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The Transtheoretical Model and Douching Behaviors in Women

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The Transtheoretical Model and Douching Behaviors in Women

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2014

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Abstract

The Transtheoretical Model and Douching Behaviors in Women
By Jackelyn Payne

Introduction: Douching is the act of cleansing the vagina with a mixture of various fluids (such as water, vinegar, iodine, etc.) in an effort to wash out any impurities. Although it has been demonstrated that douching may be detrimental to women's reproductive health and increase the risk of infection, nearly 1 in 4 women between the ages of 15 and 44 practice vaginal douching in the United States. There is little theory-driven research about this topic that can inform the development of interventions and no studies of douching behaviors in women studying healthcare.
Aims: Drawing upon the Transtheoretical Model (TTM), the purpose of this study was to (i) determine the distribution of stages of readiness to quit douching among women at the Rollins School of Public Health and Woodruff School of Nursing, (ii) assess the validity of a created decisional balance measure, and (iii) determine whether the relationship between the stages of readiness and the decisional balance scores were in line with the predictions of the model.
Methods: Data were collected from 205 women aged 20-55 years between January 2016 and February 2016. Participants completed a cross-sectional online survey. Descriptive, bivariate, and post-hoc analyses were conducted.
Results: Overall, 21(10.2%) of participants had a history of douching. Of these, 5 were in the precontemplation stage to quit douching, 1 was in the contemplation stage, 0 were in the preparation stage, 1 was in the action stage, and 14 were in the maintenance stage. The created decisional balance scale was found to be reliable and valid. The differences in decisional balance scores of participants across stages were statistically significant and in line with the predictions of the TTM.
Conclusions: The findings from this study lay the groundwork for further theoretical exploration of this topic not only in the health care and university settings, but for the wider population of women. The created decisional balance scale was found to be reliable and valid. Given the lack of theory-driven research of this topic, this has significant implications for use in future interventions.

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Chapter 1: Introduction

In early 2015 the actress Gwyneth Paltrow made headlines when her website, goop, published a post encouraging readers to visit a spa that offers a steam which "cleanses your uterus, et al." and "balances female hormone levels," ("Tikkun Spa," n.d.). The internet's backlash to this article brought to the forefront an argument that has long been supported by doctors and health researchers – that intravaginal practices are unnecessary, and even detrimental, to women's health due the disruption of vaginal flora and the chemical environment (Brotman, Klebanoff, Nansel, Andrews, et al., 2008; Gardner et al., 1991; Giles, 1897; Iannacchione, 2004; Overman, 1993; J. H. H. M. Van De Wijgert, 2000; Zhang, Thomas, & Leybovich, 1997).

Intravaginal practices include practices which are intended to clean or otherwise affect the vagina. Douching, the most popular intravaginal practice in the United States (Brown & Brown, 2000), is the act of cleansing the vagina with a mixture of various fluids (such as water, vinegar, iodine, etc.) in an effort to wash out any impurities. Although it has been demonstrated that douching may be detrimental to women's reproductive health, nearly 1 in 4 women between the ages of 15 and 44 practice vaginal douching in the United States (Chandra, Martinez, Mosher, Abma, & Jones, 2005). Vaginal douching may increase the risk of STI transmission as well as reproductive tract infections (Brotman, Klebanoff, Nansel, Andrews, et al., 2008; Brown et al., 2013; Cottrell, 2006; Hilber et al., 2010; Low et al., 2011; Ott, Ofner, & Fortenberry, 2009; Scholes et al., 1998), ectopic pregnancies (Alataş, Yildirim, Öztekin, & Gezgin, 2008; Meyer, Brouselle, Soulat, & Gros, 1991; Phillips et al., 1992), reduced fertility (Baird, Weinberg, Voigt, & Daling, 1996), preterm labor (Bruce, Fiscella, & Kendrick, 2000;

Cottrell, 2006; Khodary, Shazly, Ali, Badee, & Shaaban, 2013; Luong et al., 2010; Misra & Trabert, 2007), low birth weight (Fiscella, Franks, Kendrick, Meldrum, & Kieke, 2002), pelvic inflammatory disease (Aral, Mosher, & Cates, 1992; Ringrose, 1976; Scholes et al., 1993), and possibly cervical cancer (Gardner et al., 1991).

Although there is a significant body of literature on the possible negative effects of vaginal douching that has been collected over decades of research, women continue to partake in the practice at significant rates (Chandra et al., 2005). Unfortunately, there is little theoretical research about this topic that can inform the development of interventions, and that which exists is targeted at populations in developing countries and is not generalizable to different populations that practice douching behaviors (Alcaide, Mumbi, Chitalu, & Jones, 2012; Esber et al., 2014; Masese et al., 2013; Sivapalasingam et al., 2014).

The Transtheoretical Model provides a good framework for assessing the readiness to change a behavior (Esber et al., 2014; D. M. Grimley, Oh, Desmond, Hook, & Vermund, 2005; Simpson, Merchant, Grimley, & Kim Oh, 2004). Thus, it can help to frame our understanding of the cessation of douching behavior. The douching cessation studies that have utilized the Transtheoretical Model are based on the stages of change (Esber et al., 2014; Grimley et al., 2005). The current study develops and adds development and validation of a decisional balance measure to the investigation, which enables a broader investigation of the constructs of the Transtheoretical Model.

Douching cessation behaviors work well with the Transtheoretical Model constructs (stages of change and decisional balance), and adding to the existing literature about this model will further develop the use of decisional balance measures in the study

of cessation of negative health behaviors. Since douching cessation requires an individual to make a decision about engaging in the behavior, taking action, and maintaining the behavior, the topic lends itself to the stages of change well. Tied with this is decisional balance; an individual must evaluate the pros and cons of adopting the behavior in order to progress through the stages (Prochaska et al., 1994). With this in mind, the aims of this study were to determine the following among women students in the Rollins School of Public Health and the Woodruff School of Nursing of Emory University:

1. What is the distribution of stages of readiness for women to quit douching?
2. Is the decisional balance measure valid?
3. Is the relationship between the stages of readiness and the decisional balance in line with the predictions of the model?

Chapter 2: Literature Review

The purpose of this literature review is to review the extant literature on vaginal douching in young women and young women's beliefs about the benefits and risks of vaginal douching.

Young Adulthood

Young adulthood is generally categorized as being between the ages of 18 and 40 (Erikson, 1968). Erikson's (1968) psychosocial stages proposed this stage of development follows the stage of adolescence, which is fraught with identity crises and the need to fit in socially as one transitions from childhood to adulthood. In young adulthood, however, one is more focused on development of oneself. Self-development can occur by experimenting with longer-term commitments such as a career or

relationship. Psychosocially, this stage of life is when one typically tackles intimacy, as opposed to isolation, in an effort to generate a sense of safety or belonging. Other characteristics of young adulthood include the narrowing of social networks and the creation of deeper relationships (Wrzus, Hänel, Wagner, & Neyer, 2013) and increased self-esteem (Orth, Trzesniewski, & Robins, 2010). In particular, many young adult women grapple with how to integrate a self-identity before undertaking a long-term commitment. With long-term commitment comes an associated identity as a wife or mother, which may impact decisions about health and reproduction as well (Erikson, 1968).

