substance use among sex workers in KwaZulu-Natal, South Africa

N.S. Morar[a*], G. Ramjee[a], E. Gouws[a] and D. Wilkinson[b]

A local cultural practice that may enhance sexually transmitted infections (STIs) and HIV transmission is vaginal douching and vaginal substance use. These activities also have potential implications for the acceptability of HIV-prevention strategies such as the use of condoms and vaginal microbicides. We aimed to establish the prevalence, determinants and reasons for these practices among sex workers in KwaZulu-Natal, South Africa. A structured questionnaire was administered to 150 sex workers, who were being screened for a vaginal microbicide-effectiveness trial in the province. The questionnaire sought information on the frequency, reasons for and nature of vaginal douching and vaginal substance use and was drawn up on the basis of findings from a pilot study. Seventy per cent (95% CI: 62.0–77.2%) of the sex workers were HIV positive and on average they had five sexual partners per day. Vaginal douching and vaginal substance use were common among the sex workers. Vaginal douching was reported by 97% (*n* = 146) of the respondents and 94% reported vaginal substance use for 'dry sex'. A combination of traditional remedies, patent medicines, antiseptics and household detergents was used to clean and make the vagina dry and tight. The primary reasons reported for dry sex were to increase men's sexual pleasure (53%) and to attract clients and generate more money (20%). Sixty-five per

sexually transmitted infections. Douching and dry-sex practices may increase women's risk of HIV and STI infection, and may have implications for the acceptability and development of HIV-prevention barrier methods such as microbicides and the use of condoms. These barrier methods may enhance or reduce sexual pleasure for men and women who engage in the practice of vaginal douching and vaginal substance use for 'dry sex'.

[a]HIV Prevention Research Unit, Medical Research Council, P.O. Box 70380, Overport, Durban 4067, South Africa.

[b]Centre for Rural and Remote Health, University of South Australia, Adelaide, SA 5000, Australia.

*Author for correspondence. E-mail: neetha.morar@mrc.ac.za

Introduction

A common practice among women in some sub-Saharan countries is vaginal douching and vaginal substance use.[1] Vaginal douching and the insertion of various materials, such as herbs, powders, chemicals and paper to make the vagina dry, have been reported from different parts of central and southern Africa.[2] Douching seems to be practised to clean and to dry the vagina, in preparation for 'dry sex', which refers to the drying and tightening of the vagina for sexual intercourse.[3] Inserting substances in the vagina is also aimed at providing dry sex, a practice that many men and women seem to prefer.[4]

While some studies indicate that these practices may increase the risk of HIV and sexually transmitted infections (STIs),[5–8] none has reported any causal relationships between these practices and HIV or STI infection.[1] A study conducted in Zambia among women attending a clinic for treatment of sexually transmitted diseases, found no association between drying practices and HIV infection.[8] Vaginal insertion of certain traditional substances, such as leaves and powders, was reported to have an inflammatory effect on the vaginal and cervical mucosa of women who underwent coloscopic examination.[5] Similarly, users of intravaginal substances were more likely than non-users to show disturbances of the vaginal flora (decreased number of vaginal lactobacilli) with typical dysplasia reported on Pap smear analysis.[9]

South Africa is experiencing one of the most rapidly developing HIV epidemics and presently has the largest number (approximately 5 million) of people living with HIV/AIDS in the world.[10] Data from the annual, national antenatal HIV seroprevalence surveys indicate that HIV prevalence in South Africa

Table 1. Relative risk of co-infection with STDs and HIV.

Number of STDs	Study sample (*n*)	HIV positive (%)	RR*	95% CI
0	42	64.3	1.0	
1	47	72.3	1.12	(0.85;1.5)
2	24	62.5	0.97	(0.66;1.43)
3+	08	62.5	0.97	(0.54;1.74)

*RR, relative risk

has increased from 0.76% in 1990 to 24.8% in 2001.[11] At the end of 2000, the worst affected provinces were KwaZulu-Natal and Mpumalanga, where the prevalence of HIV infection among women attending antenatal clinics was 36% and 30%, respectively.[11]

While the high prevalence may be attributed to several factors, sexual practices among women, such as vaginal douching and vaginal substance use for dry sex, have been reported as risk factors for sexually transmitted infections in some parts of South Africa.[12–14] However, details of the frequency and reasons for these practices are not well documented. The objective of the study reported here was to assess the prevalence of and reasons for douching and dry sex practices among high-risk groups such as female sex workers in KwaZulu-Natal.

