THE RELATIONSHIP BETWEEN VAGINAL DOUCHING PRACTICES AND GENITOURINARY INFECTION IN WOMEN USING INTRAUTERINE DEVICES (IUD) AND COMBINED ORAL CONTRACEPTIVES (COC)

AİLE PLANLAMASI YÖNTEMİ OLARAK RAHİM İÇİ ARAÇ (RIA) VE ORAL KONTRASEPTİF (OKS) KULLANAN KADINLAR ARASINDA VAJİNAL YIKAMA VE GENİTOÜRİNER ENFEKSİYON İLİŞKİSİ

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ABSTRACT

Vaginal douching is a widespread practice among women all over the world. This study has been designed as cross-sectional, descriptive research. The aim of the study was to evaluate the relationship between vaginal douching practices and genitourinary infection in women in the age group 18-49 who were using Intrauterine Devices (IUV) or combined oral contraceptives (COC). The study took place in a Mother and Child Health and Family Planning Center (MCHFP) in Trabzon, Turkey, over the period October 1, 2010 - February 15, 2012. The study subjects were 165 women (81 using COC, 84 using IUD). It was found that there were more women taking COC who practiced vaginal douching (VD) and had higher ratios of bacteria propagation in the urine. While there was a significant relationship seen between the method used and the urine culture results ($p<0.05$), no relationship was observed in terms of the vaginal culture ($p>0.05$). Our suggestion, health professionals working in family planning may contribute to preventing problems from developing by offering continuous education programs on the effects of VD practices.

Keywords: Genitourinary infection, Intrauterine device, Oral contraceptives, Vaginal douching

ÖZET

Vajen yıkama dünyadaki kadınlar arasında oldukça yaygın deneyimdir. Bu çalışma kesitsel, tanımlayıcı çalışmadır. Çalışma, 18-49 yaş aralığında aile planlaması yöntemi olarak rahim içi araç (RIA) ve oral kontraseptif (OKS) kullanan kadınlar arasında vajinal yıkama ve genitoüriner enfeksiyon ilişkisinin tespiti amacıyla yapıldı. Çalışma, Trabzon'da bir Aile Sağlığı Merkezine 1 Ocak 2010 ile 15 Şubat 2012 tarihleri arasında başvuran kadınlar arasında gerçekleşti. Çalışmanın evrenini 165 kadın (81'i OKS, 84'ü RIA) oluşturdu. Araştırmanın sonuçlarına bakıldığında OKS kullanan kadınların idrarında daha fazla bakteri görüldü. Kullanılan aile planlaması metodu ile idrar kültürü arasında anlamlı ilişki bulunurken ($p<0,05$), vajen kültürü arasında anlamlı ilişki bulunmadı ($p>0,05$). Önerimiz, aile planlamasında çalışan sağlık profesyonellerinin gelişebilecek sağlık problemlerini önlemede katkı sağlayabilmek için vajinal yıkamanın etkileri konusunda kadınlara sürekli eğitim programları yapması yönündedir.

Anahtar Kelimeler: Genitoüriner enfeksiyon, Rahimiçi araç, Oral kontraseptif, Vajinal yıkama

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INTRODUCTION

Vaginal douching (VD) is an old and traditional practice that is carried out for intravaginal cleansing or treatment, using the fingers or some kind of material to rinse out the vagina (1-3). VD is a widespread practice among women. Woman practice VD generally for vaginal cleanliness, after menstruation or sex, as a contraceptive measure, or because of religious beliefs (4). Studies conducted in Turkey on VD have reported frequency rates for VD practices that are as high as 63.2% (5) and 61.5% (5,6). It has been determined that women use many different materials when practicing VD. Among the most frequently encountered of these are soap, perfumes, and vinegar (7-9). In addition, some studies have stated that woman are not aware of the harmful effects of VD (4-5, 10-11). VD disrupts the normal vaginal flora and prepares a foundation for infection (4, 12). The risk of genitourinary infection increases when women's poor hygienic habits are added to this picture. It has been determined in research that methods of contraception can be trigger factors for infection (13-15). It is striking to note that there is a higher risk of infection in women who use Intrauterine Devices (IUD) and Combined Oral Contraceptives (COC) compared to other methods (14, 16). The aim of the study was to evaluate the relationship between vaginal douching practices and genitourinary infection in women, aged 18-49, who use an Intrauterine Device (IUV) or combined oral contraceptives (COC).