Women's Reproductive Health and Self-Image

Women's development includes health topics unique to women across the lifespan. Beginning in puberty, young girls go through many changes as they enter their reproductive years. The most significant change is the onset of menarche, which enables a female to be capable of reproducing (Zender & Olshansky, 2009). As adolescents become more aware of their physical body at this stage of development, they also develop what Waltner (1986) defined as genital identity, or genital self-image. This refers to one's feeling and beliefs about one's genitals, which can be positively or negatively experienced. Positive genital self-image is associated with greater self-confidence and increased sexual activity (Reinholtz & Muehlenhard, 1995), as well as increased likelihood of regularly attending gynecological exams and screenings (DeMaria, Hollub, & Herbenick, 2012). Negative genital self-image is characterized by self-consciousness, lower sexual esteem, and lower sexual satisfaction (Schick, Calabrese, Rima, & Zucker, 2010). These traits are also associated with lower body image (DeMaria, Hollub, &

Herbenick, 2011). Some research suggests that genital cleansing or grooming, including douching, may be linked to lower body image (DeMaria & Berenson, 2013; DeMaria et al., 2011).

General Intravaginal Practices

Douching is the act of cleansing the vagina with a mixture of fluids or materials (Brown & Brown, 2000). These mixtures can be made at home or sold commercially. Commercially-sold douches can be easily found in drug stores or pharmacies in the United States. Globally, intravaginal practices are not limited to douching. Multiple liquids, herbs, and fabrics are used for vaginal drying, sexual pleasure, contraception, and tightening (Brown, Brown, & Ayowa, 1993; Francis et al., 2013; François et al., 2012; Gallo et al., 2010; Güzel, Kuyumcuoğlu, & Celik, 2011; Heng, Yatsuya, Morita, & Sakamoto, 2010; Karaer, Avsar, Özkan, Bayir, & Sayan, 2005; Kukulu, 2006; Mairiga, Kullima, & Kawuwa, 2010; Hilber et al., 2010; Priddy et al., 2011; Rugpao et al., 2008; Smit et al., 2011; Van De Wijgert et al., 2000; Wang et al., 2005). Studies suggest that these practices increase susceptibility to sexually transmitted infections (STIs), including HIV (Brown, Ayowa, & Brown, 1993; Carter et al., 2013; Dallabetta et al., 1995; Gresenguet, Kreiss, Chapko, Hillier, & Weiss, 1997; Hassan et al., 2007; Joesoef et al., 1996; La Ruche et al., 1999; Mairiga et al., 2010; Mcclelland et al., 2006; Myer et al., 2004; Myer, Denny, De Souza, Wright, & Kuhn, 2006; Myer, Kuhn, Stein, Wright, & Denny, 2005).

The documentation of these practices, as well as the social and personal reasons for their use, aided in the development of a rich body of knowledge about intravaginal practices and how they relate to reproductive health. From vaginal douching with lime

juice in Nigerian sex workers (Mairiga et al., 2010) to post-coital cleansing in conservative, Muslim Turkish women (Caliskan, Subasi, & Sarisen, 2006), intravaginal practices have been demonstrated across many cultures and peoples.

The influence of social norms and the expectations of male partners have also been described as they relate to this practice (Alcaide, Chisembele, Mumbi, Malupande, & Jones, 2014; Judith E. Brown et al., 1993; Lees et al., 2014; Weisman et al., 2007). In developing countries, the importance of these relationship dynamics are profound and serve a significant role in the maintenance of these practices, even when women and their partners are aware of the risks (Alcaide et al., 2014; Mckee, Baquero, Anderson, & Karasz, 2009).

Vaginal Douching in the United States

Intravaginal practices are used by nearly a third of American women (Cottrell, 2010); douching is the most popular intravaginal practice in the United States (Brown & Brown, 2000). Intravaginal practices are unevenly distributed among demographics. They are more common among African-American women than white or Hispanic women (Bruce et al., 2000; Cottrell, 2010; DiClemente et al., 2012; Misra, Trabert, & Atherly-Trim, 2006). Intravaginal practices have also been studied in immigrant populations (Anderson, Mckee, Yukes, Alvarez, & Karasz, 2008; De La Cruz, Cornish, Mccree-hale, Annang, & Grimley, 2009; Mckee et al., 2009; Redding et al., 2010), the military (Lowe & Ryan-wenger, 2006), women who report sex with women (Marrazzo, Thomas, Fiedler, Ringwood, & Fredricks, 2010), and may also be related to socioeconomic status (DiClemente et al., 2012).

Anderson et al. (2008) completed a qualitative study which explored the use of intravaginal products in Hispanic immigrant populations in New York City. The belief that the vagina is sensitive and fragile was recurring in their data, which aligns with the common belief that the health of the vagina is constantly at risk if not manually cleaned. Why women begin and continue to douche is studied less than the prevalence and risks associated with the behavior, but the desire to feel clean is a common reason reported by women (Brotman, Klebanoff, Nansel, Zhang, et al., 2008; Caliskan et al., 2006; De La Cruz et al., 2009; Gazmararian, Bruce, Kendrick, Grace, & Wynn, 2001; McKee, Baquero, Anderson, Alvarez, & Karasz, 2009).

The Risks for Young Women

Several studies have examined the prevalence of intravaginal practices in younger women (Cottrell & Close, 2008; Ekpenyong & Davies, 2013; Foch, McDaniel, & Chacko, 2001; Funkhouser, Hayes, & Vermund, 2002; Markham et al., 2007; Tsai, Shepherd, & Vermund, 2009; Vaca et al., 2010; Vermund et al., 2001). Douching is correlated with sexual debut and lack of knowledge about the risks of douching (Cottrell & Close, 2008) as well as socioeconomic status and ethnicity of the woman's mother (Ekpenyong & Etukumana, 2013). The role of the mother is a strong factor in douching uptake in African-American adolescents (Mark et al., 2010). The media also plays a role in douching behavior, particularly in white women (Funkhouser et al., 2002; Gazmararian et al., 2001; Iannacchione, 2004).

Ekpenyong and Davies (2013) observed the relationship between vaginal douching in college-age women and pelvic and menstrual disorders. They proposed the possibility that women practice douching with the belief that they will be treating what

ails them, but in fact are causing it with this practice. In fact, the cessation of vaginal douching has been shown to be a feasible way to reduce bacterial vaginosis which decreases STI susceptibility (Brotman, Ghanem, Klebanoff, Taha, et al., 2008; Cottrell, 2006; Hilber et al., 2010).

Discouragement of douching by physicians and nurses seems to have a salutary effect on the behavior in women of university age (Funkhouser et al., 2002) despite the fact that not all health care providers give accurate information (Martino, Youngpairoj, & Vermund, 2004). However, beliefs about intravaginal practices are deeply rooted and difficult to change, due to the multiple factors influencing the behavior (Gazmararian et al., 2001; D. Grimley, Annang, Foushee, Bruce, & Kendrick, 2006; Short, Black, & Flynn, 2010).

