

## The Prevalence of Vaginal Douching and Associated Factors in Married Women and the Role of Education in Stopping Vaginal Douching?

Nebahat Ozerdogan<sup>1</sup>, Yurdagül Yagmur<sup>2</sup>, Berrak Mizrak Sahin<sup>3</sup>, Elif Gursoy<sup>3</sup>, Engin Karadag<sup>4</sup>

<sup>1</sup>Eskisehir Osmangazi University, Faculty of Health Sciences, Midwifery Department, Eskisehir, Turkey

<sup>2</sup>Inönü University, Faculty of Health Sciences, Nursing Department, Malatya, Turkey

<sup>3</sup> Eskisehir Osmangazi University, Faculty of Health Sciences, Nursing Department, Eskisehir, Turkey

<sup>4</sup> Eskisehir Osmangazi University, Faculty of Education, Eskisehir, Turkey

Corresponding author: Berrak Mizrak Sahin

**Abstract:** Vaginal douche is a traditional practice widespread among the women all over the world. Advices and education from health professionals are of utmost importance in preventing and halting VD. There are only two studies on the prevention of VD practice in Turkey. **Aim:** The aim of this study to analyze the prevalence of vaginal douche among married women between aged 15 and 49 years from two districts of the Western and Eastern Turkey, and to identify the socio-demographic factors which effect this procedure. In addition, we aimed to evaluate the role of education in stopping vaginal douche. **Methods:** The study was carried out in two stages between February 2014 and August 2014 in Eskisehir and Malatya city centers. The first stage is a cross-sectional to determine the prevalence of the vaginal douche and the second stage is intervention to prevent douching. The sample size was identified as 702 in Malatya and 352 in Eskisehir with a confidence interval of 95% and error margin of 5%. **Results:** Of 1,088 women, 203 (18.7%) practiced vaginal douche. Old age, low level of education and income, large family, increase in number of children, being uninformed about the harmful effects of vaginal douching were identified as the independent risk factors of vaginal douching. There was a significant difference between women's habit of practicing vaginal douche before and after education ( $p < 0.001$ ). **Conclusion:** The rate of vaginal douche among women in this study is lower than many other studies. However, it was found that approximately two of every 10 women practice vaginal douche. Vaginal douche should be considered as an important public health problem due to the risks and economic losses that it creates. Health professional working in the field of women's health should support women in developing healthy genital hygiene habits.

**Keywords:** Education, Prevalence, Turkey, Vaginal Douching, Women's Health

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### I. Introduction

Vaginal douche (VD) is a traditional practice widespread among the women all over the world. Nevertheless, particularly in Asian and African countries where the number of Muslim women is higher, and in African-American black women in the US, the rate of practicing VD is higher (27.7%-76.7%) (Grimley, Annang, Foushee, Bruce, & Kendrick, 2006; Heng, Yatsuya, Morita, & Sakamoto, 2010; Shaaban, Youssef, Khodry, & Mostafa, 2013). It has been estimated that 32% of the American women practice VD, and the majority of those who practice VD are of African-American origin (Chandra, Martinez, Mosher, Abma, & Jones, 2005). Several studies conducted in Turkey have shown that VD is a common procedure and the rate of practicing VD varies between 9.5 and 80.66% (Arslantas, Karabagli, & Koc, 2010; Güzel, Kuyumcuoğlu, & Celik, 2011; Hacıoğlu, Nazik, & Kılıç, 2009; Hadimli et al., 2012; Sunay, Kaya, & Ergun, 2011; Yanikkerem & Yasayan, 2016).

