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Women's Health Care and Issues

The Need for Public Awareness on Health-Related Consequences of Heterosexual Anal Intercourse (HAI) in Sub-Saharan Africa

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ABSTRACT

Human sexual repertoire continues to expand and diversify as a consequence of changing socio-cultural beliefs/practices, demographics, sexual liberation, and increased access to sexually-oriented materials. Individuals actively seek and experiment on various novel and exotic methods of sexual stimulation and gratification including anal eroticism. Despite associated stigma, negative perceptions and its being a taboo practice in some societies, anal eroticism is widely practiced by women from all social and racial backgrounds.

Heterosexual anal intercourse (HAI), itself a high-risk sexual practice, is often associated with other high-risk sexual or social behaviours such as substance abuse, transactional sex, partner violence/coercion, alcohol consumption, multiple partnerships, oro-anal sex and low condom use. It therefore confers an increased risk of STIs, HIV/AIDS and anal cancer among other health consequences.

Sexual practices in sub-Saharan Africa (SSA) are thought to be limited to penile-vaginal intercourse; with penile-anal intercourse confined to gays, female sex workers and the pornographic industry. This perception, together with related social stigma and national legal frameworks, have hampered quality research and creation of awareness on the subject. People engage in HAI oblivious of related health risks. Likewise health professionals, either deliberately or for lack of knowledge, don't broach the subject in their clinical sessions or other professional forums.

SSA has the highest burdens of HIV/AIDS and STIs globally with weak health systems. Published data on HAI, though few and limited to special population sub-groups, indicate the possibility of the practice among general populations and is increasing. Thus a concern that these health conditions will increase with time, exerting enormous strains on national economies and reversing gains made so far. To mitigate the impact of individual sexual practices on overall health of populations, there is need for appropriate local research, public awareness and health professional education on various aspects of heterosexual anal intercourse in SSA.

Keywords

Heterosexual anal intercourse, Sexual practices, HIV/AIDS, STIs.

Introduction

Sexual practices amongst heterosexuals in many and diverse regions of the world have often been perceived as being confined to penile-vaginal intercourse. However human sexual repertoire is neither static nor unidirectional. The age-old sexual scripts which identified women as sexually passive and submissive have changed. Women today are more assertive and open to novel and exotic methods and/or experimentation to heighten their sexual stimulation and gratification. Men and women, actively seek and experiment on novel and exotic methods of sexual stimulation and gratification including anal eroticism [1]. As a result thereof, hitherto taboo sexual behaviours or practices, such anal intercourse (AI), have become ubiquitous, albeit with variations in prevalence

rates, frequency, motivation/reasons and contexts in which it takes place.

Heterosexual anal intercourse (HAI), which involves insertion and thrusting of an erect male penis into a woman's anus is prevalent and is practiced by women from all ethnic and racial backgrounds, social strata and all age groups. It is no longer a taboo, unnatural or detestable practice, but highly prized and considered pleasurable and social norm by a good proportion of heterosexual women [2]. The reported prevalence rates thereof vary from one region to another and even within regions, with estimates of 25-44% amongst men and 16-36% amongst women [3-8]. Meuwly et al. (2021) reported slightly higher figures with about 45% of heterosexual women and men having had AI, with no gender differences [9]. The corresponding situation in sub-Saharan Africa (SSA) is not so clear. The few published research data from the region, majority of which are from Eastern and Southern Africa, have focused on specific population subgroups such as HIV/AIDS program participants, STD/STI clinic attendees, commercial female sex workers, urban adolescents and students. They have however highlighted the existence, to some extent the prevalence of the practice within our societies and the fact that it is possibly practiced within the general communities as well albeit with different rates as well as related aspects. Between 4 and 57% of women in these studies have ever engaged in HAI, depending on the study population and the timeframe [10-16]. It is opined that the prevalence has increased in recent years, particularly among the younger generations [17].

Some of the reasons for or determinants of HAI include substance abuse, alcohol intake, transactional sex/materialism, abusive/violent partnerships, desire for own pleasure, to please the partner and maintain relationship/marriage, type of relationship, multiple partnerships, urban adolescence/youth. Others include curiosity, experimentation, sensation seeking, peer-pressure and sexual orientation either of the partner or woman herself [8,9,18-23]. Consumption of media and pornographic materials is thought to influence the practice either negatively or positively, [24,25] but its exact role remains unclear.