MATERIALS AND METHODS

Design and Setting

This study was planned and applied as a descriptive cross-sectional study and conducted at the Trabzon Mother and Child Health and Family Planning Center over the period October 1, 2010 - February 15, 2012.

Participants

A total of 171 women, aged 18-49, who were using IUD's or COC as a method of birth control, presented at the Trabzon MCHFP Center in the mentioned period. The study was conducted with 165 consenting women (81 using COC, 84 using IUD). No inclusion criteria were taken into consideration aside from age, the use of IUD or COC, and the woman's not having her period at the time samples were to be taken. Prior to the research, permission was obtained from the Trabzon Ethics Board and from the institution where the study was carried out. All of the women were provided with information about the study and their verbal consent was obtained.

Measures

The data was collected by using pen-and-paper self-report forms which included the following: a socio-demographic data collection form, a questionnaire inquiring into vaginal douching behavior (11) and data on urine culture and vaginal culture results based on the specimens obtained from the women.

Data Collection Form

The data collection form consisted of 15 questions prepared by the researchers to record the socio-demographic characteristics of the participants and the questionnaire was based on 13 questions from the literature (11) that were developed to inquire about descriptive characteristics related to vaginal douching and genital hygiene. In addition, specimens were obtained from the women for vaginal cultures and urine cultures. These samples were sent to the Karadeniz Technical University Microbiology and Pathology Labs within 1 hour.

Socio-demographic Questionnaire

This consisted of questions developed by the researcher based on the literature. The questions concerned the women's ages, their work, educational level, social security status, monthly income, number of children and births, the duration the method had been used, and similar information.

Vaginal Douching and General Hygiene Questionnaire

This consisted of questions about vaginal douching practices, the method used, the reason for practicing VD, from whom the woman had heard about vaginal douching, the material used in VD, how frequently it is practiced, how many times the woman has sex in a week, and whether or not she had

any knowledge about the harmful effects of VD.

Procedure for Obtaining Sterile Urine Specimens

A sterile container (red-screw-capped culture container) was used as a urine culture container. Instructions as to how the culture should be taken were given to the women consenting to the study (Thoroughly wipe the outer part of the urinary tract with the disinfectant/antiseptic wipe before taking the urine sample; dry the area with the sterile gauze that's been given to you; after discharging the first few drops of urine, collect the middle of the flow in the sterile container. Do not allow the urine container to touch anything and do not fill up the container to the brim (17-19). The lids were then placed on the urine containers, on which the names of the patients were written, and the specimens were taken to the laboratory in a short time by the researcher.

Procedure for Obtaining Vaginal Culture

Glass culture tubes equipped with cotton-tipped sterile swabs used only for this purpose were employed to gather specimens. The small-tipped sterile swab was swept across the vaginal wall and the specimen was placed in a closed container with the patient's name written on it.

Data Collection

Permission was obtained for the study through the application made to the local ethics committee of the Trabzon Ethics Board. Informed consent was obtained from all participants. The implementation of the study was carried out by surveying the volunteer patients after they were informed about the aim of the study. The survey was filled out by the patients in the waiting room and took 20-25 min. This study was funded by the Karadeniz Technical University Scientific Research Project Unit (No: 2010.101.001.1).

Statistical Analysis

The Statistical Program for the Social Sciences, version 15.0 (SPSS 15.0) was used for data analysis. Percentages and averages were also calculated, the Chi-square test and t- test were performed for the statistical analysis. The level of statistical significance was set at $p<0.05$.

RESULTS AND DISCUSSION

The women's age group, their working status, educational level, social security status and income levels are shown in Table 1. As can be seen in Table 1, no statistical difference was observed between the two groups except in terms of educational level.

