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Awareness and Willingness to use Condoms and Preexposure Prophylaxis among Gay, Bisexual, and Other Cisgendered Men who Have sex with men in Slum Communities in Ghana. BSGH-004

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Abstract

Introduction: Research has begun to examine human immunodeficiency virus (HIV) prevention strategies within the Ghanaian context. Still, little is known about specific populations such as gay, bisexual, and other cisgender men who have sex with men (GBMSM) living in slum communities. We studied HIV prevention strategies such as condoms and pre-exposure prophylaxis (PrEP) in slum communities and the awareness and willingness to use these choices among GBMSM. This qualitative study examines HIV prevention strategies, specifically examining PrEP and condom use behaviors among GBMSM in Ghana. **Methods:** We conducted in-depth face-to-face interviews among 12 GBMSM from slums in Accra and Kumasi cities in Ghana. Data were analyzed through a summative content analysis with multiple reviewers to develop codes. Data were collected from participants in January 2022. **Results:** We found the fear and perceived risk of infection were motivators for consistent condom use, especially during anal sex. GBMSM living with HIV receiving antiretroviral therapy were more inclined to use condoms. We found motivations for using PrEP were influenced by the type of sexual activity and a history of negative HIV status. Also, the barriers to PrEP for GBMSM included limited access to healthcare facilities and the distance to these facilities. **Conclusions:** To improve condom and PrEP access and uptake, we recommend addressing structural barriers by increasing the number of health facilities and implementing targeted interventions to address the lack of information on HIV awareness and prevention. Involving peer educators may also effectively promote HIV prevention strategies, especially in communities with limited access to healthcare such as slums. Overcoming these access constraints could significantly enhance awareness and prevention of HIV, leading to improved health outcomes for GBMSM living in slum communities.

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Introduction

Globally, strategies to prevent human immunodeficiency virus (HIV) have been a significant focus in many countries.[1–4] According to the World Health Organization [WHO][5], the number of people living with HIV at the close of 2021 reached an estimated 38.4 million with 0.7% of this population aged 15–49 years. While this number continues to rise over the years, the WHO (2022) report shows the African continent has been severely affected with an estimated (3.4%) 1 in 35 adults living with HIV. These projections position the African continent to account for two-thirds of all cases worldwide. Within Africa, the Sub-Saharan region is known to have the highest affected rate of HIV infection, accounting for an estimated 70% of HIV globally.[6,7] Given these statistics, the calls for strategic steps to curb the high epidemic incidence have increased, particularly within Africa's Sub-Saharan region.[8–10]

Like many other African countries, Ghana has adopted some intervention strategies into its policy such as The U.S. President Emergency Plan For AIDS Relief (PEPFAR) and the (UNAIDS) 90–90-90 to reduce the epidemic spread of HIV.[11–13] PEPFAR was a United States-funded initiative to support and expand Ghana's efforts to prevent the spread of HIV/AIDs, care for persons living with HIV, and provide support to improve coverage of the country's response to the epidemic.[11,14–16] Ghana adopted the (UNAIDS) 90-90-90 achieve the United Nations Programme (90% of all people who are HIV-positive know their status, 90% of those diagnosed with HIV are on treatment, and 90% of those diagnosed with HIV are virally suppressed).[12,17–19] These policy efforts among other efforts from the Ministry of Health, Ghana AIDS Commission and other community and nongovernmental organization have contributed to the low-level epidemic rate in the country.

Among many interventional strategies to prevent the spread of HIV, administering preexposure prophylaxis (PrEP) has been identified as a practical way to reduce incidence.[20–22] PrEP can be presented as a daily medication to prevent a diagnosed HIV-negative person from getting infected.[23] PrEP is the use of antiretrovirals in individuals who do not have HIV to prevent infection. PrEP is taken in anticipation of exposure to HIV and is mainly recommended for individuals at increased risk of exposure.[24] PrEP comes in many forms and can be administered (oral or injectable) through various therapeutic options such as using tenofovir/emtricitabine in combination with maraviroc, using long-acting rilpivirine administered every 8 weeks, using cabotegravir/vocabria, which is an Integrase Strand Transfer Inhibitor, and using VRC-HIVMAB060-00-AB.[25] Effective administration of antiretrovirals can support individuals living with HIV to achieve a state where the virus has been suppressed to undetectable levels, low enough to prevent transmission.[26,27] Meaning the virus cannot be transmitted through sexual contact.[26–29] This scientific evidence is based on the concept of U = U (undetectable equals untransmittable).[26–30] Despite the evidence showing U = U significance in reducing the risk of transmission, many have stressed that it does not eliminate the risk of infection completely, emphasizing the need for regular testing and safer sexual practices such as condom use.[31,32] U = U significance has also been questioned, as it does not prevent other sexually transmitted infections.[31–33]