Method

The study group was drawn from a cohort of female sex workers who were screened for participation in a randomized controlled efficacy trial of a vaginal microbicide, COL 1492 (Advantage 24™ containing 52.5 mg N9) in preventing male-to-female transmission of HIV. These women offer sexual services for monetary gain at truck stops located in the KwaZulu-Natal Midlands, primarily to truck drivers who travel along the main transportation route from the major port city of Durban to the commercial city of Johannesburg.

By May 1998, a total of 416 women had been screened for Phase II/III effectiveness of the microbicide trial that included testing for HIV (Abbott HIVAB HIV-1/HIV-2 (rDNA) EIA, Abbott Laboratories, Illinois, confirmed by a second ELISA test) and STIs using routine diagnostic tests. A sample of 150 women was randomly selected from this group for the current study. The nature of the study was explained verbally in the local language (Zulu) of the participants, who then all gave their written consent. A semi-structured questionnaire was drawn up based on the findings of a pilot study[15] and all questions were translated into Zulu. Each interview took approximately 45 minutes. Data were collected on the types of intravaginal substances used, method and frequency of douching and dry sex practices, as well as reasons for and beliefs underlying these traditional practices. Fieldwork took place between June 1998 and February 1999.

Data from the questionnaires were coded and analysed using Epi Info 6.03 [Centres for Disease Control and Prevention (CDC), Atlanta, GA] and SAS version 6.12 (SAS Institute Inc., Cary, NC) software packages. Descriptive statistics were calculated and the significance of associations of intravaginal substance use with HIV infection was assessed using the chi-square and Fisher's exact tests. HIV prevalences were reported with 95% binomial confidence intervals. Participant confidentiality was maintained by coding all data.

Results

The mean age of the 150 women was 26 years (range: 15–42 years) and average schooling was seven years. All women were unmarried and 71% of the women had between one and seven children. Only 19% reported not having a current steady relationship, while the remaining 81% reported having a steady partner.

The average age of first sexual intercourse was reported to be 16 years (range: 11–21 years), and of first sexual intercourse for money to be 20 years (range: 11–39 years). The women claimed an average of five sexual clients (range: 2–15) per day and they reported being sex workers for an average of 44 months (range: 3–240 months). Condom use among the sex workers was low: 69% (104) of the women reported using condoms in fewer than 25% of sexual acts; 21% (31) reported condom use often (in 60–75% of sexual acts) and only 10% (15) stated that they used condoms almost always (>75% of sexual acts). None of the sex workers reported 100% condom use with clients or steady partners. Regular condom use (60–75% of sexual acts) with their steady partners was also low (10%).

Seventy per cent (95% CI: 62.0–77.2%) of the women tested were HIV-1 antibody positive (Abbott), confirmed by a second ELISA test (Vironostika HIV-1 Micro ELISA System, BioMerieux, New York). HIV-1 prevalence by age group (Fig. 1) is described by a distribution curve, although much higher, that is, similar in shape to that described for other female populations in South Africa:[16] prevalence increased from 54% (95% CI: 33.4–73.5%) among 15–19-year-old women, reached a peak at 82% (95% CI: 69.1–91.6%) among women aged 20–24 years, and declined more slowly with age thereafter.

Cervical infections due to *Neisseria gonorrhoea* (culture) and *Chlamydia trachomatis* (culture and ELISA-Syva) were detected in 11% and 12% of the women, respectively. *Trichomonas vaginalis* (wet mount) and syphilis (RPR confirmed by VDRL) were reported in 39% and 37% of the women, respectively. Table 1 shows that there was no association between HIV infection and having any number of sexually transmitted infections ($P = 0.79$, chi-square test).

