)

**Pretest - True or False:**

- 1) True or False: PreP medication should be taken after potential exposure to HIV.
  - a) True (0)
  - b) False (17)
- 2) True or False: Condom use is not necessary when taking PreP medication.
  - a) True (0)
  - b) False (17)
- 3) True or False: PreP medication can protect against other sexually transmitted infections (STIs).
  - a) True (2)
  - b) False (15)
- 4) True or False: PreP medication is a vaccine that provides complete protection against HIV.
  - a) True (2)
  - b) False (15)

## Appendix C

### Survey Results

#### HIV Prevention and PrEP Seminar Survey

Thank you for participating in our seminar on HIV prevention and PrEP information. Your feedback is valuable in helping us improve future seminars. Please take a few minutes to complete this survey.

1. Age:

- a. Under 18
- b. 18-24 (7)
- c. 25-34 (8)
- d. 35-44 (2)
- e. 45-54
- f. 55-64
- g. 65 or older

2. Gender:

- a. Male (14)
- b. Female (3)
- c. Non-binary
- d. Prefer not to say
- e. Other (please specify)



3. Sexual Orientation:
  - a. Heterosexual (12)
  - b. Homosexual (3)
  - c. Bisexual (2)
  - d. Other (please specify)

Seminar Content:

4. How did you hear about this seminar?
  - a. Social media
  - b. Flyers/posters (3)
  - c. Word of mouth (14)
  - d. Healthcare provider
  - e. ODU Announcements
5. On a scale of 1 to 5, how informative did you find the seminar content?
  - a. 1 (Not informative at all)
  - b. 2 (Slightly informative)
  - c. 3 (Moderately informative)
  - d. 4 (Very informative) (5)
  - e. 5 (Extremely informative) (12)
6. Did you feel that the seminar was unbiased and provided a balanced view of HIV prevention methods, including PrEP?
  - a. Yes (17)
  - b. No
  - c. Not sure

PrEP Knowledge:

7. Before attending this seminar, did you have any knowledge about PrEP (Pre-Exposure Prophylaxis)?
  - a. Yes (2)
  - b. No
  - c. I had heard of it but didn't know much about it (15)
8. How would you rate your understanding of PrEP after attending the seminar?
  - a. Poor
  - b. Fair
  - c. Good (2)
  - d. Very good (13)
  - e. Excellent (2)
9. Overall Experience: On a scale of 1 to 5, how would you rate your overall experience at the seminar?
  - a. 1 (Terrible)
  - b. 2 (Poor)
  - c. 3 (Average) (2)

- d. 4 (Good) (13)
- e. 5 (Excellent) (2)

Do you have any additional comments or suggestions to help us improve future seminars?

1. Different locations
2. Better advertisements
3. Help from the professor in charge (Being present)