The women using COC made up 25.9% of the group, and those using IUD's, 42.9%. In the statistical analysis, there was a significant difference between the two groups in terms of performing vaginal douching ($X^2=5.228$ SD=1 p=0.034) (Table 2). It was found that 57.1% of the women practicing vaginal douching who were taking COC, 58.3% of the women using an IUD said that they practiced VD 2-3 times a week; 52.4% of the women taking COC said that they had made this decision on their own; 50% of the women using an IUD said they had heard about VD from their elders; 66.7% of the women using COC and 55.6% of the women using an IUD said that they performed vaginal douching with soap and water; of the women using COC 57.1% said they performed VD usually after sex; 43.3% of the women using an IUD said they performed vaginal douching after a bath; 81.0% of the women taking COC and 86.5% of the women using an IUD stated that they practiced vaginal douching regularly; 50% of those using COC and 53.6% of those using an IUD revealed a sexual intercourse rate of 3-4 times a week. Of the women using COC, 64.2%, and 23.8% of the women using IUD's, said they didn't think VD was harmful (Table 2).

When the women using COC and IUD's in our study were analyzed in terms of their socio-demographic characteristics, their ages, social security status, working status, and monthly income, no differences were found ($p>0.05$). However, there was a statistical difference between the two groups in terms of educational level ($p<0.05$). The level of education of the women using IUD's was higher than those using COC. According to the reports of Turkish Population and Health

Research (TNSA), a significant increase has been seen in the use of IUD's as an effective method of contraception, and to see that this parallels educational levels is striking (20) (Turkish Population and Health Research 2008). One study reported that IUD's were the primary and preferred effective method; taking COC was third on the list of preferences, preceded by condoms (21). It was also determined that levels of education in the study group were lower than the urban data collected by TNSA in 2003 (21). In the present study, 52% of the women were elementary school graduates. This figures for the whole of Turkey in the 15-49 age group of married women is 61.1% [20] (TNSA 2008). This result and the results of the present study are consistent.

Among the COC group, 70.4% and 21.2% of the IUD group were rinsing off their genital area from back to front. A statistical difference was found between the groups (X^2=23.42 SD=1 p=0.000) (Table 3). It was noted that 86.4% of the COC group dried off their genitals after going to the toilet while this percentage was 88.1% in the IUD group. There was no significant difference found between the two groups (X^2=34.56 SD=1 p=0.013). Looking into whether the women wore cotton underwear, it was seen that 61.7% of the COC group and 75% of the IUD group wore cotton underwear; a significant difference was found between the two groups (X^2=22.551 SD=1 p=0.000) (Table 3). As regards the practice of using sanitary protection all the time, it was revealed that 69.1% of the COC women and 15.5% of the IUD group used sanitary pads daily. A significant difference was found between the two groups (X^2=4.418 SD=1 p=0.036) (Table 3). Although there is not adequate knowledge in the literature about the prevalence of vaginal douching, there are small-sample studies that have been conducted. Ege et al. (6) have reported that 61.5%, Çalışkan et al. (5) that 50.2% of women practice vaginal douching. In our study, there was a higher percentage (42.9%) of women using IUD's practicing VD compared to women using COC (25.9%). Many studies have shown that the use of IUD's increases the risk of vaginal infection (15, 22-23). There are various factors that play a role in whether women using IUD's develop an infection. These can be cited as the technique used in inserting the IUD, the duration of its use, and age, among others. The IUD changes the nature of the vaginal flora and leads to an increase in anaerobic bacteria. However, many studies have also shown that genitourinary system infections are reduced if general hygiene is carefully practiced, the IUD is carefully inserted, and regular check-ups are performed over the period the IUD remains in the uterus, provided the rules of hygiene are adhered to (15, 24). In the present study, as it was observed that women using IUD's had better toilet hygiene behavior than the women taking COC, it might be said that this is one of the factors affecting the increase of bacteria propagation in the urine cultures of women using COC.

Vaginal douching has become a part of women's general hygiene (5, 13, 25-27). Married women describe themselves as being soiled because of the seminal fluid remaining in the vagina after sexual intercourse. Religious beliefs cause women to regard the vagina as dirty. Women practice vaginal douching to feel clean again. Oh et al. (28) report in their study that 78% of women practice vaginal douching to feel clean and well (28). It has also been stated that some of the reasons women perform vaginal douching are because of vaginal discharge, to eliminate itching or odor, to prevent or treat sexually transmitted diseases or vaginal infections, and as a contraceptive measure (5, 9, 13, 29). In Moslem countries, the practice is common as it is a part of the full ablution regimen required after sexual intercourse (5, 30). In the present study, the high percentage of women practicing VD may be explained by the connection between VD and the regimen of full ablution. Hodoğlugil et al reported in a study they conducted in the Black Sea Region in 2000 that VD was practiced by 64.0% of women using IUD's and 64.5% of women that were not (31). In the present study, our finding was that more women with IUD's were practicing VD compared to

women taking COC; this is consistent with the literature.

