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PREVALENCE AND CORRELATES OF RECENT VAGINAL DOUCHING AMONG AFRICAN AMERICAN ADOLESCENT FEMALES

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Abstract

Study objective—To describe the prevalence and correlates of vaginal douching among urban African American adolescents and to examine the association between douching and STI status. Design: Demographic, psychosocial, and behavioral data were collected through cross-sectional, self-administered surveys. Self-collected vaginal swabs were assayed using NAAT for trichomoniasis, Chlamydia, and gonorrhea.

Setting—Sexual health clinic in a large metropolitan area of the Southeast

Participants—African American females (N=701) ages 14 to 20 participating in an HIV prevention intervention

Main outcome measure—The outcome of interest was the association between vaginal douching (lifetime, past 90 days, and past 7 days) with demographic characteristics (e.g. age, education, and socioeconomic status), physical and mental health status, STI status, sexual behavior (e.g. number of vaginal sexual partners, age of sex partners, consistent condom use in the past 90 days, sex while self/partner was high on drugs or alcohol), and psychosocial characteristics (e.g. sexual adventurism, social support, peer norms, sexual happiness, self-efficacy for sex refusal, self-esteem, relationship power, risk avoidance).

Results—Forty-three percent reported ever douching, and 29% reported douching in the past 90 days. In bivariate analyses, recent douching was associated with demographic, behavioral, and psychosocial variables, but not current STI status. In multivariate analyses, recent douching was associated with age (AOR=1.13, CI=1.02–1.25), lower socio-economic status (AOR=1.25, CI=1.05–1.47), and having sex with much older partners (AOR=1.87, CI=1.22–2.86).

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The authors have no conflicts of interest to report.

Conclusion—Increased age, lower socioeconomic status, and older partners may be salient risk factors for douching behavior among African American young women.

Keywords

Adolescents; African American; Vaginal douching; Sexually transmitted infections

INTRODUCTION

According to the 2002 National Survey of Family Growth, 32% of women in the US reported vaginal douching within the last year.[1] Vaginal douching is especially common among African American women,[1–11] with some studies noting that vaginal douching is two to three times more prevalent among African American women relative to White or Hispanic women.[1, 3, 5–6] The estimated lifetime prevalence of vaginal douching among African American women varies markedly across studies, ranging from 27–85%;[1–3, 5, 10, 12–17] with most studies observing prevalence of vaginal douching to be between 56%–69%.[1–2, 10, 12–13, 16–17]

Vaginal douching has been linked to a number of adverse gynecological and pregnancy-related outcomes. Adverse outcomes include: pelvic inflammatory disease (PID)[18–24], endometriosis[25], reduced fertility[26], preterm delivery[15–16, 27–28], ectopic pregnancy[24, 29–30], low birthweight[31], and possibly cervical cancer.[24, 32] Other studies have observed an association between vaginal douching and sexually transmitted infections (STIs), including bacterial vaginosis[12, 33–38], upper genital tract infection[25], *Chlamydia trachomatis*[39–43], and, in some populations, with HIV[44–45] and human T lymphotropic virus type 1 (HTLV-1).[46]

While empirical evidence suggests a link between vaginal douching and adverse health outcomes, other studies have failed to replicate these associations. For example, some studies have identified no significant association between vaginal douching and PID[47], bacterial vaginosis[13, 48], Chlamydia[2, 36, 38], trichomonasis[13, 36–37], or gonorrhea.[2, 36, 38] The apparent discrepancy between studies may be attributable, in part, to inconsistencies between study samples in the types of products used for vaginal douching[44], reasons for vaginal douching[49], frequency and duration of vaginal douching[14, 19, 42–43], and timing in relation to sexual activity and menses.[49] For example, certain studies have specifically identified that the association between vaginal douching and PID[19], bacterial vaginosis[14] and Chlamydia[42–43] is dependent on frequency of douching. Outcomes may also vary as a function of type of solution used to douche; one study suggests that vaginal douching with non-commercial preparations is associated with an increased prevalence of HIV, while vaginal douching with commercial preparations is associated with decreased HIV prevalence.[44]

There may also be race-specific associations between vaginal douching and adverse health outcomes.[2] A seminal study by Wølner-Hanssen and colleagues (1990) observed an association between vaginal douching and PID, but only among non-African American women[19] and, in another study, the association between douching and PID was weaker among African American women relative to white women.[22] Several studies, which were predominately African American, observed no association between vaginal douching and adverse health outcomes, including PID[47], bacterial vaginosis[13, 48], Chlamydia[2, 38], gonorrhea[38], and trichomoniasis.[13]

