

Evaluation of habitual behavior related to genital hygiene in women living in a health care center area

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ABSTRACT

الأهداف: تقييم العادات السلوكية المتبعه أثناء العناية بنظافة الأعضاء التناسلية من قبل النساء اللواتي يعيشن في مراكز الرعاية الصحية.

الطريقة: شملت هذه الدراسة المقطعة 400 امرأة في سن الإنجاب من يعيشن في مركز بارك للرعاية الصحية بمدينة أنقرة، تركيا وذلك خلال الفترة من يونيو إلى سبتمبر 2008، وكانت أعمارهن تتراوح ما بين (15-49) عاماً. لقد قمنا بإجراء مقابلات شخصية مع 386 امرأة (96.5%) وذلك من أجل تقييم العادات السلوكية المتبعه أثناء تنظيف الأعضاء التناسلية. وقمنا باستخدام اختبار مربع شاي لإجراء التحليل الإحصائي.

النتائج: لقد كان متوسط أعمار المشاركات في الدراسة 32.19 ± 9.54 عاماً (49-15) عاماً وأشارت النتائج إلى أن 21.5% من المشاركات يقمن بالاستحمام يومياً، و77.2% يستخدمن الملابس الداخلية القطنية، و71.8% يمسحن منطقة المهبل من الأمام إلى الخلف بعد استخدام المرحاض. وقد قام ما يعادل 83.4% من النساء اللواتي يبحضن باستخدام الفوط الصحية أثناء فترة الطمث، وأكد 42.1% من النساء المتزوجات اللواتي بلغ عددهن 321 امرأة ممارستهن للغسل المهبل. وقد لوحظ بأن العوامل التي تؤثر على عدد مرات الاستحمام ونوع الفوط الصحية المستخدمة أثناء فترة الحيض هي كالتالي: مستوى التعليم ($p=0.001, p=0.000$)، ومستوى الدخل ($p=0.034, p=0.005$)، والعمل ($p=0.022, p=0.000$)، ونوع المسكن ($p=0.005, p=0.006$). وكانت نسبة ممارسة الغسل المهبل لدى ربات البيوت أعلى منها لدى النساء العاملات ($p=0.000$).

خاتمة: أشارت الدراسة إلى انخفاض نسبة النساء اللواتي يقمن بسلوكيات صحية فيما يتعلق بنظافة التناسلية، وهذه النسبة مرتبطة بالواقع الاقتصادي والاجتماعي للمشاركات في الدراسة، ولذلك فإنه على المسؤولين في مراكز الرعاية الصحية التركيز على هذه المسألة ومعالجتها.

Objectives: To evaluate that habitual behaviors related to genital hygiene in women living in a Health Care Center Area.

Methods: In this cross-sectional study, 400 women were sampled to represent women in reproductive ages (15-49 ages) living in the Park Health Care Center Area, Ankara, Turkey between June and September 2008. Three hundred and eighty-six (96.5%) women were interviewed for evaluation of habitual behaviors

related to genital hygiene. The chi-square test was used for statistical analysis.

Results: The mean age of the study group was 32.19 ± 9.54 (15-49) years. Of the study group, 21.5% had daily baths, 77.2% used cotton underwear, and 71.8% wiped front to back after using the toilet. Of those who menstruated, 83.4% used hygienic pads during menstrual periods, and 42.1% of the 321 married women confirmed practicing vaginal douching. The education level ($p=0.001, p=0.000$), income level ($p=0.034, p=0.005$), employment ($p=0.022, p=0.000$), and house type ($p=0.005, p=0.006$) were found as factors affecting general frequency of bathing and type of pad used during the menstrual period. Frequency of vaginal douching was higher in housewives than employed women ($p=0.000$).

Conclusion: The rate of women who had appropriate behaviors related to genital hygiene among the study group was found to be low, particularly within groups with a low socioeconomic level. Thus, it will be useful for health care employers to emphasize this issue at every opportunity.