In the study, the women in the COC and IUD groups said that they performed vaginal douching 2-3 times a week. The data for 1995 of the National Survey of Family Growth-NSFG reveal that 27% of women engage in vaginal douching 1-2 times a week (32). Various studies have shown that soap and water are the materials that are most commonly used in vaginal douching (7, 13). In the present study, a high percentage of women were making use of soap and water.

While bacteria propagation was observed in the urine culture results of 53.1% of the women using COC, no propagation was seen in 55.8% of the women using IUD's. According to the results of the vaginal culture, 66.7% of the women using COC and 60.7% of the women using IUD's did not display any propagation (Table 4). While there was a significant relationship between the two groups in the urine culture results ($p<0.05$), no relationship was discovered in the vaginal culture ($p>0.05$) (Table 4).

While no significant difference was found between vaginal douching behavior and the urine culture, there was a significant relationship between vaginal douching behavior and the vaginal culture in two groups (Table 5).

In the study, the women in the COC and IUD groups said that they performed vaginal douching 2-3 times a week. The data for 1995 of the National Survey of Family Growth-NSFG reveal that 27% of women engage in vaginal douching 1-2 times a week (32). Various studies have shown that soap and water are the materials that are most commonly used in vaginal douching (7, 13). In the present study, a high percentage of women were making use of soap and water.

The study also showed that the two groups exhibited significant differences in terms of whether or not they wore cotton underwear and in the way they cleansed themselves after going to the toilet. The percentage of women using a sanitary pad was higher in the COC group compared to the IUD group. The higher percentage in the COC group may be explained by the need these women may have in the face of an uncomfortable vaginal discharge. In many studies in Turkey it has been shown that a large percentage of women use sanitary pads continuously, either because of religious beliefs or as a traditional habit (7, 13). The regions of the body that are conducive to the colonization of microorganisms are the vagina, rectum, and ureter. The type of underwear worn, the form of cleansing, the materials used in the cleansing, as well as other factors, are all instrumental in protecting these three areas. Since the continuous use of a sanitary pad keeps the vagina moist, an environment that allows bacteria to propagate is thus created (34).

The urine culture results of the women using COC and IUD's in our study were found to exhibit significant differences but no significant difference was seen in terms of the vaginal culture. When it is considered that VD was practiced to a certain extent by women in both groups and that a profuse vaginal discharge was more common in the women taking COC, it may be said that because women have a constant store of intestinal flora in the outer third of the ureter, which is shorter in women, during the practice of VD, a susceptibility is created that encourages colonies of bacteria to propagate in the vagina and reach the bladder. As a result of this, there is a heightened risk of urinary tract infection. In our study, the findings that the women in the COC group had more complaints about uncomfortable vaginal discharge and that their post-toilet hygiene was faulty are in line with the literature. At the same time, estrogen facilitates uropathogens to settle in the vagina and the urogenital cells while some antibiotics spoil the vaginal flora, creating an environment where microorganisms can grow freely (14). Considering that there are many antimicrobial medications on the market that women might be using for vaginal discharge also suggests a reason for the extent of propagation in the urine.

CONCLUSION AND RECOMMENDATIONS

According to the results of the study, the following were determined:

- ✓ There was a higher percentage of bacterial propagation in women taking COC
- ✓ More women taking COC practiced VD
- ✓ More women taking COC had vaginal discharge
- ✓ Women taking COC were using sanitary pads at a higher percentage.
- ✓ Both groups were using soap and water for VD
- ✓ Both groups were handling post-toilet cleansing incorrectly.
- ✓ Both groups practiced VD more commonly after sexual intercourse.
- ✓ A significant relationship was found between vaginal douching behavior and the vaginal culture results in both groups.

In Turkey, women continue to practice traditional habits similar to VD. When it is considered that women practice VD for many reasons, it is of importance to study women's hygienic practices and educate them about the mistakes they are making. The early discovery of these mistakes will be beneficial, not only in preventing potential health problems in women but also in treating existing problems early on.