Studies have also noted racial differences in initiation of vaginal douching, reasons for vaginal douching, frequency of vaginal douching, and products used to douche. African American women are especially likely to have learned about vaginal douching or to have

been encouraged to douche by their mothers.[10, 14, 50–54] African American women are also likely to use homemade preparations for douching[14, 50] and to douche after menses[12, 14] or sexual intercourse.[3, 12, 50] However, douching-related attitudes and behaviors among African American women may be undergoing an intergenerational shift.[50, 52]

Few studies have focused on vaginal douching among African American adolescents in the Southeast region of the US[15, 53], though evidence suggests that this region has a comparatively higher prevalence of vaginal douching.[1, 5–6, 8] The purpose of the present study was to describe the vaginal douching behavior of African American adolescent females residing in a metropolitan area in the Southeastern U.S, and to examine the association between demographic, psychosocial, and behavioral correlates, as laboratory-confirmed STIs with vaginal douching.

MATERIALS AND METHODS

Participants

From June 2005 to June 2007 African American adolescent females, 14 to 20 years of age, were recruited from three clinics in downtown Atlanta, Georgia, providing sexual health services to predominantly inner-city adolescents. A young African American woman recruiter approached adolescents in the clinic waiting area, described the study, solicited participation, and assessed eligibility. Eligibility criteria included self-identifying as African American, 14–20 years of age, and reporting vaginal intercourse at least once without a condom in the past 6 months. Adolescents, who were married, currently pregnant, or attempting to become pregnant, were excluded from the study. Adolescents returned to the clinic to complete informed consent procedures, baseline assessments, and be randomized to trial conditions. Written informed consent was obtained from all adolescents with parental consent waived for those younger than 18 due to the confidential nature of clinic services. Of the eligible adolescents, 94% (N=701) enrolled in the study and completed the baseline assessment. Participants were compensated $75 for travel and childcare to complete the baseline assessment. The Emory University Institutional Review Board approved all study protocols.

Data Collection

Data on demographic, psychosocial, and behavioral characteristics were collected using Audio Computer Assisted Self-Interview (ACASI). ACASI enhances data accuracy, increases participants' comfort answering sexually explicit questions, and reduces low literacy as a potential barrier.[55–56] Additional strategies were used to enhance accuracy and validity of self-reported sexual behaviors, including reporting behaviors over relatively brief time intervals[57–58] and using the Timeline Followback methodology, an effective tool to facilitate retrospective recall of STD/HIV sexual behaviors.[59–60]

Demographic Variables—Variables included age, educational attainment, and receipt of family aid in the past 12 months. In assessing educational attainment, women were asked which grade they had last completed in school; responses were provided on an ordinal scale (1=8th grade or less, 2=9th – 12th grade, 3=graduated high school or GED, 4= 1 or 2 years of college). Receipt of family aid was analyzed as dichotomous, defined as having ever received any money or services from welfare, food stamps, Women, Infants and Children (WIC), and/or Section 8 housing in the past 12 months [yes/no].

Douching Variables—The survey assessed lifetime history of vaginal douching with the following yes/no item: "Have you ever douched?" Recent vaginal douching was examined by asking how many times women had douched in the past 90 days and in the past 7 days;

answers were dichotomized into a yes/no format. Age at first douche, reason for douching, and type of product used for douching were also examined. To assess women's reason for douching, they were asked, "What is the one reason why you douche?" (categorical response options are displayed in Table 1). Women were also asked, "What do you use to douche?" with response options including, "I buy a douche from the store", "A vinegar and water solution made at home", or "Water only".

Health status variables—Overall health was assessed by a 5 point Likert scale and asked "How would you rate your overall health?" (1=poor to 5=excellent). Adolescents were asked about their emotional and physical well-being using two continuous measures, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health bad?" and "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health bad?", respectively.

Risk behavior variables—Data were collected on age of participants' male sex partners using the following item: "In general how old are the people you have sex with?" To provide easily distinguishable categories of responses and to improve comparability across participants, five clearly-defined response options were given: "much younger than you (4 or more years)", "younger than you (2 – 4 years), "about the same age", "older than you (2 – 4 years), and "much older than you (4 years older or more)". The responses were dichotomized to compare women who had sex with much older male sex partners to those who had male sex partners less than 4 years older than themselves. Women were asked about their number of vaginal sex partners in the past 90 days. Given the increased risk for STI conferred by multiple concurrent and/or serial, short-term relationships compared to having one main long-term partner or none at all[e.g. 61–63], the continuous sex partner variable was dichotomized into two or more partners vs. one or fewer partners. Likewise, given evidence which suggests that any one act of unprotected sex elevates STI/HIV risk [64], the originally continuous variable assessing number of condom-protected sex acts in the past 90 days was dichotomized to represent consistent (100% of sex acts were protected) vs. not consistent (fewer than 100% were protected). Women were also asked how many times they had sex in the past 90 days while they and/or their male partner were high on drugs or alcohol. Again, answers were dichotomized (zero times versus one or more times) to reflect their clinical relevance, as previous research has shown, for example, that STI risk is elevated among African American adolescents who had sex at least once while their partner was intoxicated/high [65]