While the PrEP strategy has proven effective in controlling the spread of HIV, it comes with many challenges. Awareness and usage of PrEP have been reportedly low in certain contexts,[24,34–36] particularly among low- and middle-income countries.[37,38] The uptake of antiretrovirals as an effective means of preventing the spread of HIV is reported to be globally low.[20,39–41] Many other barriers to PrEP implementation and antiretroviral usage are seen in the stigma surrounding its use among individuals at increased risk of HIV, the possible drug-to-drug interaction, the risk of sexually transmitted infection, the cost of antiretrovirals, and its reported side effects.[41–43]

Additionally, the cost of antiretrovirals has been shown to significantly affect PrEP implementation among key Ghanaian population.[44] Barriers related to the cost of antiretrovirals among key Ghana populations have been associated with long-term financial implications and poor health insurance coverage.44 Other cost barriers related to antiretrovirals were associated with those incurred by the patients such as laboratory fees, travel-related expenses, and testing for sexually transmitted diseases.[44–46] Recommendations to improve antiretrovirals uptake in Ghana include the government subsidizing the cost of the medication, or including it in the National Health Insurance Scheme.[44]

Past studies have also shown insufficient knowledge of PrEP among MSM as a primary reason for its low acceptability, even when the antiretrovirals are presented as a reliable means of preventing the spread of HIV.[47–49] In Ghana, available research indicates that PrEP rejection is high among individuals at an increased risk of infection.[20] According to Dako-Gyeke et al[50] and Kumar et al[51], MSM in Ghana form a significant population (17.5%) of people living with HIV in the country and have a higher chance of not getting tested or engaging in HIV-related in treatment. These studies highlight an increasing need for MSM to explore preventive strategies when engaged in activities that increase their risk of infection. While PrEP implementation is coupled with many challenges within Sub-Saharan Africa,[48] understanding perceptions, awareness and preferences

among MSM is crucial to PrEP acceptance as a reliable strategy of HIV prevention.[52–54] Given Ghana's conscious efforts to present PrEP as an alternative strategy to preventing the spread of HIV, leaders in the implementation drive remain hesitant due to the lack of context-based evidence from data to support a scale-up of antiretrovirals in the country.[55,56]

Similarly, condom use as an intervention technique against the spread of HIV has been emphasized in many countries, especially within sub-Saharan Africa, where HIV continues to be high among sexual minorities.[48,49,57,58] Condom use has been identified as one of the most effective means of preventing the spread of HIV.[59,60] According to the United States Agency for International Development[61], condoms are effective when used correctly to reduce HIV transmission by 90%. Among key populations such as gay men, condoms effectively reduce the spread of HIV by 70% for individuals with HIV-positive partners who reported consistent use, 72% for those who indicated they were bottoming, and 63% for those who were topping.[62] Hence, many health providers and promoters urged its use, especially among individuals at an increased risk of infection.[63–65] Several interventions have been employed in Ghana to encourage condom use.[48,49,63,66,67] One of the major intervention approaches in the country to increase condom use, especially among individuals who are at an increased risk of infection in Ghana is the Ghana Nation Condom and Water Based Lubricant Programming Strategy 2014–2019. The intervention was a conscious approach by the government in collaboration with multiple nongovernmental and community-based organizations to identify barriers within Ghana that impacted condom use and employ strategies that addressed the needs of different segments of the Ghanaian population.[66] The report captures key populations (23%) as the second largest group in HIV new infection in the country.[66]

Despite employing strategies such as the Ghana Nation Condom and Water Based Lubricant Programming Strategy 2014–2019, the National HIV and AIDS Strategic Plan (2011-2015), and the Ghana MARP Strategic Framework 2011–2015, among others, HIV among key populations, particularly MSM in Ghana continue to record increasing rate of infection.[68] The USAID recommends HIV prevention services such as condom use and PrEP be combined to maximize the odds of viral transmission since no barrier method can guarantee 100% prevention.