Most (97%) of the sex workers reported a history of douching practices at some time before or after sexual intercourse. In total, 142 (94%) of the women reported a preference for dry sex and a tight vagina. Bivariate analysis (Table 2) showed no statistically significant associations between vaginal douching or vaginal substance use and HIV prevalence. Because of the almost universal use of vaginal substances in this population, no further risk factor analyses were performed to investigate the association between substance use and HIV prevalence.

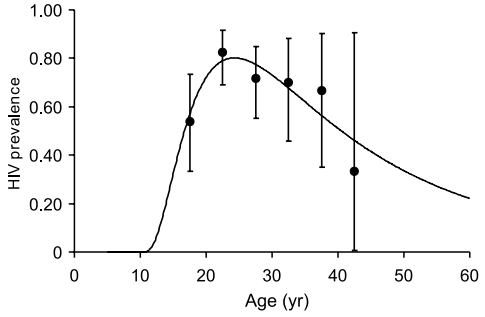

Fig. 1. Prevalence of HIV infection by age of the sex workers. Data were fitted to a log-normal distribution. Error bars are 95 % confidence limits.

Women used various combinations of traditional remedies, antiseptics, household detergents and patent medicines for douching and for making the vagina dry and tight as highlighted in Table 3. Antiseptics were the most common and frequently used products for douching. Dettol (chloroxylenol, 4 mg/100 ml) and Savlon (chlorhexidine gloconate, 0.3 g/100 ml) was used 2–4 times a day by 67% and 70% of the women, respectively. At least 54% (81) of women reported using a traditional remedy, *itshelemgodi* (a powder that originates from a rock found near coal mines) with Savlon or Dettol for douching, tightness or dryness. Products categorized as patent medicines, antiseptics and household detergents were used from two to four times a day.

Table 2. Relationship between HIV status and practice of douching and using substances for dry sex and tight vagina.

Sexual practice	Practice = Yes		Practice = No		*P*-value
	n	%HIV+	*n*	%HIV+	
Douching	128	68	18	89	0.096
Dry sex	139	73	9	44	0.122
Tight vagina	141	72	7	57	0.415

Table 3. Substances used for douching, dryness and tightness of the vagina.

Substances	Dryness (*n* = 142) (%)	Tightness (*n* = 141) (%)	Douching (*n* = 146) (%)
Traditional remedies	25	30	–
Antiseptics	10	9	65
Cloth/tissue/newspaper/sanitary pads	15	7	–
Patent medicines	6	13	–
Household detergents	4	3	–
Water and soap	3	3	–
Traditional remedies/patent medicines	17	16	–
Traditional remedies/antiseptics	9	10	35
Combination of above	11	9	–

Assessment of reasons for douching indicated that most (65%) women used antiseptics in the vagina for hygiene purposes. Other reasons included prevention and treatment of sexually transmitted infections (8%) and making the vagina 'dry, hot and tight' (11%) to attract more clients and money. Reasons reported for drying and tightening of the vagina were similar and included increasing sexual pleasure for men (55%), attracting clients and money (23%), and avoiding men feeling that the woman has had sex before him (17%). Other reasons for drying the vagina were that men linked vaginal wetness to women having STIs (7%) and to their use of injectable contraceptives (3%).

Fifty-six per cent of women reported douching before sex only, 25% after sex only and 19% before and after sexual intercourse. Women reported learning the practice of douching and dry sex from friends at the truck stop (78%), from friends at home (15%), relatives (6%) or from a health worker (1%). It was common practice for women (59%) to apply the substances directly to their fingers and inserting it into the vagina. Traditional remedies in a powder form were inserted directly into the vagina with the fingers, or tied in a cloth and inserted for a time. Antiseptics and household detergents were either diluted with water or inserted directly with the fingers. The substances, which were in a liquid or paste form, were thought to dissolve inside the vagina. Products inserted with a cloth and newspaper was left inside the vagina for up to 4 hours (range 5–240 min). Ninety-three per cent of the women described inserting substances near the cervix. None of the participants left substances inside the vagina during sexual intercourse.

