

## An Evaluation of the Relationship between Genital Hygiene Practices, Genital Infection

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### Abstract

**Objective:** The present study aims to evaluate the relationship between genital hygiene practices and genital infection in a group of university students.

**Materials and methods:** This is a descriptive study conducted with female students residing in Sakarya State Student Dormitory between the 1st of February and 30th of May 2011. State student dormitory of Sakarya city accommodate students who attend Sakarya University. 1653 students reside in this state student dormitory and 1057 (63.94%) of these who were willing to participate constituted the study group. Then interview forms, developed in line with the study purpose, were completed by the students who were supervised during the process. Familial income was graded as poor, moderate or good according to student's perception. Obtained data were analyzed on computers with the SPSS statistics package software (version 15.0) and chi-square ( $\chi^2$ ) test was used for analyses.

**Results:** History of genital infection was identified in 13.0%. Hosiery/cotton underwear was preferred by 93.4% of the students and 38.1% favoured white-coloured underwear. Of the students, 47.2% changed underwear daily and 71.2% used daily pads. "Front to rear" genital cleaning was favoured by 67.8%, 97.6% used "pads" during menstrual periods, 54.1% changed pads 6 times or more a day and 57.3% used "perfumes" for undesirable scent. No relationship was noted between the frequency of genital infections and the departments the students were studying, their years at school, age groups and mothers' level of education ( $p>0.05$ ). Likewise, the frequency of genital infections was not significantly related to how frequent the students changed their underwear or how many times they replaced the materials daily during the menstrual period in our study group ( $p>0.05$ ). The frequency of genital infection was higher among the students who bathed in sitting position or once or less a week, who did not perform genital cleaning and who used daily pads ( $p<0.05$ ).

**Conclusion:** The present study determined a higher frequency of genital infection among the students with improper genital hygiene practices.

**Keywords:** Genital infection; Female students; Genital hygiene

### Introduction

Vaginal infections are an important women's health problem associated with negative impacts on sexual and family lives and has a tendency of increasing prevalence worldwide. They are currently among the foremost causes that lead women to seek medical attention at obstetrics and gynaecology polyclinics [1-3].

Every year, approximately 100 women worldwide are exposed to genital infections including urinary tract infections and bacterial vaginosis, and 75% of women has a history of a genital infection [4,5]. Studies involving different levels of society report the prevalence of abnormal vaginal discharge as 12.1 to 30% [3,5]. Known risk factors for vaginal infections include pregnancy, poor hygiene (perineal hygiene and menstrual hygiene); long-term antibiotic or steroid therapy, diabetes mellitus, systemic conditions such as immunodeficiency, smoking and alcohol consumption, contraception, vaginal tampons, multiple partners and frequent sexual intercourse, delivery and abortion under inappropriate conditions, multiparity, and low socioeconomic status and malnutrition [6]. Lack of hand-washing habit, not using proper underwear, and not practicing genital hygiene after using the restroom are described as situations of poor hygiene. The types of the material used during menstruation and cleaning after using the bathroom are critical factors for genital infections [5].

Early recognition of vaginal infections, initiating appropriate treatment and taking necessary precautions are essential in protecting and improving women's health. Genital hygiene has a key role in preventing genital infections [7,8]. Nurses play a critical part in identifying vaginal discharges-an important finding that may assist

in preventing situations which lead to gynaecologic infections-as well as in ensuring that the patients comply with the recommended analyses and treatments and in finding out wrong hygiene habits and determining the correct practices. As part of their educative and counselling positions, nurses carry responsibilities regarding reproductive health of the youth within the scope of preventive medicine. They are the healthcare professionals who can undertake the role of a health educator and mentor through proper approaches in identifying and resolving gynaecologic problems, particularly in Turkey, where such issues are considered strictly private. Within the context of reproductive health services, nurses are typically expected to have knowledge on the causes of vaginal discharge and other infections and on the methods of preventing and managing such conditions and teaching these to women. Education provided to women, particularly adolescents, by nurses and by trainers who have relevant experience and knowledge may ensure proper hygiene practices [4,8].