The Transtheoretical Model

The Transtheoretical Model (TTM) was developed as a framework for assessing behavior change (Prochaska et al., 1994). The model asserts that in order to change behavior, individuals work through five stages: precontemplation, contemplation, preparation, action, and maintenance. These are referred to as the stages of change. As individuals move through these stages, the cons, or negative effects, of changing the behavior become outweighed by the pros, or positive effects, of quitting the behavior. This process is known as decisional balance, another construct of the TTM that is associated with behavior change and individuals' willingness to change. Originally conceptualized with smoking cessation as the behavior of interest (Prochaska, DiClemente, Velicer, Ginpil, & Norcross, 1985), the TTM lends itself well to the cessation of other undesirable health behaviors (Prochaska et al., 1994).

The stages of change are useful for determining an individual's readiness to change their behavior. In the precontemplation stage, the individual has no intentions of changing their behavior anytime soon a likely focuses on the cons of changing their behavior. In contemplation, the individual is considering changing their behavior in the foreseeable future. They likely recognize their negative behavior and the pros and cons are becoming more equal. However, it is not until the preparation phase when the individual is ready to really change their behavior. They also recognize that changing their behavior will make them healthier. An individual enters the action change once they have taken steps to change their behavior. Once the behavior has been maintained for a while, the individual is considered to be in the maintenance phase (Prochaska et al., 1994).

There are also ten processes of change, some of which correspond to certain stages (consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, social liberation, self-liberation, helping relationships, counter-conditioning, reinforcement management, and stimulus control). These processes result in strategies which may help aid in an individual progressing through the stages of change. The decisional balance construct is important because it adds a dimension of decision-making to the stages of change. People often have mixed feelings about changing their behaviors; a researcher's ability to identify an individual's beliefs about the pros and cons of a behavior can place that individual within a context of their willingness to change and inform interventions to target those beliefs (Prochaska et al., 1994).

There are limitations of the TTM. The TTM operates under the assumption that individuals behave logically and will move from one stage to the next. The algorithms

created for placing individuals in the stages are changed to fit specific behaviors, meaning they often are not standardized. The TTM also does not account for the larger social and environmental factors affecting an individual's behavior. However, the TTM is ideal for informing tailored interventions which can be used to target individuals within each stage of readiness to change their behavior (Prochaska et al., 1994).

The Transtheoretical Model and Vaginal Douching

Limited research has applied theory to the cessation of intravaginal practices. However, a couple of interventions based on the TTM have been published. The first experimental study placed adolescent and young adult African-American women into two groups: the intervention group (which received three short counseling sessions about the cessation of intravaginal practices based on their stage of readiness to stop the behavior) and the control group (which received information about nutrition) (Grimley et al., 2005). The results suggested that participants in the intervention group were significantly more likely to have stopped the behavior at follow-up. This was considered highly successful, as at baseline the majority of participants had no intention of stopping. The authors concluded that stage-matched interventions can be successful in getting adolescent and young women to stop vaginal douching (Grimley et al., 2005).

The researchers' use of the TTM individualized the intervention based on each participant's current stage of change, similarly to an intervention that took place in Zimbabwe. In the study in Zimbabwe, counseling sessions were also tailored to the individual's current stage of readiness to stop intravaginal practices (Esber et al., 2014).. The researchers observed a significant decline in intravaginal practices at follow-up

compared to baseline. They also found that many participants had progressed through the stages during the intervention (e.g. from contemplation to action) (Esber et al., 2014).

While these studies suggest that the TTM provides a good framework for assessing the readiness to change a behavior (Esber et al., 2014; D. M. Grimley et al., 2005), they have not explored what young women see as the pros and cons of douching behavior. This information is important for developing both educational and behavior change programs. Unfortunately, to date, no instrument has been validated for use in assessing these pros and cons. By linking the cessation of intravaginal practices with women's beliefs about the pros and the cons of douching, we will be able to better understand the factors that contribute to their douching behavior. This will aid in future studies and ultimately may guide a future intervention to reduce these behaviors.

Assessing Validity and Reliability

Decisional balance scales are proven to be useful in the context of the TTM and changing health behaviors (Prochaska et al., 1994). Creation of a decisional balance instrument should also be tested for reliability and validity. Reliability refers to an instrument's ability to measure the same thing consistently. This means that a decisional balance scale must demonstrate consistent results among the items included in the scale. One of determining reliability is by testing the scale for internal consistency. This means that there is consistency among what the items within an instrument are measuring. This is done by calculating Cronbach's alpha for the instrument.

An instrument must be found reliable before it can be tested for validity. Validity refers to an instrument's ability to measure what it is supposed to measure. Two ways of assessing validity are determining face validity and construct validity. Face validity refers

to whether an instrument appears to be measuring what it's supposed to be measuring. By examining the items in the scale, one with knowledge about the specific topic can ascertain whether the instrument appears to have face validity or not. The items should make sense in relation to the topic of interest. Construct validity refers to an instrument's ability to measure accurately the sets of traits that it intends to measure. One way of assessing construct validity is by conducting a factor analysis. This tests whether items on the scale clump together to reveal underlying correlations with each other. For a decisional balance scale, one would hypothesize that the pro items would correlate to each other and the con items would correlate with each other. This would create two factors.

Chapter 3: Methods

Participants

Study participants consisted of women students enrolled at the Rollins School of Public Health and the Woodruff School of Nursing at Emory University. Only students currently seeking degrees from these schools were eligible for this study. Participants were 18 years old or older. Both women who had and did not have a history of douching were included. Both public health and nursing students comprised the target population due to the belief that graduate students in health-related fields will have similar familiarity with douching behaviors. However, the level of familiarity is unknown – therefore this population was of interest to examine. Studies have been conducted about douching behaviors of undergraduate women (Cottrell & Close, 2008; Ekpenyong & Davies, 2013; Foch et al., 2001; Funkhouser et al., 2002; Markham et al., 2007; Tsai et

al., 2009; Vaca et al., 2010; Vermund et al., 2001) and of minority and immigrant populations (Anderson et al., 2008; Bruce et al., 2000; Cottrell, 2010; De La Cruz et al., 2009; DiClemente et al., 2012; McKee et al., 2009; Misra et al., 2006; Redding et al., 2010), but none have assessed the beliefs of a health-focused population.

The participants were recruited at the two schools via community email listservs and social media. An email was sent to the community listservs and messages were posted to each class and program's Facebook pages. This convenience sample was chosen because this population has not previously been researched. Data from this study can inform future studies of students in the health field.

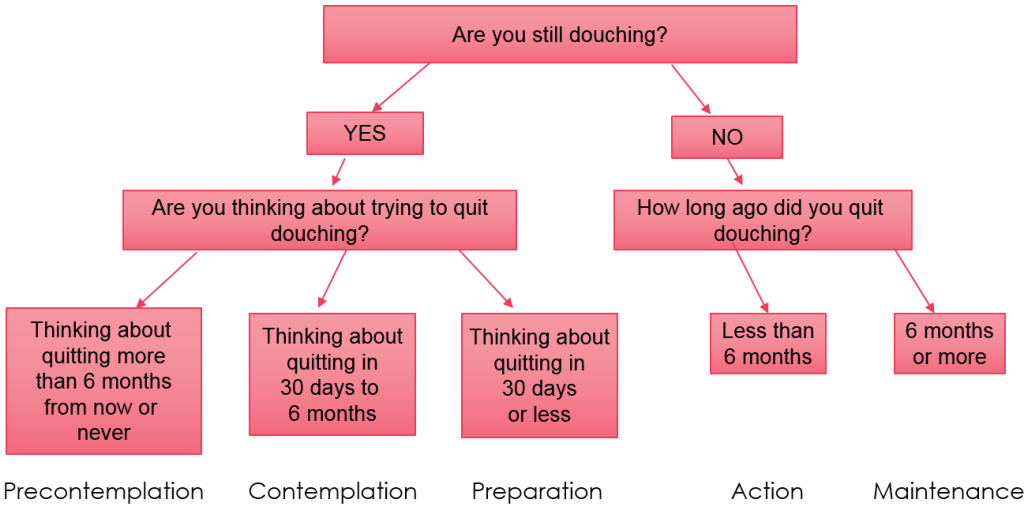
A goal of 217 participants was desired to complete the survey for 80% power and medium effect size to determine differences by stage. This number was calculated by multiplying the number of participants required for an ANOVA with five groups by the five stages of readiness and then inflating for an assumption of 10% missing data.