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Genital tract infections are the most common gynecological disorders encountered by doctors in primary health care polyclinics.¹ It is estimated that each year one billion women experience non-sexually transmitted urogenital infections throughout the world.² Genital tract infections may cause pelvic inflammatory

disease, cervical cancer, infertility, spontaneous abortion, ectopic pregnancy, neonatal morbidity, and mortality, and even death of the mother in the long term.^{3,4} Genital tract infections arise due primarily to lack of personal hygiene, followed by inappropriate cleaning of the genital region after using the toilet, lack of hand-washing habit, too frequent washing of the genital region, vaginal douche, use of wrong type of underwear, and lack of menstrual hygiene care.⁵⁻⁷ Maintenance of genital hygiene is the most important step for prevention of these type of infections and their potentially more serious consequences.^{8,9} The World Health Organization recommends induction of behavioral change in the population by increasing awareness and education of personal hygiene and reproductive health, for prevention of genital and sexually transmitted diseases.¹⁰ No doubt, hygienic care practices provide personal self confidence, a good feeling, and comfort.¹¹ Against this background, the aim of this study is to evaluate that habitual behavior related to genital hygiene and associated factors in women living in a Health Care Center Area.

Methods. This cross-sectional study was carried out between June and September 2008. During the study period, a total of 3100 women of reproductive age (15-49 years) had been registered with the Park Health Care Center Area in Ankara, Turkey. Sample determination formula in a population with a known number of individuals was used for sample size calculation.¹² Estimated minimal sample size was 342 but 400 women were included. Three hundred and eighty-six (96.5%) of these 400 women, accepted participation to the study. The other 14 women, with no exclusion criteria, did not accept participation in the study because of lack of time. Participants were systematically selected in a stratified manner from health centers and age groups as from Park Health Care Center Area records. After obtaining verbal consent the participants were interviewed with the aid of a structured questionnaire by interviewers consisting of researchers and nurses of the Park Health Care Center. Before the interview, the nurses were trained in the Public Health Department. A face to face interview technique was used for data collection. Each interview was approximately 10-15 minutes durations.

Data were analyzed using the Statistical Package for Social Sciences 15.0 (SPSS Inc, Chicago, IL, USA), and chi-square test was used for comparing proportion in statistical analyses. The level of significance was set as 0.05.

Results. The mean age of the study group was 32.19 ± 9.54 years (15-49). The socio-economic features of participants; were 79.5% married, 79.3% housewives,

45.1% primary school graduates, 10.6% had no social security, 45.3% lived in slum houses, and 24.4% had a monthly total earnings less than 500 Turkish lira (TL) (minimum wage for the area). Of the 321 women who were married, 29.3% had their first marriage at the age of under 18 years. The frequency of daily baths in the study group was found to be 21.5%. The behaviors related to underwear and toilet hygiene are shown in Table 1. As can be seen in Table 2, among the 374 menstruated of study group (n=386), 90.6% had baths during their menstrual periods, Of those who had baths (339 women), 49.5% had showers standing position. On the other hand, 83.4% use disposable hygienic pads during their menstrual periods. Of the 303 women who answered the question related to sex during menstruation, 97.0% of them answered negatively. Of the women in the study group, 321 answered the question regarding vaginal douching. 42.1% of these women stated that they performed vaginal douching. Of

Table 1 - Behavior related to underwear and toilet hygiene of women included in the study group (N=386).

Underwear and toilet hygiene	n (%)
<i>Type of underwear</i>	
Cotton	298 (77.2)
Synthetic	24 (6.2)
Cotton and synthetic	64 (16.6)
<i>Frequency of underwear change</i>	
Every day	254 (65.8)
Every other day	85 (22.0)
Every couple of days	29 (7.5)
Once a week	3 (0.8)
As it gets dirty	15 (3.9)
<i>Hand washing before using the toilet</i>	
Yes	262 (67.9)
No	82 (21.2)
Occasionally	42 (10.9)
<i>Hand washing after using the toilet</i>	
Yes	375 (97.2)
No	4 (1.0)
Occasionally	7 (1.8)
<i>Mode of cleaning after using the toilet</i>	
From front to back	277 (71.8)
From back to front	84 (21.8)
Front towards front, back towards back	24 (6.2)
Doesn't pay attention	1 (0.2)
<i>Cleaning means after using the toilet</i>	
Toilet paper	22 (5.7)
Water	112 (29.0)
Water and toilet paper	232 (59.4)
Water and cloth	9 (2.3)
Water and soap	6 (2.1)
Special cleansers	3 (1.0)
Wet wipes	2 (0.5)
<i>Drying after using the toilet</i>	
Yes	308 (79.8)
No	76 (19.7)
Occasionally	2 (0.5)

Table 2 - Behaviors of the women in the study group related to menstrual hygiene (N=374*).

