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Intravaginal Practices among young HIV infected women in Lusaka, Zambia

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Abstract

Introduction—Intravaginal practices (IVP) are linked to bacterial vaginosis (BV), obstetric/gynecological complications, and HIV. Late adolescent and young adult (LAYA) women in Zambia have high rates of HIV. Adult and mature (AM) HIV-infected women in Zambia engage in IVP for hygiene, health and sexuality reasons; however, to our knowledge, IVP use among LAYA women has not been examined. This study compares IVP use between LAYA and AM women to identify age-specific factors to target when developing IVP reduction interventions for LAYA women.

Methods—LAYA (< 25 years; n=24) and AM (>25 years; n=124) HIV-infected women completed self-administered demographic, HIV history, sexual risk factors, and IVP measures. LAYA and AM women were then compared.

Results—Number of sexual partners, sexual activity or condom use did not differ between groups. Rates of IVP in the prior month with different products were similar, though LAYA women used soap more frequently (96% vs. 74.2%, $p=0.034$). LAYA women were more likely to use products for hygiene reasons (soap 83% vs. 43%; cloth, paper or wipes 50% vs. 17%, $p<0.05$); and AM women to use products to please sexual partners (cloth 20% vs. 56%, $p=0.074$).

Conclusions—Interventions tailored to LAYA women may be needed to reduce IVP and subsequent BV as LAYA women may have different reasons for engaging in IVP, in comparison with AM women. Reduced IVP among LAYA women may decrease the risk for HIV transmission to sexual partners and newborns, and are urgently needed in settings with high prevalence of IVP, BV and HIV infections, such as Zambia.

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Disclosure

The authors declare that they do not have any potential conflict of interest.

Keywords

Intravaginal practices; late adolescent and young adult women; HIV; Zambia

Introduction

Intravaginal practices (IVP) are the insertion of products (soap, water, household products, or commercial intravaginal douches) into the vagina for cleansing, lubrication, or to remove menstrual blood (intravaginal cleansing)¹, or the insertion of products for creating a tight vaginal state without excess fluids (intravaginal insertion)^{2–4}. IVP are associated with changes in the vaginal flora and the development of bacterial vaginosis (BV), the most common female genital infection. BV is associated with increased risk of HIV acquisition and transmission, pelvic inflammatory disease, ectopic pregnancy, and other obstetric and gynecological complications^{5–7}. Additionally, among HIV uninfected women, IVP may affect the efficacy or conflict with the application of topical vaginal microbicides or other vaginally applied products (i.e. vaginal ring) aimed to prevent sexually acquired HIV infection among women^{8, 9}.

IVP are highly prevalent in sub-Saharan Africa and have been described in several countries including Congo¹⁰, Kenya¹¹, Nigeria¹², South Africa¹³, Tanzania^{3, 7, 14}, and Zambia¹⁵. In Lusaka, Zambia, about 50% of women engage in at least one IVP to remove excess fluids from the vagina with a cloth or placing leaves inside the vagina; HIV-infected women who engage in IVP have high rates of BV^{4, 16–18}. In South Africa, about one third of women engage regularly in some form of IVP, and women who engage in IVP have higher rates of BV. In Nigeria, higher frequency and early practice of douching has been associated with pelvic and menstrual disorders^{6, 19}.

In Sub-Saharan Africa, women have reported a variety of reasons for engaging in IVP, the most prevalent being hygiene, followed by a desire to adhere to the cultural norm of achieving a lubricated vaginal state without “undesirable” excess fluids.⁴ Most women report beginning intravaginal cleansing for hygiene purposes during adolescence based on encouragement from older female relatives⁴. However, after initiating IVP for hygiene purposes (e.g., cleaning for odors, menses, and other fluids)⁴, women across sub-Saharan Africa report continuing IVP to maintain the vagina in an ideal state, without excess fluids, for their male partners, suggesting that women of different ages may have different motivations and engage on different types of IVP²⁰. In Zambia, we previously described that women reported that IVP are introduced around age 12, by *Alangizis*, traditional marriage counselors, usually in anticipation for marriage¹⁵. However, IVP motivation and attitudes, as well as methods of engaging in IVP, may differ between younger and older women in this country.