Measures

Stages of Douching Cessation. The first research question assessed the distribution of stages of readiness to quit douching. This was assessed by placing the participants in the stages (precontemplation, contemplation, preparation, action, and maintenance) based on their survey responses. The algorithm used to assess the distribution of stages at baseline informed the survey questions that preceded the demographic questions. First, the participants were asked a few eligibility questions, followed by "Have you ever heard of douching before?" and "Do you think douching is a health problem?" After these initial questions, participants were asked, "Have you ever douched?" Then, "Do you currently douche?" If the participant replied to this question

positively, then they were taken to the stages of readiness algorithm which asked if they were still douching. If yes, they were asked if they were thinking about trying to quit douching (thirty days or less, thirty days to six months, or six months from now or never). If the participant indicated that they were not still douching, they were asked how long ago they quit (less than six months or six months or more). If the participant had never douched, then the stages of readiness algorithm was skipped. All participants were then pushed to the decisional balance measure.

Figure 1. Stages of Change Algorithm



Douching Decisional Balance. The decisional balance scale was first created by reviewing the literature to identify pros and cons for this behavior (Brotman, Klebanoff, Nansel, Zhang, et al., 2008; Gazmararian et al., 2001). The scale asks questions such as, "I save money if I don't douche," (pro of quitting douching), "I feel unclean if I don't douche," (con of quitting douching), and, "My partner likes me less when I don't douche," (con of quitting douching). Four of the questions are pros of quitting and four are cons of quitting. Answers are based on a Likert scale from one to five, with one being "strongly disagree" and five being "strongly agree". The full scale is included as

Appendix A. This scale produces three measures: pros, cons, and decisional balance. The pro score is determined by summing each participant's responses to the pro items. The con score is determined by summing each participant's responses to the con items. The standardized score for the cons is subtracted from the score for the pros to obtain a decisional balance score.

Procedure

The invitation to participate in the survey, including the link to the survey itself, was sent to the community email listserv and both schools' Facebook pages. The initial invitation detailed the research aims, goals, IRB approval, and privacy statement. After clicking on the link, participants viewed the consent information. If the participant consented to participate, they clicked the link to continue to the survey. Included in the consent information was the fact that the participant could refuse to answer any question and exit the survey at any time. Before the survey questions began, a definition of douching was provided to the participants. This was to ensure that the participants understood what the behavior is. They were also given the researcher's contact information, in case they wanted any more information or had any questions, as well as contact information for the Emory Student Counseling Center, due to the sensitive nature of the survey questions.

Once participants had completed the survey, they were thanked for their time and given the contact information again. The survey continued to accept participants for a period of two weeks, at which point the survey was closed. There was no incentive for completing the survey, so the survey was kept short and minimally complex.

The survey question topics followed the order of: general questions about douching, previous and current douching practices, the stages of readiness to quit douching algorithm, the decisional balance scale, and demographics (e.g. age, major, country of origin). This last information was obtained in order to assess any variables that might have a significant relationship with the main measures. The full survey is attached as Appendix B.

Analysis

Descriptive proportions were obtained to address Aim 1. For the purpose of validation (Aim 2), the scale must first be demonstrated to be reliable. A Cronbach's Alpha test of reliability was performed to assess the degree to which there is interrelatedness among the items on the scale. To further assess the validity of the scale, an exploratory factor analysis was conducted. The analysis of Aim 3 further contributed to the validation of the scale.

For Aim 3, the TTM predicts that as people progress through the stages of readiness for behavior change from precontemplation to maintenance, the pros of quitting the behavior increase and the cons of quitting the behavior decrease. The mean pro score and con score were determined for women in each stage, to explore whether the pros increased and the cons decreased.

In addition, a one-way ANOVA assessed if there is a difference in the distribution of the decisional balance across the stages of readiness to quit douching. The stages of readiness served as the five-category independent variable and the computed decisional balance score served as the continuous dependent variable. This test was used to determine whether there was a significant difference somewhere among the mean

decisional balance scores of people in the five stages of readiness. If a significant difference were detected, the appropriate post-hoc tests would be run to determine where the variability lay. All statistical analyses were conducted using SPSS and the significance level was $p<0.05$.

Chapter 4: Results

Descriptive statistics of the sample

A total of 218 individuals consented to participate in the survey. Of these, eight were eliminated from the sample for not being currently enrolled in the Rollins School of Public Health or Woodruff School of Nursing. Two of these also self-identified as male. An additional five were eliminated for not answering all three eligibility questions. 205 individuals consented and were considered eligible for inclusion in the study sample. This was below the desired sample size of 217 and as a result, the power and effect size were affected.

The mean age of the 205 participants was 26.29 (sd=5.35; missing=16). The majority of participants identified as white (n=129; 62.9%), Asian (n=23; 11.2%), or Black (n=21; 10.2%)(missing=9; 4.4%). Of the total, 68.3% (n=140) were enrolled at Rollins School of Public Health and 26.3% (n=54) at Nell Hodgson Woodruff School of Nursing (missing=9 [4.4%]). Most participants were pursuing a Master of Public Health (MPH) degree (n=132; 64.4%), followed by a Bachelor of Science in Nursing (BSN) (n=23; 11.2%) and a Master of Science in Nursing (MSN) (n=10; 4.9%) (missing=11; 5.4%). Fully 86.3% (n=177) of participants named the United States as their country of

origin (missing=) and of those, 15.1% (n=31) were from the state of Georgia (missing=27 [13.2%]).