Slums in Ghana are known to be under-resourced, evident in the lack of health facilities, leading to adverse health outcomes.[69] Slums in Ghana are characterized by poor access to drinking water, schools, transportation services, and inadequate housing settlements.[70–74] The individual or combination of these slum characteristics can affect how gay, bisexual and other cisgender men who have sex with men (GBMSM) access HIV prevention services. Understanding how these implications manifest for highly stigmatized groups such as GBMSM is imperative when suggesting interventions to increase HIV prevention strategies, particularly concerning PrEP, and condom use. This research was conducted in selected slum communities due to lacking information on HIV prevention strategies for GBMSM living in these areas. We attempt to use this study to understand the current state of HIV prevention strategies for GBMSM in these slum communities and how the unique characteristic of slums in Ghana affects the utilization of HIV prevention strategies among GBMSM.

Ghana has been described as a country where the safety of GBMSM cannot be guaranteed as the laws of the country do not provide protection for LGBTQ groups or individuals or groups advocating for their wellbeing.[75] Ghana's laws currently criminalize same-sex penetrative behaviors.[76,77] The country's current legislation on sexuality is vague; hence, the policing of sexual activities, particularly among GBMSM is left to the discretion of law enforcement officers.[76,78] Ghanaian criminal law is fraught with ambiguity, resulting in individuals and law enforcement officials resorting to personal interpretation to determine its application to people in the LGBTQ community.[76] The phrase "unnatural carnal knowledge," found in the Ghanaian Criminal Code Amendment Act of 2003, does not explicitly reference LGBTQ individuals.[76] However, it has been invoked to justify criminal assaults and the perpetuation of stigmatization against members of these communities.[76,79,80]

The current stigmatizing climate in Ghana towards LGBTQ or individuals in close relation to these groups translates into challenges in health services.[81,82] Accessing preventive services such as PrEP can be discouraging for these groups of individuals due to the stigma they face at the health facilities.[81] Though calls have been made for the Government of Ghana to subside these rates or include them fully into the National Health Insurance Policy, the fear associated with high stigma may prevent GBMSM from accessing these services.[44]

Methods

Research Design

The research used qualitative interviews[83] to understand the lived experiences of GBMSM in Ghanaian slum communities. We collected first-hand accounts from participants about their day-to-day experiences of HIV prevention strategies related to condoms and PrEP use in the slum communities. We also investigated how they interpreted their experiences concerning their sexual orientation and the barriers or willingness to HIV prevention.

Sampling and Recruitment Procedure

To reach and recruit GBMSM in slum communities, we partnered with our community organizations in Accra and Kumasi, using the time location sampling method.[84] A sampling method that has been proven effective in researching similar populations in the past.[85–87] The time location sampling method in this study was purposively used due to the stigmatizing nature of GBMSM in Ghana. This approach allowed researchers reach the sample at locations and times that provided them the maximum amount of safety. Aside from providing security, the time location sampling method ensured diversity as GBMSM were randomly chosen from these

secured locations, ensuring equal chances of being included in the study. Additionally, multiple visits from the researchers to recruit participants at times that were not chosen by the research team increased the likelihood of recruiting a diverse pool of respondents into the study. Community partners and research assistants came from PORSH (Priorities on Rights and Sexual Health) in Accra and YAHR (Youth Alliance on Health and Human Rights) in Kumasi. Research assistants working with our community partner organizations screened and invited GBMSM to participate in interview sessions during one of the organizations' activities when GBMSM visited the site at times and locations that had been previously determined as safe. We have a long history of partnering with these two organizations to recruit participants and conduct studies among GBMSM in Ghana.[48,49,88] Initially, we had planned to recruit 19 participants, but after the eighth interview, we reached saturation in responses to fill the information gap. We continued to capture four more participants to ensure complete saturation, bringing the final number of transcripts to 12. We decided not to conduct further interviews with our samples when we realized the data were repetitive, and information received from GBMSM were recurring, similar to those from previous participants. Participants who participated in the study were given 80 Ghana Cedis each as compensation to cater for their transportation to and from the interview site.