The present research was conducted with the female students

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at Sakarya University to identify their genital hygiene habits and determine any association between these habits and genital infections.

## Materials and Methods

This is a descriptive study conducted with female students residing in Sakarya State Student Dormitory between the 1st of February and 30th of May 2011. Required approvals from relevant institutions were received prior to study conduct.

A questionnaire, developed in line with the purpose of the study, which includes items on a number of socioeconomic characteristics (age, educational status, marital status, familial income), genital hygiene behaviours and some information on genital infection was used in the study [4,5,9].

The study protocol was carried out in accordance with the Helsinki Declaration as revised in 1989 and it was approved by the relevant institutions.

State student dormitory of Sakarya city accommodates students who attend Sakarya University. 1653 students reside in this student dormitory and 1057 (63.94%) of these who were willing to participate constituted the study group. The students were gathered in reading halls of the dormitory and were given information on the subject and purpose of the study, after which their oral consents were received. Then interview forms, developed in line with the study purpose, were completed by the students who were supervised during the process. This procedure took approximately 10-15 minutes.

In this study, students diagnosed by a physician with a genital infection within the past 6 months were considered as "students with history of genital infection". Familial economic status was graded as poor, middle or good according to students' perception.

Obtained data were analyzed on computers with the SPSS statistics package software (version 15.0) and chi-square ( $\chi^2$ ) test was used for analyses. Statistical significance was set at  $p < 0.05$ .

## Results

Distribution of students with and without history of genital infection is presented in Table 1 by demographic data. In summary, the students in the study group were in the age range of 17-27 years, with a mean age of  $21.03 \pm 1.70$  years. Of them, 612 (57.9%) were older than 21 years, 309 (29.2%) were students at Faculty of Economics and Administrative Sciences, 322 (30.5%) were at Faculty of Science and Letters and 645 (61.0%) were first and second grade student. Mothers of most of the students (62.9%,  $n=665$ ) were primary school graduates and the families of 48.7% ( $n=515$ ) had moderate level of income (Table 1).

In the present study, 137 (13.0%) of the student had a history of a genital infection. Significantly fewer students with good level of familial income had such history ( $p=0.037$ ). There were no significant correlations between the frequency of genital infections and students' faculties, grade, age group or maternal education level ( $p > 0.05$ ) (Table 1).

Of the students, 987 (93.4%) preferred hosiery/cotton type of underwear, 214 (20.2%) preferred white for underwear colour and 499 (47.2%) changed underwear daily. Of them, 753 (71.2%) had the habit of using daily pads (mini hygienic pads). The number of patients who told that they bathed in the standing position was 839 (79.4%), and 945 (89.4%) of them bathed daily or every 2-3 days (Table 2).

An assessment of underwear and bathing habits of students with genital infection history did not demonstrate any relationships between the frequency of changing underwear and infection history