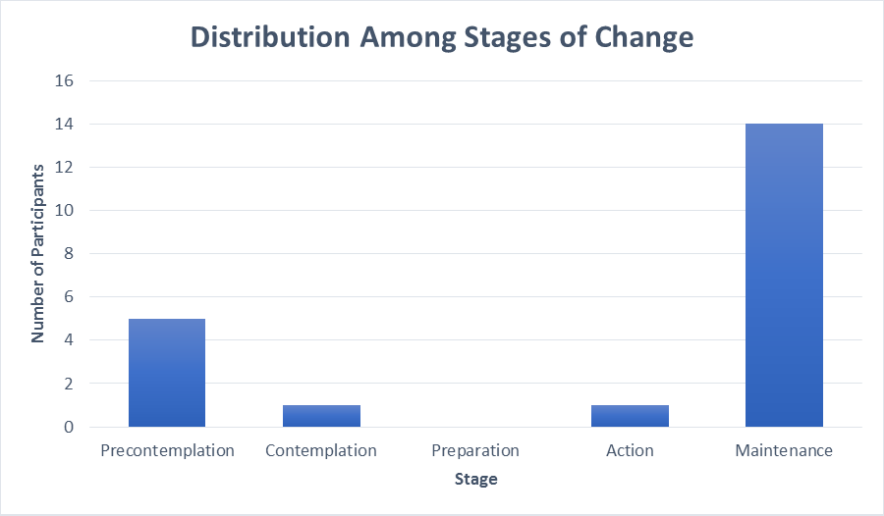
Most (83.9%; n=172) participants identified as heterosexual/straight, 6.8% (n=14) identified as bisexual, and 2.4% (n=5) identified as homosexual/gay or lesbian (missing=12 [5.9%]). Of respondents, 35.6% (n=73) indicated they were single and not in a relationship. Another 29.8% (n=61) were in a relationship but not living together and 12.7% (n=26) were in a relationship and living together. An additional 14.6% (n=30) indicated that they were married (missing=15 [7.3%]).

Aim 1. *What is the distribution of stages of readiness for women to quit douching?*

Participants were sorted into the stages of change based on their answers to the created algorithm. Women who responded positively when asked if they had ever douched were then asked if they were still douching. Ten-point-two percent (n=21) of participants indicated that they had ever douched before (missing=1 [0.5%]) . Of those, 28.6% (n=6) were still douching and 71.4% (n=15) were no longer douching. Those still douching were asked if they were thinking about trying to quit douching. Five participants (83.3% of those still douching) were thinking about quitting more than six months from now or never. One participant (16.7% of those still douching) was thinking about quitting in 30 days to six months. No participants (n=0; 0.0%) were thinking about quitting in less than 30 days. Participants who had douched before but had since quit douching were asked how long ago they quit. One participant (6.7% of those who quit douching) quit less than six months prior to the survey and 14 participants (93.3% of those who quit douching) quit six months or more prior to the survey.

Based on the responses to the questions included in the algorithm, the distribution respondents within the stages of change were as follows: five women (2.4% of the entire sample) were determined to be in the precontemplation stage, one (0.5% of the entire sample) was in the contemplation stage, zero (0.0% of the entire sample) were in the preparation stage, one (0.5% of the entire sample) was in the action stage, and 14 (6.8% of the entire sample) were in the maintenance stage. Thus, a total of 6 women (2.9% of the entire sample) were still douching and 15% (7.3% of the entire sample) had previously douched but quit.

Figure 2. Distribution of Participants Among the Stages of Change



Aim 2. *Is the decisional balance measure valid?*

Eight participants did not answer any of the decisional balance items on the survey. As a result, their answers were left out of the decisional balance analyses and considered missing. Five participants skipped one item answer; as this constituted less than 25% of data missing for each of these participants, the five missing values were replaced with the mean score of each respective item.

The created decisional balance scale consisted of four pro items and four con items. Answer options ranged from (1) strongly disagree to (5) strongly agree. In order to compute the decisional balance score for each participant, the four pro responses were added up and divided by four (the number of pro items) to produce a pro score, and then the four con responses were added up separately and divided by four (the number of con items) to produce a con score. The computed con score was then subtracted from the computed pro score and the resulting number was the decisional balance score, with higher scores indicating stronger agreement with the pro statements concerning the benefits of not douching; negative scores indicated that the cons outweighed the pros. Scores could range from -4.00 to 4.00. The mean decisional balance score for the participants was 2.44 (sd=1.17), with scores ranging from a minimum of -1.25 to a maximum of 4.00.

Reliability analyses of the pro subscale and the con subscale were conducted separately. Cronbach's alpha reliability for the pro scale was 0.767. For the con scale, it was 0.738. Cronbach's alpha reliability for the full scale (the pro subscale in addition to the con subscale with reverse coded responses to correct negative item wording) was 0.797. These scores suggest high internal consistency of the scales' items.

Validity of the scale was determined by conducting a factor analysis. The factor analysis produced two factors with eigenvalues greater than 1. The rotated factor pattern is displayed in Table 1. The first four items, representing the pros of not douching, loaded on factor 2. The second four items, representing the cons of not douching, loaded on factor 1. Two items also cross-loaded; specifically, the items about being healthier if

not douching and about douching interfering with the body's natural processes loaded negatively with the pros of douching.

Table 1. The Rotated Factor Pattern

Rotated Component Matrix[a]

	Component	
	1	2
I save money if I don't douche	.087	.740
I am healthier if I don't douche	-.439	.744
Life is simpler if I don't douche	-.100	.772
Douching interferes with my body's natural processes	-.530	.669
I feel unclean if I don't douche	.759	-.179
My partner likes me less when I don't douche	.718	.009
I have vaginal odor if I don't douche	.804	-.061
I am at higher risk for STIs if I don't douche	.603	-.288

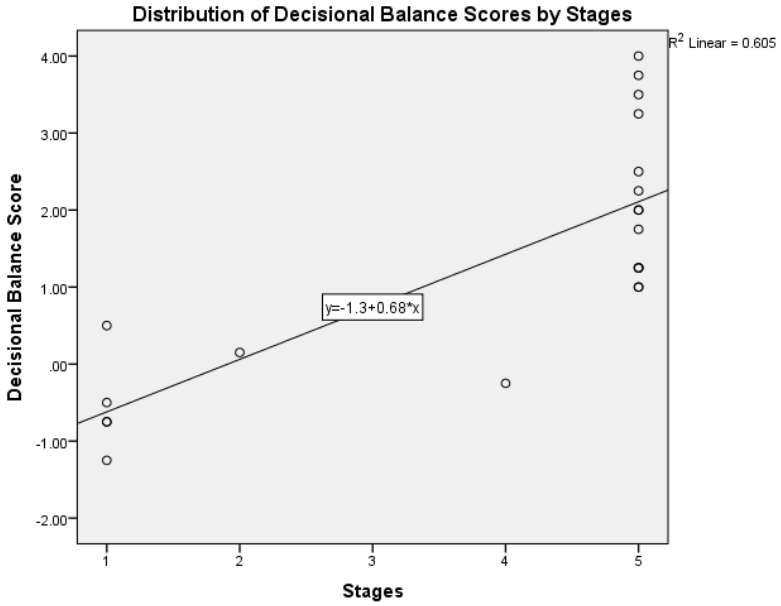
Aim 3. *Is the relationship between the stages of readiness and the decisional balance in line with the predictions of the model?*

According to the TTM, the pros of adopting the behavior should increase as individuals progress through the stages of change and the cons should decrease, indicating that as one moves towards maintenance of the desired behavior they will have beliefs in line with the pros of adopting the behavior (Prochaska et al., 1994). In this study, the adopted behavior is cessation of douching.

In order to address the third and final research aim of this study, we first ran a one-way ANOVA. A statistically significant difference was observed in mean decisional balance scores among the stages of change ($F=11.307$, $p<.001$). Tukey post hoc tests were not run because three of the stages had fewer than two cases. The correlation between stage and decisional balance was positive and statistically significant

(Spearman's rho = 0.821, p<.001). Most of the participants were in the precontemplation or maintenance stages. The contemplation and action stages each only represented one participant, and no participants with data on pros and cons were in the preparation stage. The distribution of the total decisional balance score is presented by stage in Figure 2. As shown in the figure, most of those in precontemplation had decisional balance scores less than zero, indicating that the cons outweighed the pros. Conversely, most of those in maintenance had scores above zero, indicating that the pros outweighed the cons.