HAI has been shown to be associated with a number of health consequences due to its determinants and other factors related to the practice. The major health problems associated with heterosexual anal intercourse are:

STIs

It's been opined that the currently observed upsurge in the incidence of STIs globally, some of which were considered eradicated, is due to ano-rectal infections, secondary to anal sex in both men and women and that extra genital STIs are related to individuals' sexual practices [26]. The actual incidence of ano-rectal STIs secondary to HAI is unknown, partly because some of the infections may be asymptomatic and even when symptomatic, the symptoms are non-specific [27]. There is also an underreporting of either ano-rectal STIs or anal intercourse (HAI) due to the associated stigma [20,28] and that there's no routine ano-rectal screening for STIs, or enquiry into sexual practices. The risk of STIs in AI is well known among MSM, but is rarely brought up and appears to be underestimated for a substantial proportion of the heterosexual population [29-31].

There are over 30 microorganisms (bacteria, viruses, fungi, protozoa), that can be transmitted or acquired through one form of sexual behaviour/practice or the other. Eight of them, i.e. Neisseria gonococcus, Chlamydia trachomatis, Treponema pallidum, Trichomonas vaginalis, Human papilloma virus, Human immunodeficiency virus, Herpes, and Hepatitis-B, are the most commonly reported. They are also the more common causes of ano-rectal infections [32]. Unprotected receptive anal intercourse (URAI) is particularly efficient in their transmission and/or acquisition. The receptive partner is at a higher risk of acquiring either of these infections, because of the anatomic nature and properties of the anal mucosa when compared to the vaginal epithelium. The former is thinner, more prone to abrasions and tears and therefore bleeding as well as being deficient of protective humoral immune barriers [33,34].

Most of the studies on HAI and STIs have been conducted among special population subgroups e.g. HIV/AIDS program participants, STD clinic-attendees or FSW, who have unique sexual/social-behavioural characteristics, different from that of general populations. They have shown high prevalence rates of anal intercourse amongst the study groups. Twenty two percent (22%) of attendees at public STD clinics in the USA reported having had anal intercourse [35]. A later study by Tian et al. (2008) showed that 40% of heterosexual STD clinic attendees had anal intercourse (AI) in the preceding one year with 73% of them having had unprotected anal intercourse. The same study showed that women who had unprotected anal intercourse (URAI) were 2.6x more likely to have STIs than those who had unprotected vaginal intercourse (UVI), and 4.2x as those who neither had URAI nor UVI [36]. Jennes et al. (2009) reported that 49.0% of women who had ever had AI and 32% of those who had AI with the most recent partner had STIs [37]. It is however not possible to determine what proportion is purely due to AI as up to about 98% of women who have UAI also have UVI [38].

With regards to the different types of STIs, gonorrhoeae and chlamydial infections are the two most commonly reported bacterial STIs in both men and women. Barzan et al. (2015), in their study in Columbus Ohio, found that 6.0% and 13.0% had anal gonorrhea and chlamydia infections respectively [39]. A study in Germany by Skaletz and colleagues (2007) found that of the 47.4% of women who had RAI, 2.9 %, 0.4% and 4.4% had N. gonorrhoeae in the anus, genitalia and oro-pharynx respectively, while the corresponding figures for Chlamydia trachomatis were 5.5%. 3.7% and 2.7% [40]. Fifty percent (50.0%) of women with rectal N. gonorrhoeae had had URAI [41]. Anorectal chlamydial infection is more common than anorectal gonorrhoeae, but the latter is more strongly associated with anal intercourse [42]. Ano-rectal STIs especially gonorrhoeae and chlamydial infection may be asymptomatic posing a danger to partner(s) [43] as

they may serve as a reservoir. The consequences of these STIs include chronic pelvic infection (PID) which may lead to chronic pelvic pains, dyspareunia, dysmenorrhea, ectopic pregnancy and infertility [44] and an increased risk of HIV acquisition in both receptive and insertive partners [45,46].