Demographics	Genital infection history			Test value $\chi^2$ ; P
	No n (%)*	Yes n (%)*	Total n (%)**	
<b>Faculty</b>				
Faculty of Architecture/ Engineering	127 (87.0)	19 (13.0)	146 (13.8)	4.363; 0.225
Faculty of Economics and Administrative Sciences	279 (90.3)	30 (9.7)	309 (29.2)	
Faculty of Science/Letters	275 (85.4)	47 (14.6)	322 (30.5)	
Health College-Department of Physical Education and Sports	239 (85.4)	41 (14.6)	280 (26.5)	
<b>Grade</b>				
1-2	571 (88.5)	74 (11.5)	645 (61.0)	3.249; 0.071
3-4	349 (84.7)	63 (15.3)	412 (39.0)	
<b>Age group</b>				
$\leq 20$	393 (88.3)	52 (11.7)	445 (42.1)	1.109; 0.292
$\geq 21$	527 (86.1)	85 (13.9)	612 (57.9)	
<b>Mother's level of education</b>				
Primary school and below	634 (87.8)	88 (12.2)	722 (68.3)	5.602; 0.061
Middle-High School	243 (87.1)	36 (12.9)	279 (26.4)	
University	43 (76.8)	13 (23.2)	56 (5.3)	
<b>Familial income</b>				
Poor	240 (87.0)	36 (13.0)	276 (26.1)	<b>6.569; 0.037<sup>a</sup></b>
Moderate	437 (84.9)	78 (15.1)	515 (48.7)	
Good	243 (91.4)	23 (8.6)	266 (25.2)	
<b>Total</b>	<b>920 (87.0)</b>	<b>137 (13.0)</b>	<b>1057 (100.0)</b>	

\*Percentage by row total, \*\*Percentage by column total.

<sup>a</sup>Statistically significant at  $p < 0.05$

**Table 1:** Distribution of Students With and Without History of Genital Infection by Demographics.

Underwear hygiene and bathing habits	Genital infection history			Test value $\chi^2$ ; P
	No n (%)*	Yes n (%)*	Total n (%)**	
<b>Type of underwear used</b>				
Hosiery/cotton	866 (87.7)	121 (12.3)	987 (93.4)	5.602; 0.018 <sup>a</sup>
Satin/flannel	54 (77.1)	16 (22.9)	70 (6.6)	
<b>Frequency of changing underwear</b>				
Once a week	37 (84.1)	7 (15.9)	44 (4.2)	5.404; 0.067
Two-three times a week	460 (89.5)	54 (10.5)	514 (48.6)	
Daily	423 (84.3)	76 (15.2)	499 (47.2)	
<b>Daily pads</b>				
Yes	279 (91.8)	25 (8.2)	304 (28.8)	8.490; 0.004 <sup>b</sup>
None	641 (85.1)	112 (14.9)	753 (71.2)	
<b>Bathing position</b>				
Standing	749 (89.3)	90 (10.7)	839 (79.4)	49.570; 0.000 <sup>c</sup>
Sitting	12 (44.4)	45 (55.6)	27 (2.6)	
Sometimes sitting, sometimes standing	159 (83.2)	32 (16.8)	191 (18.1)	
<b>Bathing frequency</b>				
Daily/once every 2-3 days	840 (88.9)	105 (11.1)	945 (89.4)	25.534; 0.000 <sup>c</sup>
Weekly/once every fifteen days	80 (71.4)	32 (28.6)	112 (10.6)	
<b>Total</b>	<b>920 (87.0)</b>	<b>137 (13.0)</b>	<b>1057(100.0)</b>	

\*Percentage by row total, \*\*Percentage by column total

<sup>a</sup>Statistically significant at  $p < 0.05$

<sup>b</sup>Statistically significant at  $p < 0.01$

<sup>c</sup>Statistically significant at  $p < 0.001$

**Table 2:** Distribution by underwear hygiene and bathing habits of students with and without history of a genital infection.

( $p > 0.05$ ). Frequency of genital infections was higher among those who used hosiery/cotton underwear and daily pads ( $p=0.018$  and  $p=0.004$ , respectively). History of genital infections was significantly more