Menstrual hygiene	n	%
<i>Bathing during menstrual period</i>		
Yes	339	(90.6)
No	35	(9.4)
<i>Type of material used during menstrual period</i>		
Hygienic pad	312	(83.4)
Cloth, cotton, paper towel	60	(16.1)
Tampons	2	(0.5)
<i>Frequency of clean pad change</i>		
1-6 hours	296	(79.1)
7-12 hours	40	(10.7)
13 hours and over	38	(10.2)
<i>Frequency of dirty pad change</i>		
1-2 hours	36	(9.6)
3-4 hours	63	(16.3)
5-6 hours	59	(15.8)
7 hours and over	216	(58.3)
<i>Going to pool, sea, or bathhouse during menstrual period</i>		
Yes	26	(7.0)
No	348	(93.0)

*Women who have menstruated

those who confirmed vaginal douching, 20.7% had daily vaginal douching, 65.2% performed vaginal douching using only water, and 42.2% had vaginal douches after baths (data were not given in the table). Investigation related to hygiene behavior of the women in the study group according to socioeconomic features revealed a significantly higher frequency of every day bathing in women with a high school and higher education ($p=0.001$), in those with a monthly income of 1001 TL and over ($p=0.034$), in employed women ($p=0.022$), and in women living in flats ($p=0.005$), compared to the other groups (Table 3). Disposable hygienic pads are ideal for use in the menstrual periods, when women are more susceptible to genital infections. Women preferring to use such pads and who could provide this were; those who had a high school, or higher education ($p=0.000$), those with higher incomes ($p=0.005$), those who were employed ($p=0.000$), and those who lived in flats ($p=0.006$) (Table 3). Surprisingly, the habit of hand washing before using the toilet was significantly less frequent among those with a higher income ($p=0.000$), those who were employed ($p=0.026$), and those who lived in flats ($p=0.000$), compared to other groups. No difference was found between socioeconomic factors and underwear changing frequency and mode of cleaning after using the toilet (Table 3). Association between vaginal douching status and socioeconomic factors was investigated. Vaginal douching frequencies were found to be lower in women with high school and higher education, in those with high incomes, and women who live in flat; yet this difference was not

found to be statistically significant. However, vaginal douching behavior was statistically significantly more common in housewives compared to employed women ($p=0.000$) (Table 3). Among the participants, a total of 164 people (42.5%) confirmed receiving information on genital hygiene before (Table 4). Of these, 8.5% received information from their friends, 9.1% from their families, 22.6% from radio and television, 23.8% from school, and 64.6% from health care workers (more than one source of information was stated). Among the women who participated in the study, 34.7% expressed that they had at least one episode of urinary tract infection in the last one year, while 18.7% had at least one episode of genital tract infection. (data not given in the Table). Investigation of the possible association between genital infection history, and their genital hygiene behaviors revealed that hand washing before using the toilet and wiping genital region from front to back significantly decreased genital infections, while genital infection frequency was unexpectedly higher in those who were trained on genital hygiene. Association between urinary tract infection status and genital hygiene behaviors of the study group was examined. Hand washing before using the toilet and wiping from front to back significantly decreased urinary tract infection frequency (Table 4).