Psychosocial Variables—Psychosocial scales were scored using Likert scale responses. Measures were selected based on their utility with African American adolescent females and relevance to the proposed study. Variables included: *sexual adventurism*[66] (10 item scale, α=.74), sample item: "I enjoy having sex on the spur of the moment."; *social support*[67] (11 item scale, α=.90), sample item: "I can count on my friends when things go wrong."; *depression*[68] (8 item scale, α=.91), sample item: In the past week, "I thought my life had been a failure."; *peer norms* (6 item scale, α=.76), sample item: How many of your friends think that: "It's okay to have sex with someone you just met?"; *sexual happiness* (6 item scale, α=.82), sample item: "How important is it to your sexual happiness that you have an orgasm when engaged in sexual activity?"; *self-efficacy for sex refusal*[69–70] (7 item scale, α=.82), sample item: "How sure are you that you would be able to say NO to having sex with someone who is pressuring you to have sex?"; *self-esteem*[71] (10 item scale, α=.86), sample item: "I feel that I'm a person of worth"; *risk avoidance* (6 item scale, α=.82), sample item: "In the past 90 days, how many times have you avoided kissing a guy as a way

to avoid sex?"; and *relationship power*[72] (10 item scale, α=.78), sample item: "Most of the time we do what my partner wants to do."

STI Diagnosis—After completing the ACASI, participants provided self-collected vaginal swab specimens.[73] Specimens were delivered to the Emory University Pathology Laboratory and assayed for two bacterial pathogens, *C. trachomatis* and *N. gonorrhoeae* using the BDProbeTec ET *C. trachomatis* and *N. gonorrhoeae* Amplified DNA assay (Becton Dickinson and Company, Sparks, MD) and for *T. vaginalis* using a real-time PCR. Participants with a positive STI test were provided directly observable single-dose antimicrobial treatment, risk-reduction counseling per CDC recommendations, and were encouraged to refer sex partners for treatment. The County Health Department was notified of reportable STIs.

Data analysis

Bivariate and multivariate logistic regression analyses assessed the association between demographic, psychosocial, and behavioral variables and recent douching. Correlates achieving statistical significance at conventional levels ($p<.05$) in bivariate analyses were entered into multivariate logistic regression models. Odds ratios (AORs) and 95% confidence intervals (95% CIs) and corresponding p-values are reported.

RESULTS

Descriptive characteristics of the sample are displayed in Table 1. Participants were 17 years, 7 months of age, on average, and among those 18 years or older (n=243), 71% had graduated from high school or earned their GED. Just over 28% (n=197) tested positive for a STI (13% with Chlamydia, 4% with gonorrhea, and 10% with trichomoniasis). Almost half (42.5%) reported a lifetime history of vaginal douching, with 28.7% reported douching in the past 90 days. Among adolescents with a lifetime history of vaginal douching, over half (53%) initiated douching between the ages of 14 and 16 and 33% initiated douching between ages of 17 and 18. The most common reasons for vaginal douching reported by adolescents were cleanliness (61%) and the prevention of unpleasant odors (26%). The vast majority of adolescents reported using a commercially available douche (91%).

In bivariate analysis, recent vaginal douching was not associated with current STI status. However, having douched in the past 90 days was associated with multiple demographic (age, socio-economic status), behavioral (risky sex, much older sex partners, sex while partner/self was high on drugs or alcohol), and psychosocial (self-esteem, relationship control) variables (Table 2). Table 3 displays the results of the multivariate analyses. Recent douching (past 90 days) was associated with increased age (AOR=1.13, CI=1.02–1.25, p=.033), lower socioeconomic status (AOR=1.25, CI=1.05–1.47, p=.014), and having sex with much older male partners (AOR=1.87, CI=1.22–2.86, p=.009).

