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Brief Report on Factors Associated with Frequent Vaginal Douching Among Alternative School Youth

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Abstract

Purpose—To examine factors related to frequent douching among alternative school youth.

Results—Although Hispanic females were more likely to douche weekly compared to Blacks (30% vs. 13%), monthly douching was associated with being Black, therapeutic beliefs about douching, perceived partner expectations, having female relatives who douched, and pregnancy history.

Keywords

Alternative schools; vaginal douching; sexual activity; at-risk youth

INTRODUCTION

Vaginal douching refers to the instillation of liquid into the vagina for perceived hygienic or therapeutic purposes.(1) *In vitro* and *in vivo* studies indicate that douching results in microfloral changes in vaginal bacteria (2;3) that may increase susceptibility to infection. Frequent vaginal douching has been associated with adverse health outcomes including increased risk of bacterial vaginosis, pelvic inflammatory disease, sexually transmitted infections (STI), and ectopic pregnancy.(4;5) Nationally, 16% of females aged 15–19 douche regularly.(4) Studies conducted among predominantly Caucasian and Black at-risk youth indicate monthly prevalence exceeding 50%;(6–9)however, little is known regarding douching prevalence among Hispanic youth.

Social science theories may help explain frequent douching behavior. Social cognitive theory holds that behavior is determined by the interaction of personal, environmental, and behavioral influences.(10) Personal factors may include beliefs about feminine hygiene and outcome expectations related to douching. Environmental factors may include familial beliefs about douching, expectations from a sexual partner, and recommendations from a healthcare provider. Behavioral influences may include personal hygiene habits and sexual behavior.

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To assess the impact of these influences, factors related to frequent douching were examined among a predominantly Hispanic and Black alternative school population. Alternative school students represent a sub-group of youth at increased risk for unintended pregnancy and STIs. Nationally, 88% of alternative school students have had sex compared to 50% of regular high school students. They are also more likely to report earlier sexual debut and lower condom use.(11;12) Information regarding factors that promote frequent douching in this population may guide intervention development to reduce adverse health outcomes.

METHODS

Study sample

Participants were enrolled in an HIV prevention trial conducted in nine Texas alternative schools. The study received Institutional Review Board approval and required active parental and youth consent. Both female and male students were surveyed in order to examine male perspectives on douching. Few data have been published regarding male perspectives, although they may influence female douching behavior. Data were collected from September 2003 to February 2004. Surveys were conducted using audio computer-assisted self-interviews at various locations (e.g., schools, libraries) or by telephone for hard-to-reach youth. Data collectors received training regarding confidential interviewing procedures.

Measures

Douching items were adapted from previous studies with young women.(1;6;7) Items were gender-specific. Males who had heard about douching received questions about information sources and douching beliefs. All females received questions about information sources; females who had douched more than once received questions about douching beliefs and behavior.

Information sources—Items assessed sources from which participants had heard about douching, and whether each source encouraged or discouraged douching.

Douching beliefs—Thirteen items measured beliefs using a 5-point Likert-type scale ranging from strongly disagree to strongly agree.

Douching behavior—Items assessed lifetime douching and frequency of douching in the past six months.

Sexual and reproductive health—Items assessed lifetime experience of vaginal, oral, and anal intercourse, age of sexual initiation, history of pregnancy and HIV testing, past three months' frequency of intercourse without a condom, number of sexual partners, and experience of vaginal symptoms.

Sociodemographic characteristics—Items assessed age, racial/ethnic background, and parental education level.

Analysis

Among males and females, Student's t-test and chi-square statistics were used to examine gender and racial/ethnic differences regarding douching beliefs and information sources; among females only, t-test and chi-square statistics were used to examine racial/ethnic differences regarding douching behavior. In addition, among females only, multinomial logistic regression was conducted to examine factors related to frequent douching with female participants assigned exclusively to one of three groups (ever douched, douched in the past month, and never douched). Binary logistic regression was conducted to examine associations

between douching beliefs and likelihood of douching in the past month. The latter analysis was restricted to females who reported lifetime douching, a prerequisite for receiving belief items.