Inclusion Criteria

Before enrollment, all participants were 18 years or older and resided in a slum community within Ghana's Greater Accra regional capital. Participants self-identified as a cisgender man and fell under the GBMSM category having had sexual relations with other cisgender men for reasons other than sexual orientation in the past 6 months. The HIV status of participants did not affect their eligibility to be included in this study.

Data Collection

Procedure. We conducted in-depth face-to-face interviews to collect participant data.[89] Following screening, research assistants gave participants consent forms to read. The research assistants read the consent forms aloud to ensure clarity and gave additional explanations. Before beginning the interviews, research assistants responded to participants' questions and obtained their signatures to confirm their consent to participate and enable audio recording. All conversations took place in private spaces owned by the community partners. Four interviews were recorded in a local Ghanaian language called *Twi* because some participants found it challenging to communicate in English; all other interviews in the study were conducted in English. Data were collected in January 2022.

Nature of Questions. The checklist created for the study served as the basis for the qualitative interview training given to the research assistants. Consistent with our design, the checklist encouraged free and open discussion over the more conventional question-and-answer interview format. Participants were invited to share personal narratives about their background and family, sex and gender expectations, experiences of stigma within the family, openness about sexuality and sexual behavior, acceptance within the family, and how they deal with stigma or live as GBMSM.

Analytical Strategy. The audio interview recordings were directly transcribed verbatim by trained research assistants, who also deidentified the transcripts by removing details that could be used to identify the participants. After that, we conducted a summative content analysis with multiple reviewers on the transcripts.[90] We have effectively used this analytical procedure to understand essential elements in participant accounts.[49] We allocated at least two reviewers to each transcript. Each reviewer examined the interview checklist before reviewing the transcripts to find the most important points brought up by the participants, which they then independently reported in between 100 and 200 words. The first author went over each summary and compiled its key points into a data spreadsheet, which helped identify clusters in the qualitative data and highlighted the factors that frequently came up in transcripts and summaries.

Ethical Approval and Informed Consent. IRB approvals were obtained from the University of Rochester (IRES IRB #RNI00002010) and the Ghana Health Service (GHS-ERC 001/10/21) approved the study. Before any information was collected, the study's interviewers ensured that every participant had read and understood the informed consent form and given approval for information to be collected on HIV prevention strategies in condom use and PrEP.

Results

Description of Participants

Six GBMSM reported being Christian, two were Muslim, and the remaining four practiced a combination of both religions. Concerning formal education, only one had an education level below a Junior High School, six had completed Senior High School Education, and five had earned a university degree. Six participants reported being unemployed, while the other six worked part-time or full-time jobs.

Description of Categories and Subcategories

Two categories emerged from the study. The first category was condom use determinants. Under this category were subcategories: (a) familiarity, trust, and longevity, (b) fear and perceived risk of infection, and (c) preventing HIV transmission to others. The second category our data analyzed was PrEP use determinants. Subcategories under this team were (a) motivators to use PrEP and (b) access constraints to PrEP.

Condom Use Determinants

We categorized condom use drivers into three subcategories. The first was familiarity, trust, and longevity, the second was the fear and perceived risk of infection, and the third was preventing HIV transmission to others.

Familiarity, Trust, and Longevity. Our interviews with participants indicated the decision to use condoms was complex and influenced by various factors, including familiarity with partners, trust, and longevity with an intimate partner. Participants reported they prioritize safety and use condoms mostly. Still, they may be persuaded to have sex without condoms if they have been with the same partner for a while and the partner convinces them to trust them. Another participant shared that they sometimes chose not to use condoms when they were strongly attracted to someone and wanted a more intimate experience.

> For safety measures, I use condoms mostly, but when I have sex continuously, and the person is trying to tell me to trust him because he's not flirting around, then I give in for raw sex (GBMSM participant I).

> Sometimes but not always, though. It gets to when you are attracted to someone you really like and want to feel the person. That's when I decide not to use the condom. But not everyone I allow to go raw like that (GBMSM participant H).