DISCUSSION

Almost half (43%) of this sample of African-American adolescent females had ever douched. However, among adolescents reporting "ever" douching, two-thirds (67%) douched within the last 90 days. The lifetime prevalence of douching in this sample is similar to that reported in another study of urban African American women[14], but less than that reported in other studies.[1–2, 10, 12–13, 16–17] Among adolescents reporting a history of douching, 53% initiated this behavior between ages 14 and 16, and one third began between ages 17 to 18. In a recent national study, 71% of African American women who had douched initiated this practice between 15 to 19 years of age.[5] In the present study, cleanliness was the primary reason adolescents douched; a finding similar to that identified

in other studies.[12, 14] The percentage of adolescents (26%) indicating that they douched to prevent unpleasant odors was slightly higher than that observed in other studies (approximately 8%–20%).[5, 12, 14] Nearly all adolescents (91%) who had ever douched reported using commercially available douches; only 7% reporting using homemade solutions of vinegar and water. The proportion of adolescents using homemade douching products in the current study is lower than that in a recent national study (16%)[5] and substantially less other comparable samples (86–91%), [14, 17] but provides support for an intergenerational shift in douching-related attitudes and practices among African-American families.[50, 52]

Recent douching was associated with lower socio-economic status and increased age. The association between douching and lower socioeconomic status, both in terms of educational attainment and income level, has been well established in the literature.[1–2, 5–6, 8, 26, 31, 52] Similarly, the association between increased age and douching identified in this study is corroborated by previous research among African American women.[2, 12, 16, 51] In the present study, the age of adolescents' male sex partners was also positively associated with vaginal douching. Adolescents with much older male sex partners (e.g. more than 4 years older) were 1.9 times more likely to report recent douching. Few studies have examined the link between adolescents' douching practices and the age of their male sexual partners; though some evidence suggests that douching practices are motivated by the expectations of male partners,[74] no evidence currently exists to suggest an association between men's age and their attitudes toward douching. Indeed, few studies have examined douching attitudes among males.[75–76] In a study of minority alternative school youth, Markham et al. (2007) found that 75% of males preferred their female sex partners to douche.[75] Similarly positive attitudes towards douching have also been identified among Hispanic and African American adult men. A recent qualitative study examining douching attitudes among Hispanic men found that men were generally emphatic about vaginal cleanliness and that they were strongly supportive of partners' douching practices.[76] The degree to which men communicate their desires for their sex partners to douche is largely unknown; however, preliminary evidence from a survey of male students in a historically black college suggests that nearly one-fifth asked their partners to douche.[77]

The present study is not without limitations. The data were based on women's self-reported behaviors and may have been subject to social desirability and recall bias. However, the use of ACASI for data collection, as well as the short recall period (past 90 days) and Timeline Followback methodology for adolescents' self-report of sexual behavior may have minimize these potential biases; although they may not have been eliminated.[55–60] Also, the degree to which the study's measure of socioeconomic status (e.g. receipt of family need-based aid) captured adolescents' true socioeconomic status is unknown. Another limitation is that our study does not capture douching behavior in relation to sexual activity, such as whether participants douched before or after sex or whether douching practices vary with different sexual partners. Finally, given that the study involved a clinic-based convenience sample from one metropolitan area, the degree to which these findings are generalizable to African American women or adolescents of other racial/ethnic groups is unknown.

Given the adverse health outcomes associated with vaginal douching, more research is needed to explore attitudinal, demographic, psychosocial, and behavioral correlates to the behavior among groups in which douching is common. Exploring douching among African American women is especially important, as previous research indicates that this group is relatively more motivated to stop douching[5] and are responsive to recommendations from their healthcare providers and mothers.[52] Further, African American women and adolescents' douching behavior has been shown to be responsive to behavioral intervention.[33, 41, 78] Given these data, healthcare providers may be in a unique position to

screen patients for douching behavior and provide counseling about the potential adverse health effects associated with douching. Such counseling may be especially beneficial for African-American women in late adolescence.