Although motivation for IVP has been studied among women in Sub-Saharan Africa^{4, 15, 20}, differences in motivation and types of IVP between late adolescent and young adult (LAYA) women versus adult and mature (AM) women not been addressed. It was hypothesized that differences would be found between LAYA and AM women: LAYA women would be motivated by hygiene and engage in intravaginal cleansing while AM women would engage

in intravaginal insertion to please sexual partners. It was theorized that study outcomes could inform strategies for IVP reduction interventions by identifying age-specific factors associated with IVP. Such programs will be of relevance for both HIV-infected and uninfected women as reduction of IVP will impact HIV acquisition and transmission and improve women's health.

Methods

Ethics statement

Approvals from the Institutional Review Board (University of Miami Miller School of Medicine) and Research Ethics Committee (University of Zambia) were obtained prior to study onset. Informed consent was obtained from all participants prior to participation in any study procedures.

Study setting, participants, and procedures

Study setting—The study was conducted at a community health center in urban Lusaka, Zambia. Participants were recruited at the clinic by study staff; recruitment was primarily by word of mouth from existing participants or by referral from clinic staff. Participants were recruited as part of a larger study evaluating an intervention to decrease IVP and bacterial vaginosis. Assessments included in this study were collected at baseline prior to any intervention.

Participants—Eligible participants were women with HIV-1 infection, aged 18 years or older, living in the Lusaka metropolitan area, engaging in vaginal intercourse with men in the month prior to enrolment. As the larger study also evaluated bacterial vaginosis, which can be influenced by hormonal changes and local genital factors, participants were not included if they were pregnant, on contraceptive medications or had an intrauterine device in place. All women were menstruating and were recruited 7–14 days after the first day of the last menses.

Procedures—All participants provided informed consent prior to enrolment. During the informed consent process, participants were provided information in detail about the study in a private office by study personnel. After providing informed consent, participants completed an assessment using Audio Computer-Assisted Self-Interview (ACASI) to enhance disclosure given the nature of the assessments which include sensitive questions about sexual activities and IVP. A trained study assessor explained to the participant how to use the software in responding to demographic questions; the participant then completed the remaining elements of the assessment herself. The study assessor was available for assistance in using the software at all times during the assessment. Procedures to develop questionnaires (focus group discussion and key informant interviews) have been previously described¹⁵. Participants were compensated with 100,000 Kwacha (~\$20 USD) for their time and transportation.

Measures

Demographics, sexual risk factors and medical history: Demographic information included age, education, employment status, income and marital status. Sexual risk factors and medical history questions included HIV status of sexual partner, history of exchanging sex for money, number of partners, condom use, and number of sexual encounters in the prior month.

Intravaginal practices: Information on IVP was obtained using a culturally tailored questionnaire¹⁵ aimed at assessing the use of specific products used for IVP and frequency of IVP. Cultural tailoring was based on the beliefs, practices, knowledge, and experiences of women living in the setting where the study was conducted in order to preserve the content validity, accuracy, and relevance.²¹ The use of products and frequency was assessed using a dichotomous response: product use (1 = yes, 0 = no). Products and reasons for use of IVP included those identified from prior research and responses were not mutually exclusive. Other aspects of use, such as the participants' age when they first began engaging in IVP and reasons for initiating, and continuing the use of, IVP were also assessed.

Statistical analysis—Univariate statistics were used to describe the study sample. Because the aims of the present study were to compare LAYA versus AM women, LAYA women were defined as being between the ages of 18 to 25, and AM women were defined as being over 25 years of age according to developmental stages.²² Then, LAYA and AM women were compared using bivariate statistics (chi square or Fisher's exact tests, and t-tests or Mann-Whitney Z tests). All analyses were conducted on Statistical Package for the Social Sciences (SPSS) v.22. A threshold of $p < 0.05$ was used to determine statistical significance.

Results

Demographics

One hundred and forty four participants were recruited. Sociodemographic characteristics and comparison of the two groups is presented in Table 1. A greater proportion of LAYA women had completed secondary education, whereas AM women reported greater income. Adult and mature women reported more sexual partners in the past 3 months. Condom use was low in both groups, and only four women reported consistent condom use.

First use of IVP by age group

Median time for IVP initiation was 15 years of age. Adult and mature women reported being taught about IVP and initiating IVP at an older age in comparison with LAYA women. Women reported personal hygiene as their primary motivation for initiating IVP. More AM women reported engaging in IVP for the first time to please their partners, prevent infections, and prevent pregnancy (see Table 2).