Culture, ethnicity, religious belief affect VD practices (Cottrell, 2010). Vaginal douche is mostly practiced for hygienic and aesthetic reasons or for religious reasons. Women practice this procedure to clean blood and semen, prevent odor, feel clean and fresh after menstruation and sexual intercourse (Brotman, Klebanoff, et al., 2008; Grimley et al., 2006; Hacıoğlu et al., 2009; Hadimli et al., 2012; Heng et al., 2010; Shaaban et al., 2013; Sunay et al., 2011). It is also rarely practiced to prevent pregnancy (Hadimli et al., 2012; Sunay et al., 2011). More than half of the Muslim women perceive the procedure as a religious requirement. In some sects of the Islam, according to their beliefs, women believe that they need to perform ritual ablution of the whole body to be completely clean. They accept VD as a part of the ritual ablution and therefore practice

VD after sexual intercourse and menstruation (Caliskan, Subasi, & Sarisen, 2006; Hacıoğlu et al., 2009). In previous studies, low level of education and income (Arbour, Corwin, & Salsberry, 2009; Brotman, Klebanoff, et al., 2008; Caliskan et al., 2006; Güzel et al., 2011) and old age (Arbour et al., 2009; Caliskan et al., 2006; Misra, Trabert, & Atherly-Trim, 2006) were found to be the socio-demographic factors correlated with the increased VD frequency. Recent studies in the US have revealed that VD is a common procedure among adolescent girls and young women (Diclemente et al., 2012).

In addition, VD affects the vaginal flora and causes gynecologic and obstetric problems in women (Cottrell, 2010). *Lactobacilli* in the flora maintain vagina's acidic pH and prevent infections. However, VD alters the *lactobacilli* count and affects vaginal pH, increasing the risk of bacterial vaginosis, sexually transmitted infections, and pelvic inflammatory disease risk (Cottrell, 2006; Klebanoff et al., 2006). Increased vaginal infections can lead to premature labor, ectopic pregnancy, and cervical cancer (Cottrell, 2010; Mandal, Raina, & Balodi, 2014).

Advices and education from health professionals are of utmost importance in preventing and halting VD. There are only two studies on the prevention of VD practice in Turkey (Metem, Yenil, Tokat, & Serçekuş, 2012; Okumuş & Demirci, 2016). These studies and other studies performed in other countries have demonstrated that interventions from health professionals are effective on the interception of VD (Brotman, Ghanem, et al., 2008; Cottrell, 2006; Klebanoff et al., 2006). This study was performed to analyze the prevalence of VD among married women between aged 15 and 49 years from two districts of the Western and Eastern Turkey, and to identify the socio-demographic factors which effect this procedure. In addition, we aimed to evaluate the role of education in stopping VD.

## **II. Material and Methods**

### **Study design**

The study was carried out in two stages between February 2014 and August 2014 in Eskisehir and Malatya city centers. The first stage is a cross-sectional to determine the prevalence of the VD and the second stage is intervention to prevent douching. Setting and sample

Population comprised women aged between 15 and 49 years in one central district of Eskisehir and two central districts of Malatya. The sample size was identified as 702 in Malatya and 352 in Eskisehir with a confidence interval of 95% and error margin of 5%. The study was completed with a total of 1,088 women, 702 of which are from Malatya and 386 of which are from Eskisehir, which were chosen by convenience sampling method.

### **Ethical considerations**

The study was conducted based on voluntariness, the aim of the study was explained to women, and their informed consents were obtained. During the study, the principles of the Declaration of Helsinki and Good Clinical Practice Guide were followed, which were put in force by the Republic of Turkey Ministry of Health in 15.07.2013, were considered and research ethics were followed.

### **Measurements/Instruments**

To identify the socio-demographic and obstetric characteristics of the women, whether they practice VD and their attitude towards VD, a question form comprising 47 questions prepared based on the literature by the researchers was used (Caliskan et al., 2006; Mandal et al., 2014; Metem et al., 2012).

### **Data collection**

Whether the women perform VD was determined by the question: "have you washed your vagina with a liquid substance using your fingers or any other equipment within the past three months?" (Brotman, Klebanoff, et al., 2008). The question form was revised through a pilot study performed in 20 women. The question form was implemented in home visits through face-to-face meetings. During the questions, women were left alone in a comfortable environment. Immediately after the implementation of the question form, one-to-one education on the negative effects of VD on health was provided to women who were practicing VD. Education subjects were as follows: explanation of the female reproductive organs and their functions, healthy vaginal environment, practices which disrupt the vaginal environment, the effects of VD on vaginal environment and its and adverse consequences, whether VD is a religious requirement, and the statement of the Religious Affairs Administration on this subject. After the education, women were given an information booklet. Three months after the education which took 20 minutes, the women were called by phone and asked if they continued practicing VD.

