

Title: Association between intravaginal cleansing and reduced cervico-vaginal human papillomavirus infection among female sex workers in Cambodia

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BACKGROUND: Intravaginal practices (IVPs) refer to practices such as intravaginal cleansing or douching with liquids, wiping inside the vagina (e.g., with cloth or tissue), or applying or inserting substances with the intent to dry or tighten the vagina for sexual pleasure. Previous studies indicated that douching, the most commonly investigated form of IVPs, is associated with adverse health outcomes such as increased risks of bacterial vaginosis, sexually transmitted infections including HIV, non-regressive squamous intraepithelial lesions and cervical cancers. However, no published studies have examined the associations between specific forms of IVPs and human papillomavirus (HPV) infection which causes cervical cancers. Furthermore, most previous studies on IVPs have been conducted in African countries and in the United States; few studies have examined IVPs in Asian countries.

OBJECTIVES AND HYPOTHESIS: This study investigates associations between IVPs and cervico-vaginal HPV infection with one or multiple genotypes. The general hypothesis was that IVPs would be associated with an increased prevalence of HPV infection.

METHODS: We conducted a cross-sectional survey to obtain self-reported data on IVPs in 200 female sex workers in Phnom Penh, Cambodia in August–September 2014. We asked about IVPs in general, and specifically shortly before, and shortly after, vaginal sex. Genital samples were collected by self-sampling, and were tested for 37 HPV genotypes using Roche Linear Array HPV Genotyping Test.

RESULTS: No participants had received HPV vaccines. The overall prevalence of HPV infection with any type was 47.0%. The prevalence of HPV infection with one, two, three, and 4–8 types was 17.0%, 11.0%, 12.0%, and 7.0%, respectively. The most common types were HPV-62 (10.5%), HPV-16 (7.5%), HPV-18 (6.0%), HPV-52 (6.0%), HPV-53 (6.0%), and HPV-68 (6.0%). Among those who had any HPV type detected, 77.0% harbored at least one oncogenic type. Ninety percent of participants had ever performed intravaginal cleansing, 28.5% performed intravaginal wiping, and 5.5% performed intravaginal insertion. Among those who performed intravaginal cleansing, 92.8% used water or water mixed with soap, salt, or lemon; about half of these also used other solutions such as commercial products. In Poisson regression models for count data, performing intravaginal cleansing in general and shortly after vaginal sex was associated with a lower number of HPV types detected (excluding HPV 6 and 11) (odds ratios ranged from 0.48–0.67, p-values <0.01), adjusted for venues of sex work, alcohol use, self-reported HIV status, number of paying partners in the past 90 days, and condom use with all partners in the past 90 days. Intravaginal wiping and insertion were not associated with the number of HPV types detected (p-values >0.20).

CONCLUSIONS: Although previous studies showed associations between douching and adverse health outcomes, our results suggested that intravaginal cleansing after sex in this high-risk population, who are frequently exposed to different HPV types, reduced multiple-type HPV infection. This contrary effect might be due to the use of water mostly instead of harmful solutions or chemicals, or the non-use of douching devices. Future studies are needed to investigate the potential effect of intravaginal cleansing in cervical intraepithelial neoplasia.