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REFERENCES

1. Martino JL, Vermund SH. Vaginal douching: Evidence for risks or benefits to women's health. Epidemiologic Reviews 2002; 24:109-124.
2. Aral SO, Mosher WD, Cates W. Vaginal douching among women of reproductive age in the United States. Am J Public Health 1992; 82(2): 210-214.
3. Mete S, Gerçek E. Vajinal duşun yaygınlığını etkileyen etmenler ve sonuçları. Hem. Yüksekokulu Dergisi 2005; 55-61.
4. blogcu.com/gusul-abdesti-nedir Accessed 18 June 2012.
5. Çalıskan D, Subaşı N, Sarısen Ö. Vaginal douching and associated factors among married women attending a family planning and gynecology clinic. 4th International Congress of Reproductive Health & Family Planning, Bayt press Ankara: Turkey-2006. ss: 201-205.
6. Ege E, Timur S, Zincir H, et al. Türkiye'nin doğusundaki kadınların vaginal duş uygulamaları ve ilişkili davranışlar , 4. Uluslar arası üreme sağlığı ve aile planlaması kongresi sözlü bildiri, Ankara, 2005.
7. Demirbağ C. Kadınlarda İYE'de hijyenik alışkanlıklarla ilgili risk faktörleri. Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu Dergisi 2000; 4(2):52-58.
8. Foch BJ, McDaniel ND, Chacko MR. Racial differences in vaginal douching knowledge, attitude, and practices among sexually active adolescents. Journal of Pediatric and Adolescent Gynecology 2001; 14:29 –33.
9. Hacıalioğlu N, İnandı T, Pasinlioğlu T. Erzurum ana çocuk sağlığı ve aile planlaması merkezine başvuran kadınlarda genital yol enfeksiyonlarının sıklığı ve risk faktörleri. Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi 2000; 3(2):11-17.
10. Çalışkan D, Çöl M, Akdur R, et al. Park sağlık ocağı bölgesinde 15-49 yaş grubu kadınlarda vajinal duş sıklığı ve etkili faktörler üzerine çalışma, Ankara Üniversitesi Tıp Fakültesi Mecmuası 1996; 49(2):73-80.
11. Akın B, Erdem H, Ege E.15-49 yaş evli kadınlarda vajinal duş uygulanması ve olumsuz etkileri. İnsan bilimleri dergisi 2006;3.
12. Kirchner JT. Prevalence of vaginal douching despite its adverse effects. American Family Physician 2000; 61(3): 849-851.
13. Yağmur Y. Malatya ili Fırat Sağlık ocağı bölgesinde yaşayan 15-49 yaş kadınların genital hijyen davranışları.TSK koruyucu Hekimlik Bülteni 2007; 6(5):325-330.
14. Çoşkun A. Rekürren üriner sistem enf. Gülhane tıp dergisi 2007; 50: 226-231.
15. Zincir H, Temel AB. RIA'ya özel danışmanlık ilkesine göre RIA uygulanması, genital hijyen eğitim ve vulvajinal enfeksiyonların görülme ilişkisi. Sağlık Bilimleri Dergisi 2010; 19(1):60-67.
16. Hopkins WJ, Elkahwaji J, Beierle LM, et al. Vaginal mucosal vaccine for recurrent urinary tract infections in women: results of a phase 2 clinical trial. J Urol 2007; 177:1349-1353.
17. Mazzulli T, Simor AE, Low DE. Reproducibility of interpretation of gram-stained vaginal smears for the diagnosis of bacterial vaginosis. J Clin Microb.2004; 28:1506-8.
18. Nugent RP, Krohn MA, Hillier SL. Reliability of diagnosing bacterial vaginosis is improved by a standardized method of gram stain interpretation. J Clin Microb 1991; 29:297-301.
19. Zarakolu P, Hodoglugil NS, Aydın F, et al. Reliability of interpretation of gram-stained vaginal smears by nugent's scoring system for diagnosis of bacterial vaginosis. Diagnostic Microbiology and Infectious Disease 2004; 48(2):77-80.
20. Türkiye Nüfus ve Sağlık Araştırması 2008, Ön Rapor. Tübitak Mart: Ankara, 2009.
21. Kaya H, Tatlı H, Açık Y, et al. Bingöl ili uydukent sağlık ocağı bölgesindeki 15-49 yaş kadınların Aile Planlaması yöntem kullanım düzeyinin belirlenmesi. F.Ü. sağlık Bilimleri Dergisi 2008; 22(4): 185-191.
22. Anh PK, Khanh NT, Ha DT, et al. Prevalence of lower genital tract ınfection among women attending maternal and child health and planning clinics in Hanoi. Vietnam, Southeast Asian J Trop Med Public Health 2003; 34:367-373.
23. Chiaffarino F, Parazzini F, DeBesi P. Risk factor for bacterial vaginozis. Eur J Obstet Gynecol Reprod Biol 2004; 117:222-226.
24. Eroğlu K, Akkuzu G, Vural G, et al. Postplesantal ve Erken Pospartum Rahim İçi Araç (RİA) Uygulamaları İle Postpuerperal ve İnterval RİA Uygulamalarının Etkililik ve