### Data analysis

Data analysis was done using SPSS version 21.0 software (IBM Corporation, Armonk, NY, USA). In group comparisons, the chi-square test was used for categorical variables, while the Mann-Whitney U test was used for continuous variables. Comparison of the rate of practicing VD before and after education was done using the Mc-Nemar test. As the dependent variable of the study, practicing VD, is not ordered in itself, and has two categories as practicing and not practicing, Binary Logistic Regression Analysis was used. The Enter method was used in the measurement of the dependent variable, practicing VD. Explanatoriness of the model was evaluated using the Nagelkerke R Square. A *p* value of .05 was considered statistically significant.

### III. Results

The mean age of 1,088 women was 33.87 years (SD 8.04; range 16-49). A total of 44.7% of the women were primary school graduates and 84.2% were housewives. Most of the women (87.4%) had a nuclear family and the mean time of marriage was 13.11±8.83. Half of the women had middle income.

Of 1,088 women, 203 (18.7%) practiced VD. They were practicing VD primarily to feel clean and comfortable (80.0%), and secondly, for religious reasons (53.7%). Other reasons were as follows: respectively: to prevent infection (29.4%) and odor (24.9%), to smell nice for their partner (15.9%), to prevent pregnancy (13.9%), and to practice a tradition passed on from the elders of their family (11.9%). 38.4% of the women learned to practice VD by themselves, 23.1% from their mother, 22.7% from a friend, 9.9% from religious professionals, 5.9% from health professionals. 88.3% of the women practiced VD at least once or twice a week. For VD, women used water (66.8%), water and soap (29.8%), and rarely, commercial products (3.4%). 18.6% of the women received information from health professionals on the harmful effects of VD. The correlation between some of the socio-demographic characteristics of women and their habit of practicing VD was investigated (Table 1). A significant correlation was detected between the age, educational level, family income level, family type and VD (*p*<0.05). Old age (OR 0.965, 95% CI 0.946-0.985), low educational level (OR 1.180, 95% CI 1.008-1.382), low family income level (OR 1.361, 95% CI 1.052-1.762), and large family type (OR 0.507, 95% CI 0.333-0.772) were identified as the independent risk factors for VD.

**Table 1. Socio-demographic characteristics of women according to vaginal douching practice**

Socio-demographic characteristics	Vaginal douching practice		Significance test	p	Odds ratio (95% confidence interval) <sup>a</sup>	p
	Yes. n (%)	No. n (%)				
Mean age ±SD.years	35.94±7.40	33.38±8.08	Z = -4.347	<0.001	0.965 (0.946-0.985)	.001
<b>Living place</b>						
Malatya	127 (18.1)	575 (81.9)	$\chi^2 = .419$	.517	0.879 (0.636-1.214)	.433
Eskisehir	76 (19.7)	310 (80.3)				
<b>Education level</b>						
Primary school	110 (22.6)	376 (77.4)	$\chi^2 = 12.819$	.005	1.180 (1.008-1.382)	.039
Secondary school	32 (20.5)	124 (79.5)				
High school	43 (14.1)	262 (85.9)				
University	18 (12.8)	123 (87.2)				
<b>Occupation</b>						
Working	31 (18.0)	141 (82.0)	$\chi^2 = .054$	.816	0.868 (0.551-1.366)	.540
Housewife	172 (18.8)	744 (81.2)				
<b>Family income</b>						
Low	18 (24.7)	55 (75.3)	$\chi^2 = 11.952$	.003	1.361 (1.052-1.762)	.019
Middle	119 (21.8)	426 (78.2)				
High	66 (14.0)	404 (86.0)				
<b>Family type</b>						
Small family	163 (17.1)	788 (82.9)	$\chi^2 = 14.581$	.001	0.507 (0.333-0.772)	.002
Large family	40 (29.2)	97 (70.8)				

A Adjusted for age, living place, education level, occupation, family income and family type. (Nagelkerke R Square=.60)

The number of children, preterm labor, history of genitourinary infection, and awareness on the harmful effects of practicing VD were found to be significantly correlated with practicing VD (*p*<0.05). Increase in the number of children (OR 0.732, 95% CI 0.624-0.857), history of genitourinary infection within the past year (OR 1.684, 95% CI 1.162-2.439) and within the past month (OR 1.481, 95% CI 1.023-2.144), being uninformed about the harmful effects of vaginal douching (OR 0.482, 95% CI 0.316-0.735) were identified as the independent risk factors for VD (Table 2).