Interest in and research on ano-genital HPV, its natural history and modes of transmission were ignited by the upsurge in anal cancer among men who have sex with men (MSM) following the HIV/AIDS epidemic. Before then and for decades, research on HPV had largely focused on infection with regards to cancer of cervix and genital warts in women. Recent studies on MSM and men who have sex with women (MSW) have shown significant prevalence rates of anal canal HPV infection [47-49]. However its mode of transmission to the anal canal is still poorly understood, as URAI does not explain all the cases especially among individuals with no history of RAI. It's believed that HPV can spread contagiously from one area of the human body to another anatomically close e.g. from the vagina, cervix or vulva into the anus [48,49]. Others may be spread during sexual activities which may not include penile-anal penetration, such as fingering, fisting, rimming [50,51], through sex toys [52], or oral sex (OS) [53], especially due to a propensity of multiple sexual practices during heterosexual sexual intimacy. The major concern with regards to ano-rectal HPV infection has been on the geno-types, with the oncogenic ones i.e. 16 and 18 receiving most attention.

The prevalence rates of anal HPV in women who have RAI vary from one study to another due to different diagnostic methods. Anal HPV in women with HPV-related pathology, e.g. cancer of the vulva, vaginal, or cervix varied from 23-36% compared to 4.0 – 22.0% amongst those who did not have HPV-related pathology [54-57]. In a 1.3 year follow up study, Goodman et al (2008) showed that 70% of the women had anal HPV infection [58]. A study in Hawaii, showed that 51.0% of women had anal HPV infection [59], and another in Genoa, Italy found that 44% of STI clinic attendees and 26% of healthy women had anal HPV [60]. The risk factors for anal HPV infection in women include genital HPV infection [61], anal intercourse [62], lifetime number of sexual partners [58] and tobacco smoking [63].

HIV infection has been one of the main reasons for research on AI. The CDC (2014) estimated that 86.0% of HIV cases in women is attributed to heterosexual contact [64]. HAI is thought to contribute significantly to heterosexually acquired HIV [65], as it is considered a more efficient mode of HIV transmission amongst heterosexuals than vaginal intercourse (VI) [29,66,67] with the risk being up to 20x that of vaginal intercourse [68,69]. A study in Brazil by Gulmarales and colleagues (1995) showed that women who have HAI on top of vaginal intercourse (VI) or oral sex (OS) with an HIV+ve partner were statically more likely to acquire HIV than those with no HAI [70]. URAI confers to the receptive partner a much greater risk of HIV acquisition than UVI [71], because of the contexts in which it occurs and effects of anal penile penetration on the ano-rectal mucosa. On top of the trauma to the anal mucosa during penile penetration, the ulceration and inflammation caused by the various STIs and the deficit of humoral immunity increase the likelihood of HIV transmission and acquisition [45,72,73]. Co-infection with other STIs facilitate transmission and/or acquisition of HIV [74,75]. For example, HSV-2 infection is estimated to increase the risk of HIV acquisition by a factor of three in the general population [75]. It causes a high concentration of CD4+ve T–cells which are the same cells targeted by HIV in the genitalia [76]. HSV-2 has a direct and reciprocal interaction with HIV [77]. Syphilis infection is associated with reduction of CD4+ve T-cell count which leads to an increase in HIV-viral load [78] while the vaginal dysbiosis caused by vaginal and rectal microbiome changes as a result of chlamydia trachomatis infections [79], increases the risk of HIV transmission by up to x8 [80]. HPV infection causes HIV immunosuppression [81], thus worsening the situation. All these can be acquired during heterosexual anal intercourse, and can increase the risk of HIV transmission/acquisition as well.

As HAI is associated with other high-risk sexual practices, either concurrently or consecutively, it is impossible to determine the contribution of any single behaviour/practice for the HIV/AIDS burden. It has however been estimated that about 30% of new HIV infections could be due to HAI [82]. Maheu-Giroux et al. (2018) estimated that about 22.0% of new HIV infections in Cote d'Ivoire could have been due to HAI [14]. In their study on acquisition of HIV in association with HAI in 3 prospective cohorts of women, Silhol R et al. (2023) reported that 16- 27% of women got infected over a period of six months from HAI [83], O'Leary A et al. (2007) reported that almost 28% of HIV infections in women not on drugs were associated with URAI [84]. A study on FSW in SA showed that 61.3% of those who had HAI had HIV infection compared to 42.7% who did not have HAI [85].