Komplikasyonlar Yönünden İncelenmesi. T.C. Hacettepe Üniversitesi Bilimsel Araştırma projesi: Ankara, 2003.
25. Martino JL, Vermund SH. Vaginal douching: Evidence for risks or benefits to women's health. Epidemiologic Reviews 2002; 24:109-124.
26. Simpson T, Merchant JS, Grimley DM, et al. Vaginal douching among adolescent and young women: more challenges than progress. J Pediatr Adolesc Gynecol 2004;17:249- 258.
27. Yılmaz N, Saracoğlu F, Eğilmez P. Kadınlarda hijyen uygulamaları. Kadın Doğum Dergisi. 2(2),10-15 (2003)
28. Oh MK, Funkhouser E, Simpson T, et al. Early onset of vaginal douching is associated with false beliefs and high risk behaviour. Sexually Transmitted Diseases 2003; 30(9):689-669.
29. Gazmararian JA, Bruce FC, Kendrick JS, et al.. Why do women douche? Results from a qualitative study. Maternal and Child Health Journal 2001; 5(3):153-159.
30. http://www.diyanet.gov.tr/ Accessed 12 February 2012.
31. Hoduoglugül NS, Aslan D, Bertan M. Intrauterine device use and some issues related to sexually transmitted disease screening and occurrence. Contraception 2000; 61:359-364.
32. Abma JC, Chandra A, Mosher WD, Peterson LS, et al. Fertility, family planning and women's health: new data from the national survey of family growth, vital & health statistics-series 23, data from the national survey of family growth 1997;19:1-114.
33. Çalışkan D. Geleneksel intravajinal uygulama" vajinal duş, lavaj" yapılmalı mı? Yapılmamalı mı? Sürekli Tıp Eğitimi Dergisi 2005; 4:15-18.
34. Kunin CM. Urinary tract infections in females. Clin Infect Dis 1994; 18:1-12.

Table 1. Identifying characteristics of groups

	GROUPS						
	COC		IUD				
	n	%	n	%	X^2	SD	p
Age							
19 and under	15	18.5	21	25.0			
20-29	15	18.5	20	23.8	2.349	3	*0.503
30-39	28	34.6	24	28.6			
40-49	23	28.4	19	22.6			
Working Status							
Employed	21	25.9	18	21.4	0.462	1	0.620
Unemployed	60	74.1	66	78.6			
Work							
Housewife	9	42.9	11	61.1	5.789	3	*0.122
Civil servant	3	14.3	5	27.8			
Blue-collar worker	9	42.8	2	11.1			
Education							
Literate	3	3.7	10	11.9			
Illiterate	7	8.6	8	9.5			
Elementary-Middle School	55	67.9	35	41.7	15.612	4	***0.004**
High School	16	19.8	26	31.0			
University	0	0	5	6.0			
Social Security							
SSK	32	39.5	36	42.9	0.689	4	*0.953
Pension Fund	19	23.5	17	20.2			
Bağkur	19	23.5	19	22.6			
Greencard (Health Card)	5	6.2	4	4.8			
No	6	7.4	8	9.5			
Monthly Income							
TL 500-1000 (Middle-class)	23	28.4	13	15.5			
TL 1001-2000 (With means)	40	49.4	51	60.7	4.160	2	0.125
TL 2001-3000 (Very wealthy)	18	22.2	20	23.8			
Number of children							
1-2	27		20		t=1.405	163	0.162
3-4	27		22				
Number of births							
1-2	23		25		t=1.220	163	0.224
3-4	24		24				
Duration of use							
1-3 years	47	58.0	48	57.1			
4-6 years	22	27.2	22	26.2	t=-2.34	163	0.816
7 years and more	12	14.8	14	16.7			