Discussion

This study shows that vaginal douching and vaginal substance use is a common practice among sex workers in KwaZulu-Natal. More than 90% of the women used traditional remedies, household detergents, antiseptics and patent medicines, expecting to produce a tightening and drying effect on the vagina. These practices have not been widely studied in South Africa, but investigations in parts of Africa and elsewhere have reported dry sex practices.[1]

The traditional remedies that were used by the sex worker population included alum brown (*ishelemgodi*), *imbiza, ishelenhlanhla, painty, Norox, blue stone* and *umvubu,* with textures ranging from rocky (mineral) material to powders and gel. Although women were not aware of the ingredients of the substances, they described some of the remedies such as *painty, Norox* and *umvubu* as jelly-like materials consisting of animal fat and herbs. Other agents, such as alum brown and *blue stone*, originated from rocks found near coal mines. The action of these products, as perceived by the sex workers, varied from making the vagina dry and tight to cleaning the body and making the women attractive to their male sexual partners. Although these substances are widely used, often on the advice of traditional healers, their effect on the vaginal mucosa is unknown. However, it has been reported that these substances may have a desiccant effect, thus making the vagina dry and tight, which may lead to the disruption of the integrity of the vaginal epithelium, which may alter the normal mucosal flora.[9]

Although some women (33%) did not enjoy 'dry sex' because they found it to be painful, the need to attract clients took precedence. Furthermore, they could accommodate more clients in a day, since their clients enjoyed sex more and tended to ejaculate within a shorter period of time. Women often reported abdominal and vaginal pain, burning and itching in the vagina, a rash, increased vaginal discharge and vaginal bleeding after inserting substances in the vagina.

An attempt to correlate intravaginal substance use with HIV infections was undertaken among 6603 pregnant women in Malawi.[6] The study reported that almost a quarter of the women were HIV positive and there was a weak but statistically significant association (OR, 1:29; 95% CI, 1.05–1.57) with vaginal agents used for self-treatment but not with those used for tightening.[6]

In our study, no association between HIV infection and intravaginal substance use was found because this sample, with a high HIV prevalence, had an almost universal use of vaginal substances.

In addition to using intravaginal substances for dry sex and vaginal tightening, douching was practised by 97% of the sex workers. The practice was mainly for vaginal hygiene and prevention of STIs. The need to self-treat STIs by douching has been reported previously: women might attempt to treat their symptoms without attending clinics.[13] However, a study in the United States found that the association between vaginal douching and pelvic inflammatory disease (PID) was related to frequency of douching where women with PID reported more

frequent douching than women in the control group.[17,18] The risk of acquiring PID was 30% higher among women who douched more than three times a month. Since the majority of the sex workers in our study douched 2–4 times a day, they could be more likely to acquire PID. Furthermore, the harmful effects of the detergents and antiseptics on reducing the vaginal flora and enhancing the risk of *Chlamydia* infection cannot be overemphasized. Women who used douching products containing antiseptics demonstrated an increased prevalence of vaginal yeast.[20,21]

The practice of using intravaginal substances for 'dry sex' and douching to enhance sexual pleasure may be difficult to change because women earn extra money from clients when these substances are used. A small group of sex workers (3%) reported the use of substances to prevent vaginal wetness, which they perceived was caused by the use of injectable contraceptives. A similar perception was reported by rural women (18.4%) in KwaZulu-Natal who reported that men regard women who use the injectable contraceptive as 'wet', 'cold' and/or 'tasteless'.[22] This traditional practice, however, can be replaced with intravaginal use of safe and effective products, such as vaginal microbicides and male condoms, which will provide women with the sensation of dryness and warmth. An acceptability study of a microbicide, COL 1492, conducted among sex workers showed that women liked the product as it made the vagina 'dry and tight'.[23] Although it was found to be unsafe,[24] other microbicide products are currently being investigated for their HIV/STD prevention properties. A safe, effective microbicide that does not compromise traditional sexual preferences and practices may be desirable for populations such as sex workers, not only for preventing infection but also for enhancing sexual pleasure.

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