As to the risk of HIV infection per sexual act, Leynart et al. (1998) reported the risk for RAI to be 3.4% as opposed to only 0.01% for RVI [86], and Varghese et al.(2002) reported the risk through RAI of up to 5x greater than RVI [87]. Baggaley et al. (2013) estimated a 1.4% risk of transmission or 1 HIV transmission for every 71 RAI exposures [33]. In a seroconversion study, Patel et al. (2014) gave a probability of 1.38% for the receptive and 0.11% for the insertive partners respectively [88]. Boily et al. (2009) estimated that the cumulative risk of HIV infection among heterosexual couples from HAI was up to 9x if only one quarter of the sexual encounters involved HAI [66]. In their risk equation analysis Kelly-Hanku (2013) and her colleagues in Papua New Guinea, reported that even if only 20% of females engage in HAI, and only 10% of the sex acts involved HAI, the total number of new HIV infections among females would be 40% greater than if they only had vaginal intercourse [69].

Anal Cancer

Anal cancer is a rare malignant condition reported to account for just about 2.0% of gastro-intestinal tract (GIT) malignancies [89]. Its incidence is reported to be increasing throughout the world in both genders [90] but more among women than men by a factor of 1.6x [91]. It's been suggested that the increase is due to individuals' changing sexual practice patterns. Estimates on its

global incidence varies quite a bit, ranging from 20,000 new cases each year with equal gender proportions, [92] to 48,000 new cases each year [93].

URAI has been shown to be an important risk behaviour/factor for anal cancer (AC) and is considered the main driver of the increased incidence being reported in many parts of the world [2,94]. The risk of developing AC is increased by sexual exposure to HPV through multiple partnerships and URAI either in women or men is known to be strongly associated with it [93]. HPV is also the major cause of anal cytological abnormalities, which are a precursor to AC [95]. The squamous cell type of AC which forms the majority (about 85%) [96,95], is associated with the oncogenic HPV types 16 and 18 [97,98] and is considered the primary cause of AC [99,100]. HPV DNA has been identified in about 90.0% individuals with AC [101], majority of them being due to HPV 16 [99]. Though HPV infection clears spontaneously in healthy individuals, in about 10-20% of women the infections persists, facilitated by individual's behaviour that also facilitate transmission [96,102], such URAI. The persistence of HPV infection in the ano-rectal mucosa increases the risk of its progression and development of cancers [103]. Persistent HPV infection is thought to be harboured in various parts of the body such as tonsillar crypts and gingival pockets or suprabasal cells in the anal mucosa [104]. HPV infection is common in the anal and rectal tissues of women and men who engage in URAI, and varies from 16.1% in Latin America to 24.0% in SSA, with a global rate of 11.7% [105]. That being the case, the mucosal erosion, abrasions and tears that occur during AI may facilitate its spread.

Factors which facilitate acquisition and transmission of HPV, also common social behaviours or health risks associated with RAI include multiple partnerships, partner types, tobacco smoking, injecting drugs, presence of other STIs, HIV, age at sexual debut, frequency of URAI [8,9,19,22,23]. The effects of tobacco smoking are said to be independent of other behaviours such as sexual activity. Daling et al., (2004) reported HPV infection in 50.0% of smokers vv 23.0% in controls [99]. HPV infection has been reported to be higher among smokers and drinkers than non- smokers and non-drinkers [106]. Tobacco smoking interferes with apoptosis as well as reduces body's immunological responses and therefore its capacity to clear persistent infections or abnormal cells [96]. HIV related immunosuppression also favours persistence of HPV infection [107]. HIV positive women have been reported to have substantially higher rates of AC with 30/100,000 as compared to none in HIV negative women [108-110]. HIV infection depresses body immunity thus impacting on HPV clearance leading to its persistence [111]. History of other HPV-related cancers such as the cervix, vagina or vulva is associated with an increased risk of AC [97,112]. A long term follow up of women with cancers of the cervix, vagina and vulva showed an increased incidence of anal cancer [113,114]. Anal warts, are also associated with an increased risk of AC [115].

Other Health Issues

Due to nature of the practice and associated behaviours, [116] individuals engaging in HAI are exposed to a number of other health consequences.

Urinary Tract infection

Urinary tract infection, a common complaint among young sexually active women, is mainly caused by micro-organisms from the individual's own faecal flora. The bacteria E. coli is the commonest bacteria accounting for 75 - 90% of the isolates [117] URAI due to associated risk behaviours, carries a particular risk [118,119].