Discussion. As mentioned before genital tract infections are related to mainly habitual behaviors like personal hygiene. Two of the important precautions include use of cotton underwear and performing genital cleaning from front to back.¹³ An other study showed that frequency of women who had baths everyday increased as the educational and income level increased in the participants, while a statistically higher frequency of employed women had everyday baths compared to housewives.¹⁴ In our study, similarly, the frequency of everyday baths statistically significantly increased in those with a high school, or higher educational level, those with a monthly total income of 1001 TL or higher, those who were employed, and those who lived in flats, compared to other groups. Of the study participants, 77.2% wore cotton underwear, while 65.8% changed underwear daily. In a study by Karatay et al⁵ with participation of women older than 18 years of age living in slum houses in a health care center area, 79.2% similarly preferred cotton underwear, while fewer women with a frequency of 35.8% changed underwear every day.⁵ In a study by Yagmur¹⁴ on women between the ages of 15 and 49, again similarly 96.1% used cotton underwear, and 40.3% daily changed their underwear. In our study, a statistically significantly higher frequency was observed in the use of hygienic pads during menstrual periods among those with a high school, or higher educational level, those with a higher monthly

Table 3 - Some genital hygiene behaviors of the women in the study group according to socioeconomic features.

Socioeconomic Features	Frequency of bathing (n=386)			Vaginal douching (n=321)*		Type of pad used during menstrual period (n=374)†		Hand washing before using the toilet (n=386)		Hand washing after using the toilet (n=386)	
	Every day	Every 2-3 days	Every 4-7 days	Yes	No	Hygienic pad	Cloth, cotton, etc	Yes	No	Yes	No
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
<i>Educational status</i>											
Primary school-Middle school	35 (15.5)	160 (70.8)	31 (13.7)	95 (44.8)	117 (55.2)	163 (75.1)	54 (24.9)	161 (71.2)	65 (28.8)	218 (96.5)	8 (3.5)
High school and higher	48 (30.0)	101 (63.1)	11 (6.9)	40 (36.7)	69 (63.3)	149 (94.9)	8 (5.1)	101 (63.1)	59 (36.9)	157 (98.1)	3 (1.9)
χ^2	$\chi^2=14.022$			$\chi^2=1.945$		$\chi^2=25.795$		$\chi^2=2.828$		$\chi^2=0.938$	
P-value	$p=0.001$			$p=0.163$		$p=0.000$		$p=0.093$		$p=0.333$	
<i>Income (TL)</i>											
≤500	16 (17.0)	66 (70.2)	12 (12.8)	37 (45.7)	44 (54.3)	67 (74.4)	23 (25.6)	75 (79.8)	19 (20.2)	92 (97.9)	2 (2.1)
501-1000	38 (19.2)	134 (67.7)	26 (13.1)	71 (43.6)	92 (56.4)	159 (83.2)	32 (16.8)	138 (69.7)	60 (30.3)	192 (97.0)	6 (3.0)
≥1001	29 (30.8)	61 (64.9)	4 (4.3)	27 (35.1)	50 (64.9)	86 (92.5)	7 (7.5)	49 (52.1)	45 (47.9)	91 (96.8)	3 (3.2)
χ^2	$\chi^2=10.408$			$\chi^2=2.132$		$\chi^2=10.759$		$\chi^2=17.109$		$\chi^2=0.240$	
P-value	$p=0.034$			$p=0.344$		$p=0.005$		$p=0.000$		$p=0.887$	
<i>Employment status</i>											
Housewife	57 (18.6)	213 (69.6)	36 (11.8)	127 (44.1)	161 (55.9)	236 (79.5)	61 (20.5)	216 (70.6)	90 (29.4)	298 (97.4)	8 (2.6)
Employed	26 (32.5)	48 (60.0)	6 (7.5)	8 (24.2)	25 (75.8)	76 (98.7)	1 (1.3)	46 (57.5)	34 (42.5)	77 (96.2)	3 (3.8)
χ^2	$\chi^2=7.602$			$\chi^2=16.368$		$\chi^2=16.368$		$\chi^2=4.982$		$\chi^2=0.295$	
P-value	$p=0.022$			$p=0.000$		$p=0.000$		$p=0.026$		$p=0.587$	
<i>House type</i>											
Slum House	28 (16.0)	120 (68.6)	27 (15.4)	70 (45.5)	84 (54.5)	132 (77.6)	38 (22.4)	142 (81.1)	33 (18.9)	171 (97.7)	4 (2.3)
Flat	55 (26.1)	141 (66.8)	15 (7.1)	65 (38.9)	102 (61.1)	180 (88.2)	24 (11.8)	120 (56.9)	91 (43.1)	204 (96.7)	7 (3.3)
χ^2	$\chi^2=10.636$			$\chi^2=1.403$		$\chi^2=7.517$		$\chi^2=25.844$		$\chi^2=0.368$	
P-value	$p=0.005$			$p=0.236$		$p=0.006$		$p=0.000$		$p=0.544$	

*Women who had answered related question, †Women who have menstruated

Table 4 - Genital tract infection and urinary tract infection status of the women in the study group in the last one year according to their behaviors related to genital hygiene.