*Fisher Chi-square test was used

Table 2. Descriptive characteristics of vaginal douching

		COC		IUD		X^2	SD	p
		n	%	n	%			
Practicing vaginal douching								
	Yes	21	25.9	36	42.9	4.506	1	**0.034**
	No	60	74.1	48	57.1			
Frequency of vaginal douching								
	Once a week	5	23.8	10	27.8	0.306	2	*0.858
	2-3 times a week	12	57.1	21	58.3			
	1-2 times a month	4	19.0	5	13.9			
Where she found out about vaginal douching?								
	From family elders	9	42.9	18	50.0	1.303	2	*0.521
	On her own	11	52.4	14	38.9			
	From friends	1	4.8	4	11.1			
Materials used in vaginal douching								
	Water	3	14.3	7	19.4	1.087	3	*0.780
	Soap and water	14	66.7	20	55.6			
	Special perfumed materials	1	4.8	4	11.1			
	Zefiran or vinegar-water	3	14.3	5	13.9			
For what purpose?								
	For full ablution	5	23.8	10	27.0	5.733	3	*0.125
	After sexual intercourse	12	57.1	11	29.7			
	After a bath	4	19.0	18	43.3			
Does she regularly rinse out the vagina?								
	Yes	17	81.0	32	86.5	0.313	1	*0.576
	No	4	19.0	5	13.5			
Is VD harmful?								
	Yes	29	35.8	64	76.2	0.551	1	0.102
	No	52	64.2	20	23.8			
Number of times a week she has sex								
	1-2	13	16.3	16	19.0	1.377	2	0.502
	3-4	50	62.5	45	53.6			
	5 and more	17	21.3	23	27.4			

*Fisher Chi-square test was used

Table 3. Distribution of some hygienic characteristics of the women

Groups / Characteristics	COC n	COC %	IUD n	IUD %	X^2	SD	p
Post-toilet cleansing from back to front							
Yes	57	70.4	22	21.2	23.42	1	**0.000**
No	24	29.6	64	78.8			
Drying after going to the toilet							
Yes	70	86.4	74	88.1	34.56	1	0.330
No	11	13.6	10	11.9			
Cotton underwear?							
Yes	50	61.7	63	75.0	22.55	1	**0.000**
No	31	38.3	21	25.0			
Always uses a sanitary pad							
Yes	56	69.1	13	15.5	4.418	1	**0.036**
No	25	30.9	71	84.5			
Uncomfortable discharge							
Yes	46	56.8	27	32.1	2.18	1	**0.036**
No	35	43.2	57	67.9			

Table 4. Comparison of urine and vaginal culture results in women taking COC or using IUD's

Groups / Factor	COC n	COC %	IUD n	IUD %	Total n	Total %	X^2	SD	p
URINE CULTURE									
No propagation	38	46.9	54	64.3	92	55.8	5.045	1	**0.018**
Propagation	43	53.1	30	35.7	73	44.2			
VAGINAL CULTURE									
No propagation	54	66.7	51	60.7	106	63.7	0.407	1	0.317
Propagation	27	33.3	33	39.3	60	36.3			

Table 5. Vaginal douching behavior according to method and comparison with urine and vaginal culture results

		Vaginal douching: Yes N (81)	%	No n (84)	%	X^2	SD	p
Propagation in the Urine Culture								
COC	Yes	13	16.0	30	37.0	0.89	2	0.346
	No	8	9.8	30	37.0			
IUD	Yes	14	16.6	13	15.4	1.31	1	0.251
	No	22	26.1	35	41.6			
Propagation in the Vaginal Culture								
COC	Yes	20	24.6	7	8.6			
	No	1	1.2	53	65.4	*48.09	3	**0.000**
IUD	Yes	33	39.2	-	-			
	No	3	3.5	48	57.1	*72.47	1	**0.000**

* Fisher Chi-square test was used