Figure 3. Distribution of Total Decisional Balance Score by Stage



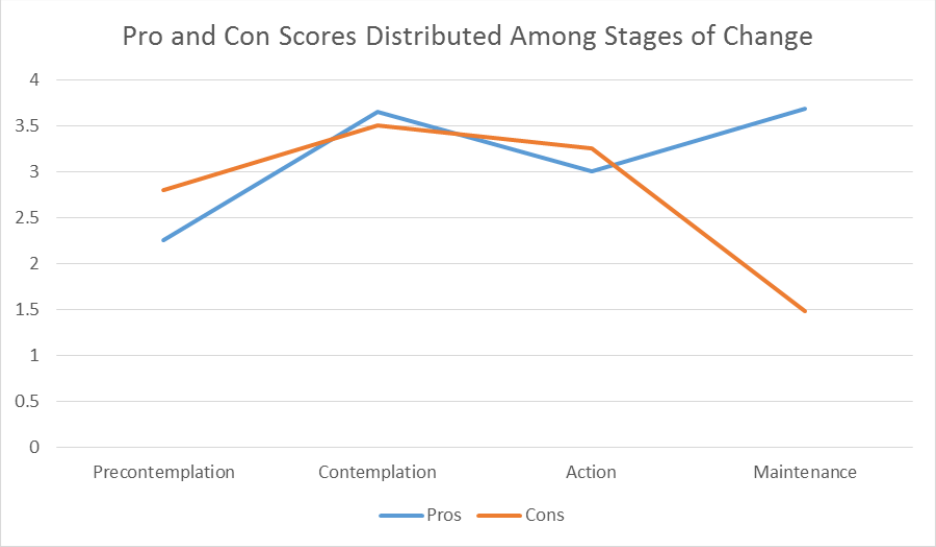
The means for the pros and cons are presented by stage in Table 2. The pros increased from precontemplation to maintenance, the stages with the greatest number of participants, and increased across 3 of the 4 stages. This difference across stages was statistically significant ($F_{3,17} = 3.92$, p = 0.027). The correlation between stage and pros was positive and statistically significant (Spearman's rho = 0.51, p = 0.018). Likewise, the cons decreased from precontemplation to maintenance and decreased across the stages for 3 of the 4 stages. Again, this difference across stages was statistically

significant ($F_{3,17}$ = 6.43, p = 0.004). The correlation between stage and cons was negative and statistically significant (Spearman's rho = -0.64, p = 0.002).

Table 2. Mean Scores for Pros and Cons by Stage of Change

	Precontemplation	Contemplation	Action	Maintenance	$F_{3,17}$	p-value
n	5	1	1	14		
Pros	2.25	3.65	3.00	3.68	3.92	0.027
Cons	2.80	3.50	3.25	1.48	6.43	0.004

Figure 4. Participants' Pro and Con Scores Distributed Among the Stages of Change



Post-hoc Analyses

Altogether, 10.2% (n=21) (missing=1; 0.5%) of participants indicated that they had ever douched before. The mean age of participants that had a history of douching was 29 (sd=7.462). Most reported that they were single (n=8; 38.1%). All 21 participants with a history of douching identified as heterosexual or straight (100%) and indicated the United States as their country of origin (100%). Roughly half (n=11; 52.4%) of participants were white. 6 (28.6%) participants identified as black and 4 (19.0%) identified as Asian.

The mean age of the 6 participants who were currently douching at the time of the survey was 25.67 (sd=1.966). Half of the douching population (n=3; 50.0%) were single and the other half (n=3; 50.0%) were in a relationship. All (n=6; 100.0%) identified as

heterosexual and originated in the United States. Most were white (n=4; 66.7%). Results of a Chi Square test of independence suggest that there is a statistically significant association between history of douching and sexual orientation ($\chi 2$=4.355; df=1; p=.037), with heterosexual women reporting more history of douching (n=21; 12.2%) compared to those who identified as non-heterosexual (including homosexual, bisexual, and other) (n=0; 0.0%).

Despite the fact that relatively few participants had actively douched before, 94.1% (n=193) (missing=1; 0.5%) of respondents indicated that they had heard of douching before starting this survey. However, when asked if they thought douching was a health problem, only 72.7% (n=149) (missing=1; 0.5%) indicated that they did think it was a health problem. A Chi Square test of independence was performed to examine the association between those who felt douching is a health problem and those who had ever douched. Results suggest that there is a statistically significant association ($\chi 2$=10.829; df=1; p=.001), with those who do not think douching is a health problem reporting more history of douching (n=12; 21.8%) compared to those who did think it is a health problem (n=9; 6.0%). A statistically significant association ($\chi 2$=6.079; df=2; p=.048) was also observed between the belief that douching is a health problem and school enrollment, with 77.8% (n=42) of participants enrolled in the nursing school reporting that they think douching is a health problem compared to only 72.1% (n=101) of those in the public health school. The belief that douching is not a health problem was also significantly associated with relationship status ($\chi 2$=8.184; df=3; p=.042). Single women were more likely to report that douching is not a health problem (n=28; 38.4%) compared to women in a relationship (n=18; 20.7%) and married women (n=5; 16.7%).

The distribution of age across the stages of change indicated an approximate split midway through the stages, with younger participants grouped in the precontemplation stage and older participants grouped in the maintenance stage. Similarly, an approximate midway split was observed between single and married participants, with single participants grouped in the precontemplation stage and married participants grouped in the maintenance stage.

Chapter 5: Discussion

Aim 1. *What is the distribution of stages of readiness for women to quit douching?*

A relatively small number of participants had a history of douching, and even fewer currently were douching. This is encouraging; one would hope to find a low number of douching participants within a health care education setting. As for the participants with a history of douching, the majority had quit and were in the maintenance or action stages, with fewer still douching. Those still douching, however, did not intend to stop anytime soon. This creates a stark divide within the participants with a history of douching; overall, women had either quit douching a long time ago or had no intention of quitting any time soon. This may reflect a need for targeted interventions – those women who have no intentions of stopping the behavior will likely respond to interventions designed for getting them to progress even into the contemplation stage. This may include messages about the dangers of douching and the benefits of stopping.

Aim 2. *Is the decisional balance measure valid?*

The created decisional balance measure proved to be reliable and the two subscales exhibited factorial validity. The questions load on each of the two factors well, indicating validity of the pro and con subscales. These separate subscales, in addition to the full scale, present future researchers with reliable, valid measures of analyzing beliefs about douching behaviors. The significance of a validated decisional balance measure specifically about the pros and cons of douching is that it is the first of its kind; numerous exploratory studies have qualitatively examined women's reasons for douching or uncovered demographic and psychosocial characteristics which correlate with douching behavior (Cottrell & Close, 2008; DiClemente et al., 2012; Ekpenyong & Etukumana, 2013; Funkhouser et al., 2002; Markham et al., 2007; McKee et al., 2009; Vermund et al., 2001), but little theoretical research has been conducted (Esber et al., 2014; D. M. Grimley et al., 2005). The decisional balance construct of the TTM is valuable for understanding shifts in women's beliefs about the costs and benefits of douching. This information can be used to tailor behavioral change messages and interventions to where participants fall on the spectrum of pros and cons. For future studies which may employ the TTM, this decisional balance measure can be used and adapted to inform the decisional balance construct of the theory.