Fear and Perceived Risk of Infection. Participants expressed a strong commitment to condom use, stating they use condoms every time they engage in anal sex. However, some participants reported using condoms only when necessary, as they had regular partners and did not engage in high-risk sexual behaviors. The risk of sexual infections also motivated participants to consistently use condoms during anal sex, citing previous experiences with gonorrhea as a motivator for consistent condom use.

> I always use condoms and I use them every time. I engage in anal sex. But during sex, what I ensure that the sex is safe for me without any harm, is that I use condoms. I usually will use condoms. But let me say I will give it like 80% condom use. Because the world is a little scary, you don't know when you will contract something. (GBMSM participant A)

> I engage in anal sex. I'm always on top. I actually use a condom. But I don't move around a lot. I have a regular partner (GBMSM participant F)

> I always go for a condom during sex. I do anal sex. There was a time I ended up having gonorrhea and from that time no matter what you claim to be, whoever you are, you have to wear a condom. (GBMSM participant C)

Preventing HIV Transmission to Others. The results showed some participants who reported being HIV-positive still used condoms during intimate relationships. Participants who disclosed their HIV-positive status mentioned using condoms consistently after learning about their situation and being advised by a healthcare provider on the risk of spreading HIV. Participants mentioned insisting on using a condom when their intimate partners wanted to engage in condomless sex. Results also showed participants preferred to move away from current intimate partners who were insisting on condomless sex to those who preferred condoms use for the sole purpose of preventing further infections.

> I love sex. At first, not so much, but now yes, Because I am on ARTs, I use condoms. If I am with someone who doesn't want condoms, I will leave and do it with another person who is okay with condoms. As for condom use, 100%. (GBMSM participants G)

> Because I am on ARTs, we use condoms. We use gold circles (condom brand). Previously, I had sex with no condoms depending on my partner. When I got to know my status, I was always advised by a health person to use a condom and I have been practicing that. (GBMSM participant B)

PrEP use Determinants

The results show PrEP presented a significant role in HIV prevention for GBMSM. Determinants of PrEP use were captured within two subcategories. The first was the motivators to use PrEP. The second was Access constraints to PrEP use.

Motivators to use PrEP. GBMSM were motivated to adhere to PrEP due to the nature of sex they engaged with their intimate partners. Other actors, such as peer educators in the lives of GBMSM were instrumental in how they decided to adhere to PrEP use by encouraging them to get tested for HIV to keep being eligible for PrEP. Other reasons cited by GBMSM were the nature of how they engaged in sexual activities and the associated risk of acquiring HIV.

> I have engaged in anal sex, hence, take PrEP every day. I'm a top now even though I used to be at the bottom, you don't know when you will contract something. (GBMSM participant D)

> I'm HIV-negative, hence, use PrEP. I have a peer educator in my community which I have been randomly doing tests with him. And I'm on the safe side. (GBMSM participant E)

> Yes, I'd like to be on it because of how rough I can be at times during sex. I'm not on PrEP. But I know what PrEP is and would like to be on it. (GBMSM participant K)

Access Constraints to PrEP use. GBMSM indicated structural barriers such as the lack of health facilities and distance to a health facility limited their PrEP access. Responses from our participants show if these structural challenges were tackled adequately, it would go a long way to encourage access and adherence to PrEP. GBMSM also indicated that additional constraints connected to time prevented them from accessing antiretrovirals from individuals who had the drug available. According to participants, the inability to find the time for medication pickups meant staying on other sexual protective mechanisms to prevent infection. Another significant finding from

GBMSM showed the challenge of not knowing where to go for PrEP presented as a constraint GBMSM living in slums mentioned as a reason for not taking the medication.