Oro-Pharyngeal and Facial Infections

Because of the variety of behaviours such as oro-anal sex, which may occur concurrently with HAI, individuals may get oro-pharyngeal STIs [60] and even cancers [120]. Ocular infections may result from Neisseria gonorrhoeae or Herpes simplex [121,122]. Extra-genital Chlamydia trachomatis infection, e.g. pharyngeal are influenced by the individuals' sexual repertoire [123,124].

Anal trauma

This is common especially due to situations HAI occurs such as forced anal sex, use of toys and other gadgets, multiple and different partnerships, anal intercourse following use of alcohol, or drugs. The rectum lacks elasticity, the mucosa is thin with small vessels lying directly beneath it, thus tears easily and bleed [125]. HAI may cause tears, bruises, anal fissures, or fistulae [8,126] and anal sphincter injury leading to faecal incontinence in the long run [127]. Other individuals may experience pain and rectal bleeding [19,128]. Women with previous history of haemorrhoids may experience exacerbation thereof which may also lead to rectal bleeding and pains.

Anal warts

Individuals engaging in AI have an increased risk of anal warts [129-131]. Perianal warts are associated with an increased risk of anal HPV [131], and therefore possibly anal cancer.

Other cancers

These include cancers of the penis [120], the oropharynx [132,133]. There has been suggestion that HPV is linked to the pathogenesis of CRC [134,135], or a subset thereof [136]. Hepatitis B may cause liver cirrhosis and hepatocellular carcinoma [137]. Kaposi's sarcoma may develop as a result of Hep. V 8 infection [138,139].

Discussion

Published literature from across the globe has demonstrated that an increasing number of heterosexuals are engaging in HAI as part of their routine sexual repertoire or for other reasons, albeit with varying prevalence rates. Studies from developed countries have shown that up more than 50% of women will have HAI at one time or another during their sexual life [9]. They have also shown that the practice is more common amongst adolescents and young adults and usually starts within a few years of sexual debut [140], whose age has also been reported to be dropping. Sexuality amongst adolescents and young adults is often quite fluid, with

multiple partnerships either concurrently or consecutively, as well a wide menu of practices. The earlier one starts sexual activity the more partners she is likely to have in due course, [141], and the more one is likely to be interested in new experiences such as anal sex, which expose them to a higher risk of various health problems such as STIs and HIV/AIDS, as it increases the probability of being exposed to pathogens through multiple contacts [142].

Although a majority of the studies on HAI from SSA have been conducted among high-risk subgroups, such as FSW, HIV/AIDS program participants, STD clinic attendees, and adolescents/ young adults, they have nevertheless indicated that the practice is common despite the stigma and taboo attached to it and hitherto held perceptions. Individuals do what they do based on their individual circumstances, irrespective of what the society beliefs are or prescribes as a sexual norm. Socio normative beliefs do not appear to dissuade women from engaging in the practice and talking about it [19]. Many people are comfortable with their sexual practices and reporting them when asked [35,119,143].

Some of the reported determinants or factors associated with HAI such as preservation of virginity, difficulty vaginal intercourse due to female genital mutilation (FGM) [144]; transactional sex, materialism, own pleasure, desire to please a partner and maintain a relationship/marriage, curiosity, multiple partnerships, avoidance of pregnancy [18-20,22,128,144-146], the vagina being too loose after childbirth [146], consumption of sexually-explicit materials apply to the SSA as well [147,148]. While the influence of media, especially pornographic, on AI and other sexual practices has been questioned, it cannot completely be ruled out as playing a part in young people's decision [25,149]. A number of my clients who either admit to have had HAI or enquire about it and/or would like to try, report to have learnt about it from the social media and porn movies which have aroused their curiosity and interest. Secondly sex work is another very amorphous terminology especially in the context of prevailing economic challenges. Due to its clandestine nature, sex work (SW) it is not properly characterized [149]. There are working women as well as married women who double up in SW, as shown by Lango et al.(2017) [150]. The issue of exchange of sex for monetary or material gains is not confined to FSW or any particular social groups either. Single and married heterosexual women have relationships for monetary or material gains. One of the reasons given by women for HAI is appreciation of what the man has done for or to them. Preservation of virginity especially in communities which place a high premium on it for marriage eligibility, is at times a strong factor for some young girls especially as they pursue education and await the appropriate suitor. A colleague from one of the EA countries, informed me not too long ago, that a good number of female students at the University where he is a lecturer, from a particular community in the Region which places a high premium on virginity for marriage eligibility, will only agree to have AI and not vaginal intercourse with their boyfriends. The determinants of HAI among the patients I have seen in my private practice who admit to have done it when asked or volunteer the fact on their own are also quite varied including being forced/coerced by the partner, own pleasure, desire to please a partner, curiosity, peer-pressure or influence [151], Contraceptive use especially condoms among adolescents and young is generally low in SSA and much more so during HAI. In fact HAI has been shown to be used as a contraceptive method by some youths [152], and the low condom use could suggest that individuals are more concerned with unwanted pregnancies than STI acquisition [31]. This may also be due to the fact that some do not consider AI as real sex as well as the contexts in which it occurs such as coercion/violence, or when under the influence of alcohol or drugs [6,8,18,29-31,36].