Genital hygiene behaviors	Genital infection				Urinary tract infection			
	Yes	No	χ^2	P-value	Yes	No	χ^2	P-value
<i>Frequency of bathing (n=386)</i>								
Every day	13 (15.7)	70 (84.3)			38 (45.8)	45 (54.2)		
Every 2-3 days	52 (19.9)	209 (80.1)			82 (31.4)	179 (68.6)		
Every 4-7 days	7 (16.7)	35 (83.3)			14 (33.3)	28 (66.7)		
<i>Underwear changing frequency (n=386)</i>								
Every day	45 (17.7)	209 (82.3)			45 (17.7)	209 (82.3)		
Every 2 days and rarer	27 (20.5)	105 (79.5)			27 (20.5)	105 (79.5)		
<i>Hand washing before using the toilet (n=386)</i>								
Yes	40 (15.3)	222 (84.7)			74 (28.2)	188 (71.8)		
No	32 (25.8)	92 (74.2)			60 (48.4)	64 (51.6)		
<i>Genital cleaning (n=386)</i>								
Front to back	43 (15.5)	234 (84.5)			87 (31.4)	190 (68.6)		
Other	29 (26.6)	80 (73.4)			47 (43.1)	62 (56.9)		
<i>Type of pad used during menstrual period (n=374)</i>								
Pad	56 (17.9)	256 (82.1)			109 (34.9)	203 (65.1)		
Other	13 (21.0)	49 (79.0)			20 (32.3)	42 (67.7)		
<i>Vaginal douching (n=321)</i>								
Yes	28 (20.7)	107 (79.3)			48 (35.6)	87 (64.4)		
No	42 (22.6)	144 (77.4)			74 (39.8)	112 (60.2)		
<i>Status of being informed on genital hygiene (n=386)</i>								
Yes	42 (25.6)	122 (74.4)			62 (37.8)	102 (62.2)		
No	30 (13.5)	192 (86.5)			72 (32.4)	150 (67.6)		

income, those who were employed, and those who lived in flats. Similarly, in Yagmur et al's study,¹⁴ an increase in the educational level, income, and employment rate of women reflected as a statistically significant increase in use of pads during menstrual periods.¹⁵ Furthermore, use of hygienic pads during menstrual periods, change of pads every 3 to 4 hours, and increased number of showers in a standing position, as the cervical canal opening widens in the sitting position, reduces genital infection risk.⁵ In Yagmur et al's study,¹⁴ 68.8% of women used purchased pads, while 62.1% of women had baths during their menstrual periods. On the other hand, while the rate of women using hygienic pads in their menstrual periods is given as 67.2%, 2.9% of women changed their pads 6 or more times a day, and 73.5% had baths during menstrual periods. Of these, 67.2% took showers in a standing position.⁵ In Temel et al study,¹⁵ while 89.9% of women used hygienic pads in menstrual periods was 66.4% had baths. In our study, the rate of women using pads in their menstrual periods was 83.4%, while 25.9% changed their pads 6 or more times a day, 90.6% had baths, and 49.5% had their baths in a standing position. In Karatay et al's study,⁵ while the rate of women who washed their hands before using the toilet was 0.8%, this figure rose to 86.4% for hand washing after using the toilet.⁵ Temel et al¹⁵ in their study investigating women referred to 2 health care centers between the ages of 15 and 49, found the frequency of women washing their hands before using the toilet as 44.5%, while the rate of those washing their hands after using the toilet appeared as 80%.¹⁴ In our study, these rates increased and reached to 67.9% for those who washed their hands before using the toilet, and to 97.2% for those who washed their hands after using the toilet. Occupational and employment status, such as having an unskilled or manual job has been found to be associated with higher frequency of genital tract infections,^{8,9} so that another precaution against genital tract infections is hand washing before and after using the toilet.