IVP in the month prior to enrollment

Engagement in IVP in the previous month did not differ between LAYA and AM women, with the exception of the use of soap, which was more common among LAYA women

compared to AM women (see Table 3). Overall, the most common practices among both groups of women in the previous month were water, use of fingers, soap, a cloth, traditional medicines, and herbs or flowers from outdoors. Less frequently used were the use of lemons, vinegar, beer, salt, and small cuts in the external vaginal area (not shown in table).

Reasons for using IVP

More LAYA women reported engaging in IVP to remove blood after menses, whereas more AM women reported engaging in IVP to please sexual partners (see Table 3). Similarly, more LAYA women reported using their fingers, water, and soap when engaging in IVP to get rid of discharge or fluid, as well as to remove blood after menses. The use of traditional medicines for IVP to removal of discharge or fluid was more common among LAYA women in comparison with AM women.

Discussion

This study reports IVP among LAYA HIV-infected women in Zambia, and compares IVP practices among LAYA and AM women. As hypothesized, IVP were highly prevalent, but differed from LAYA and AM women in regards to the types of IVP and in the motivations for engagement in IVP. Motivations were primarily driven by personal hygiene and partner preference.

Study results were consistent with previous studies in Sub-Saharan Africa, in which the most common reason for initiating IVP was hygiene and then motivation transitioned to maintaining stable relationships or keeping partners later in life^{4, 23}. It is believed that removing excess fluids from the vagina ensures male fidelity and prevents them from seeking younger women²⁰. These results suggest the perceived importance of conformity with societal demands to preserve relationships. Results highlight the importance of considering the role of men in women's decision to engage in IVP, and ensuring male involvement when designing interventions to decrease IVP, because IVP may not be discussed between men and women, and stimulating communication about the topic may warrant intervention.

Late adolescent and young adult women in this study began IVP at an earlier age than that of AM women, which may reflect both earlier sexual debut in this generation and an increased risk for HIV in the younger population. As previously reported, LAYA women in Sub-Saharan Africa are more likely to have older male partners who may prefer and expect the use of IVP, and LAYA may engage in IVP to have a 'clean vagina' at a younger age, and then transition to IVP to please male partners^{24, 25}. As the number of new HIV infections among LAYA women is rising in sub-Saharan Africa, interventions aimed to decrease harmful IVP among young women are urgently needed.

Interventions are needed to address the discontinuation of harmful IVP, and the potential use of alternatives to IVP. For example, LAYA women could be receptive to information on the specific damage and harm caused by using soap in the balanced environment of the vagina, when presented with alternatives that would still provide them with a sense of cleanliness or good personal hygiene. Societal and gender preferences regarding vaginal characteristics, in

contrast, make addressing IVP reduction interventions for AM women more challenging. As these women were primarily motivated to engage in IVP to please their partners, it is possible that these women may see IVP as a strategy to preserve their relationship with their male partner despite their HIV status. If engagement in IVP is primarily motivated by sexual satisfaction, then the inclusion of men in interventions may be needed to reduce IVP in this age group to promote open couples communication, mutual respect, and alternative strategies to enhance couples' sexual satisfaction. In previous research, effective interventions intended to change decisions that affect sexual behavior and satisfaction, e.g., voluntary medical male circumcision, have involved both the female and the male partner. 26–28

The major limitations to this study are as follows: 1) the cross-sectional design utilized questions regarding past/future behaviors that may not accurately reflect the current perspectives and behaviors of participants; 2) as this reports the baseline characteristics of women enrolled in a larger study, the number of participants included in the LAYA group is small, and data obtained may not be generalizable to the larger local population. IVP should be further assessed and compared in both age groups using a larger sample; 3) IVP were self-reported and responses may have been influenced by social desirability; 4) only women who are HIV-infected were sampled; their motivations to engage in IVP may differ from those of HIV uninfected women. However, our prior research with HIV uninfected women suggests that IVP do not differ by HIV status¹⁵.

Despite the association between IVP and HIV acquisition^{3, 20, 29}, and poor women's health outcomes, IVP have received little attention in HIV prevention and women's health campaigns. Influencing IVP should be considered in future research addressing HIV prevention. Among HIV-infected women, interventions to reduce IVP may have an impact on HIV transmission, and among LAYA HIV uninfected women, will impact new HIV infections. In addition, IVP interventions need to be included in studies evaluating vaginal microbicides and other vaginally applied HIV prevention tools. Reducing IVP represents an important initiative for populations with high rates of IVP and HIV.