> I used to be on PrEP but I have stopped because of the distance to the health facility. I will continue if there is a facility close by to pick up the drug. (GBMSM participant N)

> I know PrEP. A friend told me about it when I was in school. I thought he could get some for me, but he said unless I come there. But I haven't had time to go, so I make sure I protect myself. I know my status. (GBMSM participant K)

> I'm not on PrEP. But I know what PrEP is and would like to be a part of it. I have

> heard about it, but I don't know how to get some. (GBMSM participant J)

Discussion

Living in slums are filled with multiple challenges.[70,91,92] Empirical information in Ghana on PLHIV in slums is not extensive, making it difficult to understand the recent experiences of PLHIV and HIV prevention strategies among GBMSM. This study revealed GBMSM familiarity, trust, longevity with intimate partners, the fear and perceived risk of infection and preventing HIV transmission to others significantly affected condom use. The study also identified GBMSM engaging in anal sex and a history of testing negative for HIV as motivations for PrEP use. Structural barriers such as inadequate health facilities, the limited proximity to services, and time constraints associated with obtaining PrEP limited its use.[45,46]

Previous studies in Africa have shown that strong relationships may affect condom use negotiations due to the desire to seek emotional intimacy with a partner.[93,94] During our interviews, we found familiarity, trust, and longevity emerging as significant determinants when deciding whether or not to use a condom. This finding was similar to those by Peasant et al[95], who found that self-sacrificing was a strategy to earn a partner's trust, or nurture a romantic relationship that could result in less condom use among sexually active partners. Other studies have found proposing condom use, especially among gay men can be perceived as less romantic, with condomless sex seen as a way of showing trust and emotional connection.[94,96] Though not a focus in this study, familiarity, and trust has emerged as a significant factor in HIV transmission, especially in the areas of U = U (undetectable = untransmittable) with findings showing 42.3% trusted it, 19.8% did not trust it, and 38.0% were not sure.[30,97,98] We found condoms use in Ghanaian slum communities was also determined by the longevity with intimate partners, the sexual attractiveness of the partner, and the partner's characteristics. Participants who engaged in sexual activity consistently with a partner were likely to develop trust and stop using condoms. Our findings highlight the role of familiarity, trust, and longevity in condom use decisions among GBMSM. Our results also suggest consistent condom use may be challenging for individuals engaged in long-term relationships or regular partners. Findings on familiarity, trust, and longevity to consistent condom use and long-term support the call by earlier researchers to investigate the attitudes of GBMSM when considering interventions in HIV/STI in the country.[10,68,99,100]

Studies in Africa have shown that HIV-positive individuals appear to use condoms more consistently after knowing their status, with the main aim of not getting new infections or transmitting to their intimate partners.[101,102] Previous research has also indicated that GBMSM were more likely to use condoms if they knew about their HIV-positive status, were directed by health professionals, or knew where to access condoms.[103,104] Our participants on antiretroviral therapies (ARTs) appeared to be more consistent with condom use after learning about their HIV-positive status. They also assumed the responsibility of ensuring no further infections of HIV by either insisting on condom use with their partners or breaking off with individuals who did not want to engage in condomless sex. Consistent condom use among HIV-positive GBMSM was also driven by advice from healthcare professionals as a critical step in preventing the spread of HIV. When paying attention to the lack of infrastructure in health facilities and services (counseling, HIV testing, condom provision, and use education) and health personnel for GBMSM in HIV prevention, we find these results informative in tailoring interventions for HIV prevention among GBMSM living in Ghanaian slum communities.

Previous research has shown that individuals who are at an increased risk of infection, such as men who have sex with men stand a higher chance of HIV transmission through sexual intercourse.[105–107] Studies have also indicated anal sexual intercourse has higher chances of transmitting HIV compared to vaginal sex.[107,108] While highlighting the risk of anal sex in HIV transmission, some studies show other infections, such as gonorrhea, can present during sexual activities among sexual minorities.[109] In our study, the risk of HIV infection through anal sex for GBMSM came up as a vital determinant for condom use. Anal intercourse for GBMSM was perceived as a sexual activity that could put one at significant risk of HIV infection. The fear associated with infection and further spread of HIV through anal sexual intercourse among GBMSM reportedly showed consistent condom use among participants. Some participants also indicated that the high rates of HIV infections globally put enough fear in them to encourage consistent condom use. Closely related to this finding was GBMSM history of STI and constant use of condoms. Our finding suggests a historical experience of an STI such as gonorrhea can have profound implications on sexual practices, leading to a more cautious and protective sexual lifestyle.[110] Our findings demonstrate that the lack of health facilities and personnel for GBMSM living in slum communities could increase the risk of HIV infection if interventions are not tailored, providing these amenities and making them accessible to these populations. Given the stigmatized context of slum communities,[111] sensitization campaigns surrounding condom

use in anal sex activities must be prioritized to sustain our current finding.[48,49] We also urge bringing on board community stakeholders such as community religious leaders and political heads to reduce stigma and discrimination when these educational programs are organized around condom use and HIV prevention.[112–114]

