

SEROPREVALENCE OF HIV AND OTHER SEXUALLY TRANSMITTED INFECTIONS (STI's) AMONG COMMERCIAL SEX WORKERS USING LIME/LEMON JUICE FOR VAGINAL DOUCHING.

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ABSTRACT

Aim: The objective is to establish the relationship between STD'S/ HIV infection and vaginal douching with lime/lemon juice among commercial sex workers.

Method: 194 CSW's consented for this population base study In-depth interviews were conducted Pelvic examination was carried out, vaginal swabs were taken and samples of venous blood were collected for HIV serology test The data obtained from this study was analyse using simple percentage and chi square

Result: Vaginal douching with lime juice was practiced by 61.9% of the CSWs. The Sero-prevalence of HIV was higher among lime users 58(48.3%) than non users 29(39.2%). About half of those who were HIV positive use a higher concentration of lime juice. Significant numbers of users are harbouring *Trichomonas vaginalis* 65%(P0.004) and Bacterial Vaginosis 58.3% (P0.0000) than non users

Conclusion: Vaginal douching with lime/lemon juice is practiced by CSWs, but associated with higher prevalence of HIV/ STIs. To minimised the risks of HIV infection its used should be modified.

Keyword: HIV, vaginal douching, lime/lemon juice, commercial sex workers

INTRODUCTION

Vaginal douching is a global traditional practice dating hundreds of years with the perception that it enhances sexual pleasure.¹ It is a particularly common practice among both married and female sex workers in many parts of Sub-Saharan Africa ². Vaginal douching with lime and other agents have been perceived among women to enhance sexual excitements through sensations of vaginal dryness, tightness or warmth. Vaginal cleansing before or after or between acts of intercourse, treat gynaecological diseases, prevent sexually transmitted infections, restore and tighten the vagina

after delivery¹⁻⁴. Its contraceptive effectiveness has also been reported⁵

Mounting evidence also suggest some adverse reproductive health effects of vaginal douching agents (includes lime/lemon juice). This includes increase risks of bacterial vaginosis, HIV acquisition, pelvic inflammatory disease (PID) and cervical cancer.⁶⁻⁸

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An anecdotal information from health workers in our environment reports that significant number of female commercial sex workers (CSWs) in the area douche with lime juice before or after sexual intercourse.⁹ As such this study was undertaken to determine the extent, reasons and the reproductive health effects of lime/lemon juice use for vaginal douching among the commercial sex workers in selected areas in the three senatorial regions of Borno state.

METHODOLOGY

STUDY AREA

Borno State is one of the 36 states of the federation. It is located in the Northeastern corner of Nigeria. The state occupies a greater part of the Chad Basin Area, and it shares borders with three African countries namely, Niger Republic to the north, Republic of Chad to the North east and Cameroon Republic to the East. Within the Nigerian nation, it shares borders with Yobe, Adamawa and Gombe states to the northwest and south respectively. There are 27 Local government Areas in the state and Maiduguri is the State Capital.

The state covers an area of 69,436 sq kilometers and the Population of the state (based on 2006 population census) was 4,151,193 - (64.37% rural populace - 35.63% urban populace). Islam is the major religion followed by Christianity. The principal tribes of Borno are Kanuri, then Babur, Bura, Marghi, Shuwa Arabs among other. The state is rich with various cultures, norms and values, and the popular pre-occupation of Borno citizenry are farming, fishing trading etc.

The HIV/AIDS prevalence has been reducing in Borno state from 6.7% in 1993/94 % to 4.5% in 2001 then drop to 3.2% and 2.0% in 2003 and 2008 respectively and currently (2014) said to be 2.6%¹⁰. However, The National Demographic and Health

Survey (NDHS) 2013¹¹ painted a bad picture of HIV indicators in the state. The NDHS indicated that 74.5% of men knew where to get HIV testing but only 8.8% were ever tested. Among women, only 45.3% knew where to get HIV testing and only 10% were ever tested. More than forty three percent (43.5%) and 57.5% of women and men respectively, know that using condom and limiting sexual intercourse to one uninfected partner can reduce the risk of getting HIV. Contraceptive prevalence in Borno state is 1.8% and prevalence of male condom use among currently married is 0.1% (NDHS).

SUBJECTS AND METHODS

This study was conducted in three local government (LG) areas of Maiduguri Metropolitan Council (MMC), Kukawa (Baga town) and Askira Uba representing the three senatorial zones of Borno State, Nigeria. MMC is the state capital, while Baga and Askira Uba are two border towns with significant Commercial activities.

One hundred and ninety four CSWs were randomly selected and interviewed both in formal (brothel) and informal settlements in the 3 LG areas 64 each in kukawa and askira uba and 66 in MMC. Exclusion criteria were the use of barrier and hormonal contraceptives and the use of other douching methods, such as medicated creams, lotions or soaps. A structured interview guideline was pre-tested by one of the authors and subsequently used for the interview. All interviews were audiotape-recorded and extensive notes were taken during the interviews, and these were employed when the tapes were reviewed and transcribed. Information pertaining to their demographic data, sexual history including duration of sexual exposure, number of sexual partners, frequency of sexual exposure over a period of time and history of STD were also obtained. Further information on the douching practice with lime was

equally obtained, which includes duration of douching practice with lime, frequency of douching relative to sexual exposure, when do they douch in relation to sexual activity, concentration of lime juice used. This information was obtained on one to one basis and confidential.

Pelvic examination and specimens of the endocervix and high vaginal swabs were collected for microbiological evaluation of *Neisseria gonorrhoea*, *Candida albicans*, *Trichomonas vaginalis* and Bacterial vaginosis.. After voluntary confidential counselling, specimen of venous blood was obtained for serologic test for HIV.