**Table 2. Vaginal douching knowledge, obstetric and reproductive history of women according to vaginal douching practice**

Obstetric and reproductive characteristics	Vaginal douching practice		Significance test	p	Odds ratio (95% confidence interval) <sup>b</sup>	p
	Yes n (%)	No n (%)				
<b>The number of children</b>						
Absent	3 (13.0)	20 (87.0)	$\chi^2 = 18.677$	<b>.001</b>	0.732 (0.624-0.857)	<b>&lt;.001</b>
1	24 (11.0)	195 (89.0)				
2	57 (17.2)	275 (82.8)				
3	50 (20.4)	195 (79.6)				
4+	69 (25.7)	200 (74.3)				
<b>Number of abortion</b>						
Absent	97 (18.2)	436 (81.8)	$\chi^2 = 1.516$	.679	1.095 (0.900-1.334)	.365
1	66 (17.7)	306 (82.3)				
2	27 (21.8)	97 (78.2)				
3+	13 (22.0)	46 (78.0)				
<b>History of preterm labor</b>						
Present	21 (27.6)	55 (72.4)	$\chi^2 = 4.205$	<b>.040</b>	1.597 (0.915-2.787)	.099
Absent	179 (18.2)	810 (81.8)				
<b>History of low birth weight infant</b>						
Present	23 (22.5)	79 (77.5)	$\chi^2 = 1.051$	.305	0.839 (0.494-1.425)	.517
Absent	177 (18.4)	786 (81.6)				
<b>History of genitourinary infection within the past year</b>						
Yes	75 (27.1)	202 (72.9)	$\chi^2 = 17.350$	<b>&lt;.001</b>	1.684 (1.162-2.439)	<b>.006</b>
No	128 (15.8)	683 (84.2)				
<b>History of genitourinary infection within the past month</b>						
Yes	73 (26.6)	201 (73.4)	$\chi^2 = 15.383$	<b>&lt;.001</b>	1.481 (1.023-2.144)	<b>.038</b>
No	130 (16.0)	684 (84.0)				
<b>Getting information about harmful effects of VD</b>						
Yes	30 (10.7)	250 (89.3)	$\chi^2 = 17.335$	<b>&lt;.001</b>	0.482 (0.316-0.735)	<b>.001</b>
No	173 (22.0)	613 (78.0)				

<sup>a</sup> Adjusted for the number of children, number of abortion, history of low birth weight infant, history of genitourinary infection within the past year, history of genitourinary infection within the past month, getting information about harmful effects of VD (*Nagelkerke R Square* = .76)

<sup>b</sup> Diagnosed by a doctor

There was a significant difference between women's habit of practicing VD before and after education ( $p < 0.001$ ). After the education, the rate of those who practice VD decreased by 18.7% and dropped to 10.7% (Table 3).

**Table 3. The effect of education on women's habit of practicing VD**

Vaginal douching application	Before education		After education		X <sup>2</sup> ; p
	n	%	n	%	
Practicing vaginal douching	203	18.7	116	10.7	566.067; < .001
Not practicing vaginal douching	885	81.3	972	89.3	

$\chi^2$  Mc Nemar Test

#### IV. Discussion

Vaginal douche is a traditional practice widely performed by women all over the world. In previous studies performed in Turkey, the rate of practicing VD was usually over 50% (Akın, Ege, & Erdem, 2006; Caliskan et al., 2006; Hacıoğlu et al., 2009; Hadimli et al., 2012; Sunay et al., 2011). The rate of practicing VD in our study was lower (18.7%). Arslantas et al. (2010) found that the rate of women actively practicing VD was 9.5% in the study they performed in one of the cities also included in our study, Eskisehir (Arslantas et al., 2010). Compared to other studies Erbil et al. (2011) reported 38.6%, and Yanikkerem et al. (2016) reported 26.5%, which are also similar to the rates found in our study (Erbil, Alışarlı, Terzi, Özdemir, & Kuş, 2011; Yanikkerem & Yasayan, 2016). This finding suggests that the rate of practicing VD depends on the socio-cultural characteristics of the region, age range and educational level of the study group, and the use of different research methodologies.