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Table 1

Demographic characteristics and douching behavior of sample (n=701)

Characteristic	n (%)
Age - mean (SD)	17.6 (1.7)
Receipt of family aid	364 (51.9)
Educational attainment[a]	
8th grade or less	59 (8.4)
9th – 12th grade	368 (52.5)
High school graduate or GED	130 (18.5)
1–2 years of college	114 (16.3)
Sexually transmitted infection	197 (28.1)
Vaginal Douching	
Ever	298 (42.5)
Past 90 days	201 (28.7)
Past week	53 (7.6)
Age at first douche	
≤13	24 (8.1)
14 – 16	159 (53.4)
16 – 18	97 (32.6)
19 – 20	18 (6.0)
Primary reason for douching	
Recommendation of mother/grandmother	22 (7.4)
Recommendation of friends	12 (4.0)
Prevent a sexually transmitted infection	4 (1.3)
Cleanliness	61.1 (182)
Get rid of a sexually transmitted infection	1 (0.3)
Prevent unpleasant odors	77 (25.8)
Type of douche	
Commercial douche	270 (90.6)
Vinegar and water	22 (7.4)
Water only	6 (2.0)

[a] 30 missing responses

Table 2

Bivariate correlates to douching in the past 7 days and past 90 days (n=701)

	Douched in the last 7 days		Douched in the last 90 days	
Variable	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
Age	1.15 (0.96 – 1.37)	.122	1.12 (1.02 – 1.24)	.023*
Educational attainment	0.81 (0.57 – 1.15)	.247	0.98 (0.81 –1.19)	.836
Receipt of family aid	1.47 (1.14 – 1.90)	.003**	1.21 (1.03 – 1.42)	.022*
Health status variables				
Overall health	0.86 (0.64 – 1.15)	.296	0.90 (0.76 – 1.06)	.205
Physical health	1.00 (0.94 – 1.06)	.966	1.01 (0.97–1.04)	.725
Mental health	1.01 (0.98 – 1.05)	.358	1.02 (1.00–1.04)	.018*
Risk behavior variables				
Much older partners	1.31 (0.65 – 2.63)	.447	2.16 (1.44 – 3.25)	<.001**
Multiple partners	0.78 (0.43 – 1.43)	.418	1.34 (0.96 – 1.88)	.087
Consistent condom use	0.77 (0.36 – 1.66)	.501	1.00 (0.64 – 1.57)	.992
Sex while high on alcohol or drugs	1.76 (0.99 – 3.13)	.055	1.52 (1.07 – 2.16)	.020*
Sex with a partner who is high on alcohol or drugs	1.97 (1.11 – 3.48)	.021*	1.17 (0.85 – 1.63)	.341
Psychosocial variables				
Sexual adventurism	1.03 (0.96 – 1.10)	.423	1.03 (1.00 – 1.07)	.084
Social support	0.96 (0.92 – 1.01)	.117	1.00 (0.97 – 1.03)	.915
Depression	1.04 (1.00 – 1.08)	.060	1.03 (1.00 – 1.05)	.052
Peer norms	1.02 (0.98 – 1.09)	.527	1.04 (1.00 – 1.08)	.069
Sexual happiness	0.97 (0.92 – 1.02)	.239	1.01 (0.98 – 1.05)	.423
Refusal self-efficacy	0.96 (0.55 – 1.69)	.887	1.19 (0.86 – 1.65)	.307
Self-esteem	0.94 (0.89 – 0.98)	.011*	0.96 (0.93 –1.00)	.024*
Risk avoidance	1.56 (0.83 – 2.94)	.165	1.13 (0.80 – 1.59)	.504
Relationship control	1.04 (0.99 – 1.10)	.149	1.04 (1.01 – 1.08)	.019*
Positive STI test	1.76 (0.99 – 3.13)	.055	1.17 (0.81 – 1.67)	.402

Note: Logistic regression was used for analysis of data shown in this table. All reported odds ratios are unadjusted for other covariates.

* $p < .05$,

** $p < .01$

Table 3

Multivariate correlates to having douched in the last 7 days and last 90 days (n=701)

	OR (95% CI)
Douched in the last 90 days	
Age	1.13 (1.02 – 1.25)*
Receipt of family aid	1.25 (1.05 – 1.47)*
Self-esteem	0.98 (0.94 – 1.01)
Mental health	1.01 (0.99 – 1.03)
Much older partners[a]	1.87 (1.22 – 2.86)*
Relationship power	1.02 (0.98 – 1.06)
Had sex while high on drugs/alcohol in the past 90 days	1.19 (0.82 – 1.74)
Douched in the last 7 days	
Receipt of family aid	1.45 (1.11 – 1.88)*
Had sex with a partner who was high on drugs/alcohol in the past 90 days	1.58 (0.88 – 2.86)
Self-esteem	0.95 (0.90 – 1.00)
Risk avoidance	1.11 (0.97 – 1.27)

Note: Two separate logistic regression models were estimated for the analysis of data shown in this table (e.g. for douching in the last 90 days and in the last 7 days). All reported odds ratios are adjusted for other covariates in their respective models.

*p<.05,

OR: odds ratio, CI: confidence interval

[a]defined as having a partner four years older or more