Safer sex practices in previous research among sexual minorities, particularly HIV-positive MSM, are primarily concerned with exposing other intimate partners to the risk of HIV infection.[115,116] Our findings show having casual and/or multiple sex partners, the risk of contracting, and the fear of infecting a partner encouraged consistent condom use among GBMSM who engaged in sexual intimacy. According to Serovich et al[117], personality traits among sexual minorities with HIV-positive status who had casual intimate partners played a significant role when insisting on or not using a condom for sexual intimacy. Our findings show GBMSM interviewed had developed a sense of personal responsibility to prevent their partner from contracting HIV and used condoms. These findings demonstrate to some extent how individual personality traits can play a role in condom use among GBMSM. The results also indicate higher condom use preference when the risk of infecting others or being infected is high among GBMSM. For GBMSM living in slum communities, the resource constraint of these areas, especially regarding health facilities and personnel could hinder services such as HIV/STI counseling in promoting favorable attitudes towards condom use in HIV prevention.

For GBMSM, PrEP uptake is a recommended preferred means of HIV prevention as PrEP effectively reduces the risk of HIV infection, especially among GBMSM.[47,118] Whereas no studies were conducted in Ghana among GBMSM in slums on PrEP, the only study in the country on PrEP among the GBMSM showed a high willingness to take up PrEP.[47] This willingness has been further highlighted in research among MSM, who suggest antivirals be subsidized by the Government of Ghana or included fully in the National Health Insurance policy.[44] Consistently the GBMSM participants in our study were motivated to accept PrEP because of the HIV risk associated with same-sex sexual activities and the belief in the efficacy of antiretrovirals in preventing HIV infection.

Participants also described the role of peer educators as crucial in antiretroviral uptake and adherence through HIV testing to remain eligible for the drug. The role of peer educators has been stressed in multiple studies in PrEP follow-ups and uptake among at-risk individuals.[119–121] Although no published work on PrEP and peer mentors in slums exist in Ghana, GBMSM peers have played a critical role in previous interventions that address HIV prevention and linkage to care GBMSM in Ghana.[9,48,49,67,88] Despite the favorable attitude toward PrEP uptake among our participants, we urge the training of more peer educators to strengthen use and adherence. Due to the location of this study, we propose peer educators be trained from within the slum to reduce accessibility challenges, increase relatability and trust, and facilitate linkage to care for GBMSM in HIV prevention and care services.[48]

Challenges associated with PrEP use are complex and range within the individual, community, and health systems.[122,123] Our results about PrEP access and use were closely aligned with the challenges surrounding health systems.[9] We found the proximity of PrEP access points limited access and use. Ahouada et al (2020) also arrived at these conclusions, indicating distance and sites for PrEP distribution significantly affected PrEP access and use in HIV prevention. Though we couldn't find previous literature on the case of GBMSM living in Ghanaian slums, we trust that properly addressing health system challenges could promote PrEP access and adherence in these communities.

Conclusion

Our findings show familiarity, trust, and the attractiveness and characteristics of GBMSM intimate partners influenced condom use in HIV prevention. Fear and perceived risk of infection came up as motivators for consistent condom use, particularly when the mode of sexual intimacy was primarily anal sex. Our findings also revealed GBMSM with HIV-positive status and receiving ARTs were inclined to condom use. The study shows motivations for PrEP use were influenced by the nature of sex GBMSM engaged in and a history of HIIV negative status. PrEP use barriers included limited access to healthcare facilities and the distance to these facilities.

Our findings suggest that efforts to improve PrEP access and uptake among GBMSM should prioritize addressing structural barriers, such as increasing the number of health facilities providing PrEP and developing targeted interventions to address time constraints and lack of information about antiretrovirals. Additionally, engaging peer educators may effectively promote PrEP use among GBMSM, especially in communities with limited access to health facilities. Addressing these access constraints could significantly enhance the uptake and adherence to PrEP to improve HIV prevention outcomes among GBMSM living in slum communities.

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