The health consequences of HAI are numerous. In a region with some of the weakest health services and low awareness, this is troubling. The actual incidence and types as well the epidemiology of STIs in SSA is not known. Screening for STIs remains very weak and adhoc and ano-rectal STIs are a group of emerging diseases not well understood by many people including clinicians. For a region with the highest STIs and HIV/AIDS burdens globally [32,153] and a young population, this is worrying. Young people have poor capacity to rationally assess the risk of their actions or inactions. No wonder they engage in all sorts of sexual practices and other social behaviours without protection and/or concern for potential consequences thereto. As they grow up they might continue with the practice especially if they find it pleasurable and/ or have partners who either have done it or keen to do so.

An interplay of anal sex, STIs, HIV and anal cancer should be cause for concern for the region. HAI has a higher risk of ano-rectal STIs, which in turn increases the risk of acquisition and transmission of HIV. STIs and HIV increases HPV persistence thus increasing the likelihood of anal cancer. Persons at risk of STI acquisition are also at risk of co-infection with other STIs. For example, co- infection with Chlamydia trachomatis (CT) was detected in 45% of young women with Neisseria gonorrhoeae (NG) infection seen in family planning, prenatal and STI clinics [154-157]. Although HIV incidence among women and girls has reduced by 65% since 2010, women aged 15 years and above still accounted for 61% of all people living with HIV in the region in 2022, with adolescent girls and young women aged 15–24 years at inordinate risk of HIV infection. Many adolescent girls and youth lack sufficient decision-making power about their sexual relations, contraceptive use and health care [153]. The vast majority of people with HIV are in low- and middle-income countries, with 20.8 million (53% of global cases) living in Eastern and Southern Africa [158]. The burden of HSV-2 infection as with that of bacterial STIs, is highest in sub-Saharan Africa, accounting for a third of global cases [159]. In addition to the common STIs, emerging outbreaks of new infections that can be acquired through sexual contact such as monkeypox, Shigella sonnei, Neisseria meningitidis, Ebola and Zika, as well as re-emergence of neglected STIs such as lymphogranuloma venereum, are thought to be due to changing sexual practices [32].

Conclusion

Heterosexual anal intercourse is widely practised by heterosexual young adults. Unprotected anal intercourse substantially increases

the risks of HIV transmission and may account for a significant portion of HIV infections in generalized epidemics. An interplay between HAI and STIs, HIV, anal cancer is a major concern for SSA in particular due to low public awareness, weak health systems, among other considerations. The prevailing social stigma and taboo on anal sex as well as restrictive legal frameworks on sexual issues, including anal intercourse, impede any meaningful population studies as well as preventive programs.

Health care providers, and specifically those involved in sexual health care delivery, should enquire into various sexual practices, and the factors associated with them during clinical history-taking and screen for ano-rectal STIs when appropriate or necessary. They should also counsel individuals on the increased STD and HIV risk with HAI and how to mitigate that. Development and dissemination of clear messages addressing sexual health for the various population sub- groups is necessary.

There is also need for appropriate research on the magnitude of HAI in SSA and its determinants as well as health consequences to general populations. The results therefrom will not only inform HIV and STD prevention programs, but also preparation of information for public education.

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