



Prevalence of HIV and other sexually transmitted infections in relation to lemon/lime juice douching among female sex workers in Jos, Nigeria



Godwin Imade¹, Atiene Sagay¹, Daniel Egah², Viola Onwuliri³, Matthew Grigg⁵, Christopher Egbodo¹, Tom Thacher⁴, Malcolm Potts⁶, Roger Short⁵

¹Departments of Obstetrics and Gynaecology, ²Medical Microbiology, and ³Biochemistry, Faculty of Medical Sciences, University of Jos, Jos, Plateau State, Nigeria, ⁴Dept of Family Medicine, Jos University Teaching Hospital, Jos, Nigeria, ⁵Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Australia, ⁶School of Public Health, University of California, Berkeley, USA.

Background: The rates of STIs including HIV are high among female sex workers (FSWs) in Nigeria and the use of various local vaginal cleansing agents to prevent infection is a common practice. This study was aimed at determining whether lemon/lime juice douching promotes or prevents the spread of STIs/HIV among FSW in Jos, Nigeria.

Methods: Consenting FSWs who were Users of lemon/lime (UL) or Non-Users (NUL) were recruited for the study between May and September 2006. A Structured questionnaire was administered by trained counsellors. Pre-HIV test counselling was done. Participant's blood samples were tested for HIV, Syphilis, Hepatitis B and C. Genital examination was done. High vaginal and endocervical samples were collected. The samples obtained were processed for STIs using standard laboratory procedures. FSWs found with treatable STIs received free drugs. HIV results were disclosed after post-test counselling and positive FSWs were referred to a HIV/AIDS facility for care, support and antiretroviral therapy.

Relationship of STIs/HIV with lemon/lime juice usage

Infection	Lemon/Lime Users(%) n=86	Non-Lemon/Lime Users (%) n=312	Odd Ratio (95% Conf. Interval)	P Value
HIV Positive	42/86 (48.8)	151/312 (48.4)	1.02 (0.6-1.69)	0.94
Hepatitis B sAg Positive	11/86 (12.8)	43/306 (14.1)	0.90 (0.41-1.91)	0.76
Hepatitis C Ab Positive	6/85 (7.0)	16/306 (5.2)	1.34 (0.46-3.90)	0.51
Syphilis RPR Positive	14/86 (16.3)	58/311 (18.6)	0.85 (0.51-1.67)	0.61
T. pallidum Ab Positive	2 (2.3)	12 (3.9)	0.64 (0.09-3.71)	0.45
Bacterial vaginosis	48/86 (55.8)	138/312 (44.2)	1.59 (0.96-2.65)	0.06
N. gonorrhoea	2/83 (2.4)	11/295 (3.7)	0.64 (0.10-3.13)	0.43
Candida albican	10/83 (12.0)	49/295 (16.6)	0.69 (0.31-1.49)	0.31
T. vaginalis	5/83 (6.0)	29/295 (9.8)	0.59 (0.19-1.67)	0.28

No significant associations between lemon/lime use and HIV/STI prevalence rates

Results: A total of 398 FSWs (86 ULs and 312 NULs) participated in the study. Their mean age was 27.6±7.0 (range 16-63) years. Lemon/lime juice use was positively associated with the duration of sex work (p=0.004). HIV prevalences for UL and NUL were 48.8% and 48.2% respectively (OR 1.0; 95% CI 0.6-1.2, p=0.9427). The rates of B. vaginosis (UL 55.8%, NUL 44%, OR 1.59, 95% CI 0.96-2.65, p=0.06) which appeared to show association with lemon usage did not reach a statistically significant level. There were no associations between use of citrus douching and other STIs but HIV prevalence rates increased significantly with the age of the subjects (p=0.04).

Conclusion: There were no significant differences in infection rates between ULs and NULs. Lemon/lime usage did not appear to have any impact on HIV/STI acquisition by FSWs. The study was unable to control for frequency of condom use, timing of douching, volume of citrus juice used or degree of dilution. A standardised prospective study among existing lemon/lime users is required to justify the promotion or rejection of the agent.

Acknowledgements

We are grateful to the women who participated in this study. The strong support and encouragement received from Brian Hail are much appreciated. This study was supported by public donations to the Mary Magdalene project, www.aids.net.au.

Presenters E-mail Address: ereimade@yahoo.co.uk