RESULTS

Surveys were completed by 331 youth; 63% were Hispanic, 62% were female. Mean age was 17.2 years (SD 1.76; range 13–22). Two-thirds of males had heard about douching, primarily from their girlfriend/partner (38%) or female relatives (34%). Fifty-five percent of females had ever douched; of those, 30% douched monthly, 20% weekly. Females cited mothers (40%), female relatives (47%), girlfriends (22%), and healthcare professionals (18%) as sources that endorsed douching; 7% reported a healthcare professional advised against douching.

Males and females believed that douching reduces vaginal odor (81% and 75% respectively), and prevents against STI (32% and 22%). Among females, 25% believed that their boyfriend/partner expected them to douche; 75% of males preferred that their girlfriend/sexual partner douched.

Black females were more likely to report lifetime and monthly douching compared to other racial/ethnic groups ($p < 0.01$). However, Hispanic females reported greater frequency of douching *within* the past month: 30% douched at least weekly compared to 13% of Blacks. Compared to non-douchers, females who had ever douched and those who douched in the past month were more likely to have had vaginal intercourse, older, Black, to have been tested for HIV, to have been pregnant, and have female relatives who endorsed douching (Table 1). Females who douched in the past month reported greater therapeutic beliefs compared to females who douched less frequently (Table 2).

DISCUSSION

This study extends findings about frequent douching to a predominantly Hispanic, alternative school population. Although Black females were more likely to report lifetime or past month douching, Hispanic females reported greater frequency of weekly douching, which is worrisome given increased health risks associated with weekly douching.(5)

Among personal factors, therapeutic beliefs about douching and perceived boyfriend/partner's expectations significantly increased the likelihood of monthly douching, consistent with previous studies.(7–9) Endorsement by a mother or female relative was the most significant environmental factor;(1;9) however, high male endorsement for douching supports perceived female expectations that men prefer women who douche. Misconceptions about douching benefits, such as douching protects against STIs, raise concerns that youth may avoid getting tested for STIs or may self-medicate rather than seek professional care.

Among behavioral factors, frequent douching was not associated with a more “risky” sexual profile based on age of initiation, frequency of unprotected intercourse, number of partners, or engagement in anal and oral sex. However, females who had been pregnant were twice as likely to douche and to engage in frequent douching, a troubling finding given associations between frequent douching and adverse pregnancy outcomes, including preterm birth,(13) low-birth-weight,(14), and ectopic pregnancy.(15) Although participants were not asked directly whether they had douched during pregnancy, given the overall prevalence of douching it is probable that some participants would have douched while pregnant.

From the current data, it was not possible to establish hypotheses as to why some behavioral and environmental factors were related *either* to lifetime douching or to douching in the past month. However, among douching beliefs (Table 2) it is evident that some beliefs, in particular

perceived partner expectations and the belief that douching removes offensive orders, exert stronger influence than others regarding douching frequency.

Several limitations should be noted. The data were self-reported which raises concerns regarding reliability. Small sample size prevented adjustment for covariates in analyses, and the restricted study sample limits external generalizability. Finally, the cross-sectional design excludes questions of causality.

Nevertheless, these findings identify salient intervention strategies to help reduce frequent douching in high-risk populations. Potential strategies would include activities addressing douching beliefs to counteract misconceptions about the benefits of douching, and to modify beliefs personal hygiene practices. Skills-training activities would provide females with strategies to counteract pressure to douche from family, friends, and sexual partners. Given the strong trans-generational nature of douching behavior, family involvement including mothers, grandmothers, or other female relatives, would help to address social modeling and provide normative support for douching cessation or reduction. Only 7% of females in the current study reported that a healthcare provider advised against douching; however, a study conducted among adult women found that advisement by a health professional to stop douching influenced women's perceptions and behavior, and made it more likely that women would try to stop douching.⁽¹⁶⁾ Thus, inclusion of advice from a healthcare provider may also influence a reduction in douching behavior.