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Table 1

Sociodemographic and sexual risk factors characteristics of participants by age group (N = 148)

	n (%), Mean (SD)			
	All participants	25 years (n=24) Range: 18 to 25	< 25 years (n=124) Range: 26 to 60	Z/ χ^2 , p
Age	34.66 (9.76)	19.08 (2.48)	37.67 (9.76)	--
Educational attainment				
None	11 (7.4%)	4 (16.7%)	7 (5.6%)	
Primary School	62 (41.9%)	4 (16.7%)	58 (46.8%)	
Secondary School	68 (45.9%)	16 (66.7%)	52 (41.9%)	
College/University	7 (4.7%)	0 (0.0%)	7 (5.6%)	11.67, 0.009¹
Employment status				
Work full time	25 (16.9%)	3 (12.5%)	12 (18.2%)	
Work part time	8 (5.4%)	1 (4.2%)	6 (9.1%)	
Not working	106 (71.6%)	20 (83.3%)	42 (63.6%)	
Volunteering	9 (6.1%)	0 (0.0%)	6 (9.1%)	2.70, 0.440 ¹
Monthly income (Zambian Kwacha)				
Less 500 (less than 65 USD)	32 (21.6%)	17 (70.8%)	15 (12.1%)	
500 to 1000 (~ 65 – 130 USD)	86 (58.1%)	6 (25.0%)	80 (64.5%)	
1000 or more (130 or more USD)	30 (20.3%)	1 (4.2%)	29 (23.4%)	41.17, < 0.001¹
Marital status				
Single	45 (30.4%)	22 (91.7%)	10 (15.2%)	
Stable relationship	93 (62.8%)	2 (8.3%)	47 (71.2%)	
Unstable relationship	10 (6.8%)	0 (0.0%)	9 (13.6%)	50.84, < 0.001¹
Partner serostatus				
Unknown	60 (40.5%)	19 (79.2%)	41 (33.1%)	
Positive	88 (59.5%)	5 (20.8%)	83 (66.9%)	17.73, < 0.001
Sex in exchange for compensation				
Never in the past month	132 (89.2%)	21 (87.5%)	111 (89.5%)	
Sometimes	15 (10.1%)	3 (12.5%)	12 (9.7%)	
All the time	1 (0.7%)	0 (0.0%)	1 (0.8%)	0.36, 0.835 ¹
Number of partners in the prior 3 months	0.77 (1.02)	0.33 (0.48)	0.85 (1.07)	-3.64, < 0.001²
Condom use in the past month				
Less than 100% of the time	144 (97.3%)	24 (100.0%)	120 (96.8%)	
100% of the time	4 (2.7%)	0 (0.0%)	4 (3.2%)	0.80, 0.372 ¹

Table 2

First use of IVP by age group (N = 90)

	N (%), Mean (SD)			
	All participants	25 years (n=24)	> 25 years (n=124)	Z/ χ^2 , p
Age taught about IVP	15.38 (3.05)	13.63 (1.66)	15.72 (3.14)	-3.89, < 0.001^I
Reasons for engaging in first IVP				
Clean				
No	14 (9.5%)	2 (8.3%)	12 (9.7%)	
Yes	134 (90.5%)	22 (91.7%)	112 (90.3%)	0.14, 0.656
Blood/menses				
No	25 (16.9%)	1 (4.2%)	24 (19.4%)	
Yes	123 (83.1%)	23 (95.8%)	100 (80.6%)	3.30, 0.069 ^I
Partner pleasure				
No	79 (53.4%)	20 (83.3%)	59 (47.6%)	
Yes	69 (46.6%)	4 (16.7%)	65 (52.4%)	10.33, 0.001
Prevent infections				
No	109 (73.6%)	23 (95.8%)	86 (69.4%)	
Yes	39 (26.4%)	1 (4.2%)	21 (30.6%)	8.51, 0.009
Prevent pregnancy				
No	117 (79.1%)	23 (95.8%)	94 (75.8%)	
Yes	31 (20.9%)	1 (4.2%)	30 (24.2%)	4.87, 0.027^I

Note.

^I Mann-Whitney U test was used.² Fisher's Exact test was used.