The genital region should be cleaned at once from front to back with a white colored quality toilet paper.^{5,8,9} Furthermore, the genital region should be dried after being cleaned, to prevent appearance of a wet environment favored by microorganisms.⁵ Temel et al¹⁵ reported that genital region cleaning was performed using only water by 14.1% of the women, while 44.9% used water and toilet paper.¹⁵ In the study by Karatay et al,⁵ 68.3% of the women included in the study cleaned the genital region by water, 20.8% used toilet paper, 5.7% used water, and toilet paper, while 66.4% dried the genital region. Of the women included in our study, a low percentage used toilet paper only, 29.9% used only water, a higher 59.4% used water, and toilet paper,

while most dried the genital region, with a percentage of 79.8%. Our study included a 71.8% of women who cleaned genital region from front to back, while in the studies of Karatay et al,⁵ Yagmur,¹⁴ and Temel et al,¹⁵ this rate was 49.9%, 73.8%, and 58%. Vaginal douching increases genital tract infections.^{8,9} In Yagmur et al's study,¹⁴ 57.2% of women performed vaginal douching, while this rate was 70.6% in Temel et al's study.¹⁵ In Caliskan et al's study,¹⁶ of the married women referred to the family planning unit of the primary health care center, 5.8% stated that they had performed vaginal douches before, while 36.3% still did so. In the study by Karatay et al,⁵ 72.1% of women douched following intercourse, while in our study a lower rate of 42.1% was found. In Caliskan et al's study,¹⁶ more women who lived in slum houses performed vaginal douching compared to those who lived in flats, and the difference was statistically significant. In our study, the rate of vaginal douching was statistically significantly higher among housewives compared to employed women ($p=0.000$). In Yagmur et al's study, the frequency of vaginal douching decreased as the education, and income levels of women increased.¹⁴ While 18.7% of women included in our study confirmed at least one episode of genital tract infection in the last one year, in the study by Yagmur et al,¹⁴ 27% of women had a history of, or current genital tract infections.

In the study by Temel et al,¹⁵ 34% of women stated that they were informed of genital hygiene by their families, while 23.9% were informed by health care workers. In our study, 57.5% of the participants stated that they were never previously informed of genital hygiene. Of the 164 women who confirmed being informed of genital hygiene in the past, 9.1% gave their families as the information source, while 22.6% was informed through radio and television, 23.8% at school, and 64.6% by health care workers. In this study, state of genital tract, and urinary tract infections in the last one year was compared to some genital hygiene behaviors and being informed of genital hygiene, which appeared more frequently in those who did not perform appropriate cleaning after using the toilet ($p=0.012$; $p=0.03$), and in those who did not wash hands before using the toilet ($p=0.013$; $p=0.000$). It was concluded that emphasizing these 2 issues in education efforts would be useful. The fact that history of more frequent genital tract infections appeared in those who stated that they were informed of genital hygiene is in contrast to what was expected, and perhaps due to information being transferred to women during referrals for treatment due to infections, with no adequate prior knowledge on the subject.

The main limitation of the study is the women's habitual behavior related to genital hygiene was evaluated

according to only socioeconomic factors. Unfortunately, the study did not assess the cultural context of root causes of behavior. The main difficulty of the study was reaching the sample group. The interviewers had to visit the site at different times to reach one person.

Behaviors related to hygiene is affected by socioeconomic and cultural status, knowledge level, body image, and personal preference. In this study, it was observed that women of reproductive age living in the Park Health Care Center Area had a low rate of appropriate behaviors on genital hygiene, mainly including frequency of bathing, use of cotton underwear, daily change of underwear, genital region cleaning from front to back, use of toilet paper and drying after using the toilet, use, and frequently change of pads in the menstrual periods, and having baths in a standing position during menstrual periods. Furthermore, it appeared that prior information and education of women on these issues were not sufficient. Nearly half of the women living in the area performed vaginal douching. In our study, all these negative behaviors were detected to be more prominent generally in women of lower socioeconomic features, who lived in slum houses, and who were housewives. It was concluded that addressing this lack of knowledge among these women and development of appropriate behavior on genital hygiene could be provided during their referral to polyclinics and clinics, during home visits by health care workers, and by group educations. As a start, nurses employed in the Park Health Care Area were trained on the necessary content.