Data were analysed using simple percentages and test of significance was determined using Epi Info version 7

RESULTS

As shown on table I out of the one hundred and ninety four interviewed 120(62%) practice vaginal douching with lemon/lime juice and the remaining 74(38%) do not douche. One hundred and three (85%) of users have duration of sexual practice as CSWs for more than 3 years and only about 39(50%) of non users have been CSWs for period greater than 3 years. More of non users 54(73%) have fewer (< 5) sexual partners than lime users 68 (56.7%), however significantly higher (11.6%) lime users have more sexual partners (> 5) than non users (2.7%)

Table II illustrates the various perceived reasons for the douching practice and douching frequency pattern and concentration of lime used for douching. About 66.7% of users douched for sexual pleasure and hygiene to reduce vaginal odour with or without sexual exposure while 50% and 42% of the users douched for contraceptive reason and infection prevention respectively

Majority 70 (58.3%) of the users douched with lime juice with every act of sexual intercourse compared

to those who douched daily (with or without act of sexual intercourse) 38 (31.7%). And greater number 54 (45%) of users mix 1 lemon to 4 part of water as a mixture of the juice compared to those who mix in a ratio of 1:1 39(32.5%).

Table III shows the results of microbiological analysis and serological test for HIV infection. Multiple organisms are isolated in both the users and the non users, but lime users are harbouring more of *Neisseria gonorrhoea* (56.7%), *Trichomonas vaginalis* (65%) and Bacterial Vaginosis (58.3%) than non users with 40.5%, 43% and 27% of the organisms respectively. The serological test for HIV is higher in users 58(48.3%) compared to non users 29(39.2%).

DISCUSSION

The objective of this study was to establish the relationship between STD'S/ HIV infection and vaginal douching with lime/lemon juice among commercial sex workers. This study revealed that vaginal douching was common among CSWs with prevalence of 62% which correlates with earlier report of 72% among female sex workers in Nairobi, Kenya¹, a typical African setting like ours. However this finding was much higher than reported in USA (37%) among female in reproductive age group¹⁰. our finding also revealed that more of lime users have been practicing sex work for longer period (>3years) and equally have more sexual partners compared to non users. This may partly explain the influence of duration of sexual practice and number of sexual partners on the douching practice, this correlates with findings in central Africa⁷.

Majority (66.7%) of lime users in this study douched for sexual pleasure and hygiene as was the common reason for douching worldwide as reported.^{3, 4, 2-15} While about 50% douched for contraceptive as well, this also collaborates with report in USA.^{3,5} Only less than half assume that

they douched to prevent infection as was the assumption among patients enrolled for GIFT practicing vaginal douching.³

More of the lime users were significantly observed to harbour *Trichomonas vaginalis* 65% p (0.004) and Bacteria vaginosis 58.3% (0.000) than non users with 43% and 27% respectively. , This is similar to earlier studies correlating increased risk of these infections and vaginal douching.^{1-4,16,17} While the *Neisseria gonorrhoea* & HIV Sero-prevalence is equally more among lime users 56.7% (P 0.041) and 25% (P 0.273) respectively than non users 40% & 20%, this seems compounded by the higher number of sexual partners and duration of sexual exposure among lime users, hence this relationship might be rather multifactorial rather than attributing to lime use alone; which may play an indirect role however this relationship was not found to be statistically significant. Similar relationships among the above factors have been reported earlier in both developed and developing countries.^{1,18}

The subjective measure of concentrations of the lime juice, the sample size and choice of the study population was not based on any standard existing format at that level but rather arbitrary assumptions.,Hhope future studies might improve on this observations to have a more objective outcome.

TABLE I : SEXUAL HISTORY OF RESPONDENTS (N=194)

Duration since commencement of commercial sex work				
Duration (years)	Users (n = 120) (%)		Non users (n = 74) (%)	
<3	17	(14.2)	35	(47.3)
3-6	63	(52.5)	19	(25.7)
7-10	40	(33.3)	20	(27.0)
	120	(100)	74	(100)
Number of sexual partners per day				
Number	Users (n =120)	(%)	Non users (n= 74)	(%)
1-3	68	(56.7)	54	(73)
4-6	38	(31.7)	18	(24.3)
>6	14	(11.6)	2	(2.7)
	120	(100)	74	(100)
Frequency of sexual exposure per day				
Number per day	Users (n= 120)	(%)	Non Users (n= 74)	(%)
1	50	(41.7)	32	(43.2)
2-5	42	(35)	28	(37.8)
6-10	28	(23.3)	14	(19)
	120	(100)	74	(100)

Table II: Reasons For And Frequency Of Douching And Concentration Of Lime Used

Reason	Number of users (n=120)	(%)
*Hygiene	80	(66.7)
*Sexual pleasure	80	(66.7)
*Infection prevention	50	(42%)
*Contraception	60	(50%)
* Multiple responses		
Frequency of douching practice		
Frequency	Number (n= 120)	(%)
Daily	38	(31.7)
With every act of coitus	70	(58.3)
B/4 & after sexual exposure	12	(10)
	120	(100)
Concentration of lime mixture		
Concentration of water-lemon	Number (n=120)	(%)
1:1	39	(32.5)
1: ½	27	(22.5)
1: ¼	54	(45)
	120	(100)

TABLE III: Sexually transmitted infections and lime use

	lime users (n=120) (%)	non users (n=74) (%)	P value
*Gonorrhoea	68	30	0.041
	(56.7)	(40.5)	
*Trichomonas vaginalis	78	32	0.004
	(65%)	(43)	
*Bacteria vaginosis	70	20	0.000
	(58.3)	(27)	
*Candida albicans	30	15	0.55
HIV	58	29	0.273
	(48.3)	(39.2)	

* Multiple organisms isolated

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