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Reference List

1. Funkhouser E, Pulley L, Lueschen G, Costello C, Hook E III, Vermund SH. Douching beliefs and practices among black and white women. *J Womens Health Gend Based Med* 2002;11(1):29–37. [PubMed: 11860722]
2. Pavlova SI, Tao L. In vitro inhibition of commercial douche products against vaginal microflora. *Infect Dis Obstet Gynecol* 2000;8(2):99–104. [PubMed: 10805365]
3. Barousse MM, Alvarez-Olmos MI, Rajan L, Fortenberry JD, Orr DP, Fidel PL Jr. Vaginal microflora, sexually transmitted diseases, and vaginal immunity among adolescents [abstract]. *Int J STD AIDS* 2002;13(Suppl 1):16–17.
4. Martino JL, Vermund SH. Vaginal douching: evidence for risks or benefits to women's health. *Epidemiol Rev* 2002;24(2):109–124. [PubMed: 12762087]
5. Zhang J, Hatch M, Zhang D, Shulman J, Harville E, Thomas AG. Frequency of douching and risk of bacterial vaginosis in African-American women. *Obstet Gynecol* 2004;104(4):756–760. [PubMed: 15458898]
6. Foch BJ, McDaniel ND, Chacko MR. Racial differences in vaginal douching knowledge, attitude, and practices among sexually active adolescents. *J Pediatr Adolesc Gynecol* 2001;14(1):29–33. [PubMed: 11358704]
7. Oh MK, Merchant JS, Brown P. Douching behavior in high-risk adolescents. What do they use, when and why do they douche? *J Pediatr Adolesc Gynecol* 2002;15(2):83–88. [PubMed: 12057529]
8. Vermund SH, Sarr M, Murphy DA, Levin L, Abdalian SE, Ma Y, et al. Douching practices among HIV infected and uninfected adolescents in the United States. *J Adolesc Health* 2001;29(3 Suppl):80–86. [PubMed: 11530307]
9. Chacko MR, McGill L, Johnson TC, Smith PB, Nennery SW. Vaginal douching in teenagers attending a family planning clinic. *J Adolesc Health Care* 1989;10(3):217–219. [PubMed: 2715095]
10. Bandura, A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall; 1986.

11. Grunbaum JA, Kann L, Kinchen SA, Ross JG, Gowda VR, Collins JL, et al. Youth Risk Behavior Surveillance: National Alternative High School Youth Risk Behavior Survey, United States, 1998. *MMWR Surveill Summ.* 1999
12. Kann L, Kinchen SA, Williams BI, Ross JG, Lowry R, Grunbaum JA, et al. Youth Risk Behavior Surveillance--United States, 1999. *J Sch Health* 2000;70(7):271–285. [PubMed: 10981282]
13. Bruce FC, Kendrick JS, Kieke BA Jr, Jagielski S, Joshi R, Tolsma DD. Is vaginal douching associated with preterm delivery? *Epidemiology* 2002;13(3):328–333. [PubMed: 11964935]
14. Fiscella K, Franks P, Kendrick JS, Bruce FC. The risk of low birth weight associated with vaginal douching. *Obstet Gynecol* 1998;92(6):913–917. [PubMed: 9840548]
15. Zhang J, Thomas AG, Leybovich E. Vaginal douching and adverse health effects: a meta-analysis. *Am J Public Health* 1997;87(7):1207–1211. [PubMed: 9240115]
16. Ness RB, Hillier SL, Richter HE, Soper DE, Stamm C, Bass DC, et al. Why women douche and why they may or may not stop. *Sex Transm Dis* 2003;30(1):71–74. [PubMed: 12514446]

Table 1

Unadjusted odds ratios for behavioral and environmental factors associated with frequency of douching among female alternative students.