Table 3

Intravaginal practices in the month prior to enrollment by age group and reason for engagement in different types of IVP (N = 148)

	N (%), Mean (SD)			
	All	25 years (n=24)	> 25 years (n=124)	χ^2 , pvalue
IVP				
Fingers				
No	14 (9.5%)	1 (4.2%)	13 (10.5%)	
Yes	134 (90.5%)	23 (95.8%)	111 (89.5%)	0.94, 0.333 ^I
Water				
No	10 (6.8%)	0 (0.0%)	10 (8.1%)	
Yes	138 (93.2%)	24 (100.0%)	114 (91.9%)	2.08, 0.150 ^I
Soap				
No	39 (26.4%)	1 (4.2%)	38 (30.6%)	
Yes	109 (73.6%)	23 (95.8%)	86 (69.4%)	7.26, 0.007 ^I
Cloth, sponge or a rag				
No	73 (49.3%)	14 (58.3%)	59 (47.6%)	
Yes	75 (50.7%)	10 (41.7%)	65 (52.4%)	0.93, 0.335
Herbs or flowers from outdoors				
No	122 (82.4%)	21 (87.5%)	101 (81.5%)	
Yes	26 (17.6%)	3 (12.5%)	23 (18.5%)	0.51, 0.476 ^I
Traditional medicines				
No	108 (73.0%)	20 (83.3%)	88 (71.0%)	
Yes	40 (27.0%)	4 (16.7%)	36 (29.0%)	1.56, 0.212
IVP/Reason for use				
Any IVP				
Discharge/fluid	65 (43.9%)	10 (41.7%)	55 (44.4%)	0.06, 0.808
Blood/menses	52 (35.1%)	21 (87.5%)	31 (25.0%)	34.47, < 0.001
Partner pleasure	53 (35.8%)	3 (12.5%)	50 (40.3%)	6.77, 0.009
Fingers (n = 134)				
Remove discharge/fluid	67 (50.0%)	19 (82.6%)	48 (43.2%)	11.81, 0.001
Blood/menses	29 (21.6%)	14 (60.9%)	15 (13.5%)	25.20, < 0.001
Partner pleasure	19 (14.2%)	23 (4.3%)	18 (16.2%)	2.21, 0.138 ^I
Water (n = 138)				
Remove discharge/fluid	84 (39.1%)	21 (87.5%)	33 (71.1%)	28.54, < 0.001
Blood/menses	41 (29.7%)	11 (45.8%)	30 (26.3%)	3.62, 0.057

	N (%), Mean (SD)			χ^2 , pvalue
	All	25 years (n=24)	> 25 years (n=124)	
Partner pleasure	23 (16.7%)	1 (4.2%)	22 (19.3%)	3.27, 0.071
Soap (n = 109)				
Remove discharge/fluid	53 (48.6%)	19 (82.6%)	34 (39.5%)	13.48, < 0.001
Blood/menses	42 (38.5%)	15 (65.2%)	27 (31.4%)	8.77, 0.003
Partner pleasure	17 (15.6%)	1 (4.3%)	16 (18.6%)	2.80, 0.094 ^I
Cloth, sponge or a rag (n = 75)				
Remove discharge/fluid	27 (36.0%)	6 (60.0%)	21 (32.3%)	2.89, 0.089 ^I
Blood/menses	21 (28.0%)	5 (50.0%)	16 (24.6%)	2.77, 0.096 ^I
Partner pleasure	33 (44.0%)	2 (20.0%)	31 (47.7%)	2.70, 0.101 ^I
Outdoor herbs or flowers (n = 26)				
Remove discharge/fluid	3 (11.5%)	1 (33.3%)	2 (8.7%)	1.58, 0.209 ^I
Blood/menses	4 (15.4%)	0 (0.0%)	4 (17.4%)	0.62, 0.432 ^I
Partner pleasure	13 (50.0%)	1 (33.3%)	12 (52.2%)	0.38, 0.539 ^I
Traditional medicines (n = 21)				
Remove discharge/fluid	6 (15.0%)	3 (75.0%)	3 (8.3%)	12.55, <0.001^I
Blood/menses	3 (14.3%)	2 (50.0%)	6 (16.7%)	2.50, 0.114 ^I
Partner pleasure	24 (60.0%)	1 (25.0%)	23 (63.9%)	2.27, 0.132 ^I

Note.

^I Fisher's Exact test was used.