In the study, the majority of women practiced VD to feel clean and comfortable, whereas the second reason was to perform ritual ablution for their religious reasons. Many studies also identified the primary reason behind practicing VD is to maintain genital hygiene (Arslantas et al., 2010; Brotman, Klebanoff, et al., 2008; Caliskan et al., 2006; Cottrell & Close, 2008; Erbil et al., 2011; Hacıoğlu et al., 2009; Hadimli et al., 2012; Yanikkerem & Yasayan, 2016). Nevertheless, in some studies performed in Egypt and Turkey, the primary

reason behind practicing VD was reported as religious belief (Güzel et al., 2011; Shaaban et al., 2013; Sunay et al., 2011).

In this study, the women practiced VD by primarily using water or water and soap. Other studies performed in Turkey also reported that women practiced VD by using water or water and soap, and rarely used commercial products (Caliskan et al., 2006; Erbil et al., 2011; Hacıoğlu et al., 2009; Sunay et al., 2011; Yanikkerem & Yasayan, 2016). This result could be due to the economic factors or the fact that commercial products are not widely available in Turkey. In studies performed in U.S.A, it was observed that women mostly use the commercial products sold in supermarkets (Cottrell, 2010; Grimley et al., 2006). Women from Asian and African countries prefer homemade products for VD (Misra et al., 2006).

Furthermore, VD is accepted as a traditional practice formed by social and cultural norms and passed on from generation to generation (Short, Black, & Flynn, 2010). In this study, it was found that approximately half of the women learned to practice VD from their mothers or close friends. The rate of those who learnt VD by themselves was %38.4. Smith et al. (2005) reported that 57% of the women in their study practiced VD after being influenced from their mothers. (Smith et al., 2005) Other studies also reported similar results (Caliskan et al., 2006; Güzel et al., 2011; Hadimli et al., 2012; Sunay et al., 2011). In a study with African-American adolescents, the rate of those performing VD after being influenced from their mothers was lower (7.4%) (Diclemente et al., 2012). In our study group, similar to the study by Akin et al (Akin et al., 2006), the rate of those who learnt VD from religious professionals was higher (9.9%) than the other studies (3.8 to 5%) (Arslantas et al., 2010; Caliskan et al., 2006). Although Religious Affairs Administration of Turkey stated that VD is not obligatory in Islamic faith, the result of the study show that some of the religious professionals mislead women (Beşer, 2007). The rate of those who learned that VD should be practiced from the health professionals (5.9%) is similar to other studies (5 to 7.8%) (Akin et al., 2006; Caliskan et al., 2006; Yanikkerem & Yasayan, 2016). It is thought-provoking that this practice, which has harmful effects on women's health, is recommended by the health professionals. Women are not informed enough on the harmful effects of VD (Cottrell, 2010). Only 18.6% of the women included in this study had received information from health professionals on the harmful effects of VD. This rate was 27.1% in the study by Arslantas and et al., %4.1 by Caliskan et al., and 8% by Akin et al. (Akin et al., 2006; Arslantas et al., 2010; Caliskan et al., 2006) 64% of women included in the study by Cotrell received information on the harmful effects of VD. 30.9% of these women were informed by the midwife and nurse, and 40.3% from the doctor (Cottrell, 2006).