Aim 3. *Is the relationship between the stages of readiness and the decisional balance in line with the predictions of the model?*

Our results indicate that as participants moved through the stages of change from precontemplation to maintenance, the pros of not douching increased as the cons of not douching simultaneously decreased. This is in line with the predictions of the TTM

(Prochaska et al., 1994), further validating the created decisional balance measure and indicating it's potential for use in future research.

Post-hoc Analyses

As expected, a significant relationship was observed between history of douching and the belief that douching is not a health problem. Temporality could not be determined, due to the cross-sectional nature of the survey, but given that many of the women who did not have a history of douching believed that douching was not a health problem, it is apparent that increasing the awareness of the health issues associated with douching is necessary. This may have the potential of preventing women from starting douching or pushing women in the earlier stages of change to the action and maintenance stages of change.

Interestingly, the women with a history of douching were grouped on both extremes of the stages of change, with younger women in the precontemplation stage and older women in the maintenance stage. This may indicate a decrease in douching behavior over time. In addition, women in the maintenance stage tended to be married and women in the precontemplation stage were single. This could be tied to age increasing the likelihood of marriage, as well as the possibility of married women being less likely to douche (Caliskan et al., 2006).

Most women had heard of douching before, but fewer thought that douching was a health problem. This supports previous literature findings of a lack of awareness about the effects of douching on the body as well as the need for education about douching practices (Foch et al., 2001; Simpson et al., 2004). Nursing students were significantly more likely to think of douching as a health problem than public health students. This

may be due to the nature of the coursework and interests of the students, but further exploration would be needed to determine why this difference exists. Educating those planning to work in healthcare, even if it's not in a clinical setting, is imperative if we hope to educate the public about the health risks associated with douching. In addition, single women were less likely to believe it is a health problem than women in a relationship. This corresponds with the literature indicating that the influence of a partner may affect reproductive hygienic behavior (Lindberg, Ku, & Sonenstein, 1998; Weisman et al., 2007).

All women who reported any history of douching self-identified as heterosexual. Sexual orientation and douching behavior has not been explored extensively in the literature (Marrazzo, Thomas, Agnew, & Ringwood, 2010). The fact that such a strong level of significance was found here may have implications about heteronormative beliefs, the influence of partner beliefs, or genital self-image beliefs, all of which have been tied to reproductive hygiene behaviors (DeMaria et al., 2011, 2012; Martins, Tiggemann, & Churchett, 2008; Weisman et al., 2007).

Strengths and Limitations

Despite this study's significant contributions made to the literature, several important limitations must be noted. First, the results of this study may not be generalizable to a wide population of women. This survey was conducted within two health care-oriented schools within a large, private university in the American South. While the results may have implications for douching behavior research more generally, they may not be applicable to women of other sociodemographic and psychographic backgrounds.

Second, the survey we conducted was not pilot tested, due to time limitations. This includes the decisional balance scale items. While the survey and scale proved valid and produced significant results, they may have been more effective had they been pilot tested.

Finally, the sample size of this study was small. Due to the nature of the chosen population, this was expected. However, it should be noted that had more time and funding been available, a larger number of participants may have been recruited from the two schools.

Though lacking in generalizability, the study was conducted in this chosen population because of the implications the findings would have for the literature. The decisional balance scale was of great value to this population, as demonstrated by the reliability, face validity, and construct validity of the instrument. This opens the door for further theoretical research in this area with varied populations. Very little theoretical, quantitative research has been conducted on this topic, making this appropriate for use in a smaller, more controlled population. Also, there is no previous research on this topic in regard to the beliefs that women studying health care have about douching. Our findings indicate that although not highly prevalent, there are some women within this population who have a history of douching and also may currently be douching. In addition, the findings regarding the belief about douching being a health problem are significant. Despite this being a presumably well-educated group of women studying health care in some capacity, many women did not feel that douching is a health problem. This opens the door for further exploration within many subpopulations of women who may not have been considered likely targets for information campaigns or interventions.

Conclusion and Implications

The created decisional balance scale was found to be reliable and possess both face and construct validity. This is important because it is the first decisional balance scale made specifically about douching behaviors. This has significant implications for use in future interventions. Studies about douching behaviors are generally lacking in theoretical frameworks; being able to utilize a validated scale will benefit future interventions and studies of douching behaviors in women.

In line with previous literature on this topic, our study found that many women are not informed about the health effects of douching, despite the fact that most were familiar with douching as a concept. Given that prevalence of douching is still high in the United States despite the expansive amount of work extolling the benefits of not douching, more attention to this topic is needed.

Given the context of this health-wise population and lack of knowledge about the negative health effects of douching in this population, the findings from this study lay the groundwork for further theoretical exploration of this topic not only in the health care and university setting, but for the wider population of women. Women in the healthcare fields will be educating and promoting health behavior in others for the rest of their lives; it is imperative that the negative health effects be more widely disseminated. Exploring this health behavior of groups at risk for the behavior, as well as those who should be equipped with accurate knowledge about it, is essential.

Further research should explore these topics, as well as the views of health care providers themselves. Little research explores their opinions and beliefs about douching, but given the lack of knowledge in health care students, this is an important area that

needs to be explored. In addition, further theory-focused research is needed in order to inform potential interventions and education campaigns. The lack of knowledge, combined with the perpetual advertisements promoting douche products and references in the media to the harmlessness of douching, makes this a topic rife with lack of understanding of the consequences of douching. In all, douching behavior and understanding is a promising topic of research to be developed further in the future.

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Appendix A. Decisional Balance Instrument

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
I save money if I don't douche.	1	2	3	4	5
I am healthier if I don't douche.	1	2	3	4	5
Life is simpler if I don't douche.	1	2	3	4	5
Douching interferes with my body's natural processes.	1	2	3	4	5
I feel unclean if I don't douche.	1	2	3	4	5
My partner likes me less when I don't douche.	1	2	3	4	5
I have vaginal odor if I don't douche.	1	2	3	4	5
I am at higher risk for STIs if I don't douche.	1	2	3	4	5

Appendix B. Full Survey

Do you consent to be in this study?*

( ) Yes

( ) No

Eligibility

Are you over 18 years old?

( ) Yes

( ) No

Are you a female?

( ) Yes

( ) No

Are you currently enrolled in either the Rollins School of Public Health or the Nell Hodgson Woodruff School of Nursing?

( ) Yes

( ) No

Douching History

Have you ever heard of douching before?

( ) Yes

( ) No

Do you think douching is a health problem?

( ) Yes

( ) No

Have you ever douched?

( ) Yes

( ) No

Are you still douching?

( ) Yes

( ) No

Stages of Readiness Algorithm

Are you thinking about trying to quit douching?

( ) Thinking about quitting more than 6 months from now or never

( ) Thinking about quitting in 30 days to 6 months

( ) Thinking about quitting in 30 days or less

How long ago did you quit douching?