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References

- Egan M, Lipsky MS. Vaginitis: case reports and brief review. *AIDS Patient Care STDS* 2002; 16: 367-373.
- Reid G, Bruce AW. Urogenital infections in women: can probiotics help? *Postgrad Med J* 2003; 79: 428-432.
- Prasad JH, Abraham S, Kurz KM, George V, Lalitha MK, John R, et al. Reproductive tract infections among young married women in Tamil Nadu, India. *Int Fam Plan Perspect* 2005; 31: 73-82.
- Tuncer ZS, Aksu T. Genital System Infections. In: Gunalp S, Tuncer ZS, editors. *Gynecology and Obstetrics Diagnose and Treatment*. 1st edition. Ankara (Turkey): Pelikan Publishing; 2004. p. 359-380.
- Karatay G, Özvaris SB. Evaluation of applications regarding the genital hygiene of women living in barrel houses within a region existing a health center. *CÜ Hemşirelik Yüksekokulu Dergisi* 2006;10:7-14.
- Yuce K. Benign Diseases of Vagina. In: Ayhan A, Durukan T, Gunalp S, Gurkan T, Onderoglu LS, Yarali H, et al, editors. *Basic Gynecology and Obstetrics Information*. 2nd edition. Ankara (Turkey): Gunes Medical Publishing; 2008. p. 1011-1018.
- Soper DE. Sexually Transmitted Disease. In: Berek JS, editor. *Novak's Gynecology*. 13th Edition. Philadelphia (PA): Lippincott Williams & Wilkins; 2002. p. 453-470.
- Allsworth JE, Peipert JF. Prevalence of bacterial vaginosis: 2001-2004 National Health and Nutrition Examination Survey data. *Obstet Gynecol* 2007; 109: 114-120.
- Rathore M, Vyas L, Bhardwaj AK. Prevalence of reproductive tract infections amongst ever married women and sociocultural factors associated with it. *J Indian Med Assoc* 2007; 105: 71-78.
- World Health Organization, Department of Reproductive Health and Research. Global strategy for the prevention and control of sexually transmitted infections: 2006 - 2015. Breaking the chain of transmission. Geneva: WHO Press; 2007. p. 24.
- Kocakaya A. Knowledge, attitude and behaviors related to personal hygiene on high school age young people and effect of training [Master Thesis]. Isparta: Suleyman Demirel University, Institute of Health Sciences; 2005.
- Tezcan S. Biostatistics: Definition and Classification. In: Guler C, Akin L, editors. *Public Health Basic Information*. 1st edition. Ankara (Turkey): Hacettepe University Publishing; 2006. p. 146-186.
- Basaran A, Tuncer ZS. Pediatric and adolescent Gynecology. In: Gunalp S, Tuncer ZS, editors. *Gynecology and Obstetrics. Diagnose and treatment*. 1st edition. Ankara (Turkey): Pelikan Publishing; 2004. p. 455-474.
- Yağmur Y. The Genital Hygiene Behaviors of the Females Aged 15-49 Living at the Firat Health Clinic Neighborhood in Malatya. *TSK Koruyucu Hekimlik Bültene* 2007; 6: 325-330.
- Temel M, Metinoğlu M. The Study of Genital Hygiene Applications in Women Aged 15-49 Who Applied to the 1st and the 4th State Health Care Centers in Tekirdağ. *İÜEN Hemşirelik Dergisi* 2007; 15: 91-99.
- Caliskan D, Subasi N, Sarisen O. Vaginal douching and associated factors among married women attending a family planning clinic or a gynecology clinic. *Eur J Obstet Gynecol Reprod Biol* 2006; 127: 244-251.

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Shirodkar SS, Hammad FT, Qureshi NA. Male genital self-amputation in the Middle East. A simple repair by anterior urethrostomy. *Saudi Med J* 2007; 28: 791-793.