In the multivariate analysis, of the socio-demographic factors, old age, low educational level and income level, and traditional large family type were identified as the independent risk factors for practicing VD (Table 1). Similarly, in the previous studies, old age (Arbour et al., 2009; Caliskan et al., 2006; Misra et al., 2006), low educational level (Akin et al., 2006; Arbour et al., 2009; Brotman, Klebanoff, et al., 2008; Caliskan et al., 2006; Erbil et al., 2011; Güzel et al., 2011; Yanikkerem & Yasayan, 2016) and low income level (Akin et al., 2006; Arbour et al., 2009; Brotman, Klebanoff, et al., 2008; Caliskan et al., 2006; Erbil et al., 2011; Güzel et al., 2011; Sunay et al., 2011; Yanikkerem & Yasayan, 2016) were found to be the risk factors for VD. Longitudinal studies are required to determine why this practice is more common among women of older age than the women of younger age. Thus, the factors that incline women towards practicing VD can be determined. The reason behind the higher rates of practicing VD in women in large families than the women in nuclear families could be the effect of traditional culture and higher level of communication between generations.

In the multivariate analysis, increased parity (number of births) and being uninformed about the harmful effects of VD were independent risk factors for VD. The rates of having genitourinary infection within the past month and last year were higher in women practicing VD. In the bivariate analysis, there was significant correlation between preterm labor and VD. The rate of preterm labor was higher in women practicing VD (Table 2). Cottrell (2006) found that the rate of bacterial vaginosis was 2.75-fold higher in women practicing VD at least once a week than women not practicing VD (Cottrell, 2006). Those with a history of bacterial vaginosis have an increased rate of preterm labor. Chandra et al. (2005) found that the prevalence of pelvic inflammatory disease (PID) was higher in women practicing VD (Chandra et al., 2005). Heng et al. (2010) found that there was no significant correlation between VD and BV and trichomoniasis infections; however, there was significant correlation with candidiasis (Heng et al., 2010). Similarly, in other studies, a correlation between genitourinary infection and VD was reported (Brotman, Ghanem, et al., 2008; Hacıoğlu et al., 2009).

In general, women become estranged from VD once being informed about its harmful effects. In our study, the rate of practicing VD (10.7%) after being informed was half of that before being informed (22%). The rate of VD among the informed women was lower than the uninformed women in Cottrell's study (2006). In the aforementioned study, it was reported that even after being informed, 40% of the women still continued practicing VD (Cottrell, 2006) In their study which included theory-based education of young women and adolescents aged between 14 and 23 years, Grimley et al. (2005) achieved a 50% decrease in the rate of practicing VD (Grimley, Oh, Desmond, Hook III, & Vermund, 2005). In this study, after the education, it was found that almost half (42.8%) of women of reproductive age stopped practicing VD. These results show that even if they are informed about the harmful effects of VD, some women still continue practicing VD. Previous

studies also showed that educating women gives positive results in stopping the practice of VD (Brotman, Ghanem, et al., 2008; Klebanoff et al., 2006; Mete et al., 2012; Okumuş & Demirci, 2016). In their study which included young women, Funkhouser et al. (2002) found that the most influential people for women in convincing them to stop practicing VD is health professionals (Funkhouser, Hayes, & Vermund, 2002). Midwives, nurses, and doctors should warn and inform women on the harmful effects of VD.

Nonetheless, this study has some limitations. The data on VD are based on the individuals' own accounts. Sampling method used in the study can affect the rate of VD frequency. Despite these limitations, the study is one of the rare studies performed with a large sample size on women of reproductive age in Turkey.

## V. Conclusion

In conclusion, the rate of VD among women in this study is lower than many other studies. However, it was found that approximately two of every 10 women practice VD mostly due to hygienic and religious reasons. This practice is common among women of low educational and income level and traditional large family type. The rate of those informed about the harmful effects of the practice is low. The majority of the women were not informed by the health professionals on this subject. Family and friends of women, religious professionals and rarely, health professionals encourage them to practice VD. Education on the harmful effects of VD is effective in stopping the practice of VD. Nevertheless, more than half of the women educated on the harmful effects of the practice continue practicing VD. For the interception of this practice, which has connections with cultural and social norms. It is critical that nurses understand the reasons, attitudes and beliefs about women douche. Repeating the education with regular intervals, and including health professionals and religious professionals in these educations will be helpful. Nurses are in a position to provide women with accurate information on the complications associated with douching. Nurses working in the field of women's health should support women in developing healthy genital hygiene habits. If possible, this information could be communicated to woman's partner and her female relative.

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