( ) Less than 6 months

( ) 6 months or more

Decisional Balance Scale

I save money if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

I am healthier if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

Life is simpler if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

Douching interferes with my body's natural processes.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

I feel unclean if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

My partner likes me less when I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

I have vaginal odor if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

I am at higher risk for STIs if I don't douche.

( ) Strongly disagree ( ) Disagree ( ) Unsure ( ) Agree ( ) Strongly agree

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Demographics

How old are you?

_____

Which race or ethnicity do you most identify with? (may select more than one)

[ ] White

[ ] Black or African-American

[ ] American Indian or Alaska Native

[ ] Asian

[ ] Native Hawaiian or Other Pacific Highlander

[ ] Hispanic/Latino

[ ] Other

Are you currently enrolled in:

[ ] Rollins School of Public Health

[ ] Woodruff School of Nursing

Which degree are you pursuing?

( ) Master of Public Health (MPH)

( ) Master of Science in Public Health (MSPH)

( ) Master of Science in Clinical Research (MSCR)

( ) PhD

( ) BSN

( ) Accelerated BSN

( ) Accelerated BSN + MSN

( ) MSN

( ) MSN-MPH

( ) Post Masters Certificate Program

( ) Doctor of Nursing Practice (DNP)

( ) Other

Relationship status:

( ) Single, not in a relationship

( ) In a relationship but not living together

( ) In a relationship and living together but not married

( ) Married

( ) Other

Sexual orientation:

( ) Heterosexual/Straight

( ) Homosexual/Gay or Lesbian

( ) Bisexual

( ) Other

What is your country of origin?

( ) Afghanistan

( ) Albania

( ) Algeria

( ) Andorra

( ) Angola

( ) Antigua and Barbuda

( ) Argentina

( ) Armenia

( ) Aruba

( ) Australia

( ) Austria

( ) Azerbaijan
( ) Bahamas, The
( ) Bahrain
( ) Bangladesh
( ) Barbados
( ) Belarus
( ) Belgium
( ) Belize
( ) Benin
( ) Bhutan
( ) Bolivia
( ) Bosnia and Herzegovina
( ) Botswana
( ) Brazil
( ) Brunei
( ) Bulgaria
( ) Burkina Faso
( ) Burma
( ) Burundi
( ) Cambodia
( ) Cameroon
( ) Canada
( ) Cape Verde
( ) Central African Republic
( ) Chad
( ) Chile
( ) China
( ) Colombia
( ) Comoros
( ) Congo, Democratic Republic of the
( ) Congo, Republic of the
( ) Costa Rica
( ) Cote d'Ivoire

( ) Croatia
( ) Cuba
( ) Curacao
( ) Cyprus
( ) Czech Republic
( ) Denmark
( ) Djibouti
( ) Dominica
( ) Dominican Republic
( ) Ecuador
( ) Egypt
( ) El Salvador
( ) Equatorial Guinea
( ) Eritrea
( ) Estonia
( ) Ethiopia
( ) Fiji
( ) Finland
( ) France
( ) Gabon
( ) Gambia, The
( ) Georgia
( ) Germany
( ) Ghana
( ) Greece
( ) Grenada
( ) Guatemala
( ) Guinea
( ) Guinea-Bissau
( ) Guyana
( ) Haiti
( ) Holy See
( ) Honduras

( ) Hong Kong
( ) Hungary
( ) Iceland
( ) India
( ) Indonesia
( ) Iran
( ) Iraq
( ) Ireland
( ) Israel
( ) Italy
( ) Jamaica
( ) Japan
( ) Jordan
( ) Kazakhstan
( ) Kenya
( ) Kiribati
( ) Kosovo
( ) Kuwait
( ) Kyrgyzstan
( ) Laos
( ) Latvia
( ) Lebanon
( ) Lesotho
( ) Liberia
( ) Libya
( ) Liechtenstein
( ) Lithuania
( ) Luxembourg
( ) Macau
( ) Macedonia
( ) Madagascar
( ) Malawi
( ) Malaysia

( ) Maldives
( ) Mali
( ) Malta
( ) Marshall Islands
( ) Mauritania
( ) Mauritius
( ) Mexico
( ) Micronesia
( ) Moldova
( ) Monaco
( ) Mongolia
( ) Montenegro
( ) Morocco
( ) Mozambique
( ) Namibia
( ) Nauru
( ) Nepal
( ) Netherlands
( ) Netherlands Antilles
( ) New Zealand
( ) Nicaragua
( ) Niger
( ) Nigeria
( ) North Korea
( ) Norway
( ) Oman
( ) Pakistan
( ) Palau
( ) Palestinian Territories
( ) Panama
( ) Papua New Guinea
( ) Paraguay
( ) Peru

( ) Philippines
( ) Poland
( ) Portugal
( ) Qatar
( ) Romania
( ) Russia
( ) Rwanda
( ) Saint Kitts and Nevis
( ) Saint Lucia
( ) Saint Vincent and the Grenadines
( ) Samoa
( ) San Marino
( ) Sao Tome and Principe
( ) Saudi Arabia
( ) Senegal
( ) Serbia
( ) Seychelles
( ) Sierra Leone
( ) Singapore
( ) Sint Maarten
( ) Slovakia
( ) Slovenia
( ) Solomon Islands
( ) Somalia
( ) South Africa
( ) South Korea
( ) South Sudan
( ) Spain
( ) Sri Lanka
( ) Sudan
( ) Suriname
( ) Swaziland
( ) Sweden

( ) Switzerland
( ) Syria
( ) Taiwan
( ) Tajikistan
( ) Tanzania
( ) Thailand
( ) Timor-Leste
( ) Togo
( ) Tonga
( ) Trinidad and Tobago
( ) Tunisia
( ) Turkey
( ) Turkmenistan
( ) Tuvalu
( ) Uganda
( ) Ukraine
( ) United Arab Emirates
( ) United Kingdom
( ) United States of America
( ) Uruguay
( ) Uzbekistan
( ) Vanuatu
( ) Venezuela
( ) Vietnam
( ) Yemen
( ) Zambia
( ) Zimbabwe

If you are from the U.S., what is your state or territory of origin?

( ) Alabama
( ) Alaska

( ) American Samoa
( ) Arizona
( ) Arkansas
( ) California
( ) Colorado
( ) Connecticut
( ) Delaware
( ) District of Columbia
( ) Florida
( ) Georgia
( ) Guam
( ) Hawaii
( ) Idaho
( ) Illinois
( ) Indiana
( ) Iowa
( ) Kansas
( ) Kentucky
( ) Louisiana
( ) Maine
( ) Maryland
( ) Massachusetts
( ) Michigan
( ) Minnesota
( ) Mississippi
( ) Missouri
( ) Montana
( ) Nebraska
( ) Nevada
( ) New Hampshire
( ) New Jersey
( ) New Mexico
( ) New York

( ) North Carolina
( ) North Dakota
( ) Northern Mariana Islands
( ) Ohio
( ) Oklahoma
( ) Oregon
( ) Pennsylvania
( ) Puerto Rico
( ) Rhode Island
( ) South Carolina
( ) South Dakota
( ) Tennessee
( ) Texas
( ) U.S. Virgin Islands
( ) Utah
( ) Vermont
( ) Virginia
( ) Washington
( ) West Virginia
( ) Wisconsin
( ) Wyoming

If you are an international student, how long have you lived in the United States?

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Thank You!