Characteristic	Ever douched ^{ab} (n = 51)		Douched in past month ^b (n=60)	
	OR	95% CI	OR	95% CI
Age				
≥ 18 years	2.93 **	(1.44, 5.97)	3.61 ***	(1.82, 7.16)
Race				
Black	2.24 *	(1.04, 4.85)	2.94 **	(1.42, 6.08)
Parent Education				
< High school (referent)	1.00		1.00	
High school	1.02	(0.45, 2.34)	0.96	(0.43, 2.14)
Some college	1.68	(0.60, 4.66)	1.47	(0.53, 4.04)
College degree	1.76	(0.57, 5.61)	2.67	(0.97, 7.49)
Sexual Behavior				
Ever had oral sex	1.16	(0.55, 2.45)	0.77	(0.37, 1.64)
Ever had anal sex	0.88	(0.35, 2.23)	0.25 *	(0.07, 0.90)
Ever had vaginal sex	7.74 **	(2.23, 26.89)	3.15 **	(1.33, 7.45)
Had vaginal sex ≤ age 14	1.09 **	(0.52, 2.25)	0.86	(0.42, 1.75)
≥ 2 more partners in past 3 months	1.32	(0.40, 4.39)	0.64	(0.16, 2.58)
Had vaginal sex without a condom in past 3 months	1.00	(0.49, 2.03)	0.63	(0.31, 1.26)
Reproductive History				
Ever tested for HIV	3.17	(1.56, 6.47)	4.47 ***	(2.23, 8.96)
Ever been pregnant	2.14 *	(1.01, 4.54)	2.40 *	(1.17, 4.91)
Had vaginal itching or discharge in past 3 months	1.84	(0.87, 1.32)	1.23	(0.58, 2.61)
Influences that encouraged douching				
Mother	2.90 *	(1.15, 7.31)	13.44 ***	(4.81, 37.59)
Grandmother	2.29	(0.32, 16.91)	6.10 *	(1.24, 30.09)
Other Female relative	1.42	(0.54, 3.72)	1.82 **	(1.80, 21.07)
Boyfriend/Sexual Partner	0.68	(0.05, 8.19)	-	-
Friend (same gender)	0.28 *	(0.09, 0.85)	3.12	(0.77, 12.58)
Doctor, nurse, or healthcare professional	0.70	(0.25, 1.98)	1.66	(0.62, 4.46)

^a Ever douched but not in past month

^b Referent group: Never douched (n=92) OR = odds ratio CI = Confidence Interval

*
p<0.05

**
p<0.01

p<0.001

- Insufficient number of subjects

Table 2

Unadjusted odds ratios for personal beliefs associated with frequent douching among female alternative students.

Belief	Douched in past month ^a (n = 60)	
	OR	95% CI
Douching is necessary for a woman to keep clean	2.29	(0.88, 5.91)
Some discharge from the vagina is normal for most women	1.23	(0.53, 1.89)
Douching prevents sexually transmitted diseases	1.03	(0.36, 2.90)
Douching is good for getting rid of vaginal odor	1.54	(0.59, 4.04)
Douching is good for getting rid of vaginal itching	1.19	(0.43, 3.31)
Douching is good for getting rid of vaginal discharge	1.43	(0.58, 3.54)
Douching removes discharge after having sex	2.62 [*]	(1.08, 6.34)
Douching prevents odors that are offensive to others	3.04 ^{**}	(1.25, 7.36)
Douching makes a girl more attractive, sexually	0.53	(0.19, 1.48)
Douching prevents pregnancy	0.53	(0.10, 2.77)
There are no health benefits from douching	1.59	(0.59, 4.33)
Most women never need to douche	0.16 ^{**}	(0.04, 0.67)
My boyfriend or partner expects me to douche	5.13 ^{**}	(1.39, 18.89)

^aReferent group: Ever douched but not in past month (n=51)

OR = odds ratio CI = Confidence Interval

^{*}
p<0.05,^{**}
p<0.01