Toilet hygiene practices	Genital infection history			Test value $\chi^2$ ; P
	No n (%)*	Yes n (%)*	Total n (%)**	
<b>Genital area cleaning</b>				
No	39 (55.7)	31 (44.3)	70 (6.6)	62.263; 0.000 <sup>c</sup>
Yes	881 (89.3)	106 (10.7)	987 (93.4)	
<b>Type of genital area cleaning<sup>a</sup></b>				
Front to backward	583 (87.1)	86 (12.9)	669 (67.8)	14.350; 0.001 <sup>b</sup>
Back to forward	223 (90.7)	23 (9.3)	246 (24.9)	
Random	53 (73.6)	19 (26.4)	72 (7.3)	
<b>Agent used for genital area cleaning<sup>a</sup></b>				
Water	712 (88.6)	92 (11.4)	804 (81.5)	10.170, 0.004 <sup>b</sup>
Soap/shampoo	94 (78.3)	26 (21.7)	120 (12.1)	
Cosmetics	53 (84.1)	10 (15.9)	63 (6.4)	
<b>Drying genital area</b>				
No	79 (66.4)	40 (33.6)	119 (11.3)	48.657; 0.000 <sup>c</sup>
Yes	841 (89.7)	97 (10.3)	938 (88.7)	
<b>Material used for drying the genital area</b>				
Toilet roll	862 (88.8)	109 (11.2)	971 (91.9)	30.006; 0.000 <sup>c</sup>
Cloth	58 (67.4)	28 (32.6)	86 (8.1)	
<b>Frequency of cleaning genital area hair</b>				
At least once in every 15 days	308 (82.4)	66 (17.6)	374 (35.4)	15.918; 0.000 <sup>c</sup>
Monthly	222 (86.0)	36 (14.0)	258 (24.4)	
Once in 2 months or more	390 (91.8)	35 (8.2)	425 (40.2)	
<b>Hand washing</b>				
Doesn't always pay attention	55 (74.3)	19 (25.7)	74 (7.0)	12.733; 0.002 <sup>b</sup>
Usually after leaving the restroom	485 (86.9)	73 (13.1)	558 (52.8)	
Before and after using the restroom	380 (89.4)	45 (10.6)	425 (40.2)	
Total	920 (87.0)	137 (13.0)	1057 (100.0)	

\*Percentage by row total, \*\*Percentage by column total

<sup>a</sup>Those practicing genital area cleaning

<sup>b</sup>Statistically significant at  $p < 0.01$

<sup>c</sup>Statistically significant at  $p < 0.001$

**Table 3:** Distribution of the students with and without history of a genital infection by toilet hygiene habit practices.

Menstrual hygiene practices	Genital infection history			Test value $\chi^2$ ; P
	No n (%)*	Yes n (%)*	Total n (%)**	
<b>Material used during menstruation</b>				
Pad	910 (88.2)	122 (11.8)	1032 (97.6)	46.042; 0.000 <sup>c</sup>
Cloth	10 (40.0)	15 (60.0)	25 (2.4)	
<b>Frequency of changing the material during menstruation (per day)</b>				
Once	27 (81.8)	6 (18.2)	33 (3.1)	1.435; 0.488
2-5 times	390 (86.3)	62 (13.7)	452 (42.8)	
6 times or more	503 (87.9)	69 (12.1)	572 (54.1)	
<b>Bathing during menstruation</b>				
No	72 (76.6)	22 (23.4)	94 (8.9)	8.984; 0.003 <sup>b</sup>
Yes	848 (88.1)	115 (11.9)	963 (91.1)	
<b>Using perfume for malodour during menstruation</b>				
No	398 (88.2)	53 (11.8)	451 (42.7)	1.020, 0.312
Yes	522 (86.1)	84 (13.9)	606 (57.3)	
Total	920 (87.0)	137 (13.0)	1057 (100.0)	

\*Percentage by row total, \*\*Percentage by column total

<sup>b</sup>Statistically significant at  $p < 0.01$

<sup>c</sup>Statistically significant at  $p < 0.001$

**Table 4:** Distribution of the students with and without history of a genital infection by their menstrual hygiene practices.

common among those who bathed in the sitting position and in those who bathed once a week ( $p = 0.000$  and  $p = 0.000$ , respectively) (Table 2).

Of the students, 987 (93.4%) practiced genital hygiene, 669 (67.8%) of whom used front to backward approach for genital area cleaning and 804 (81.5%) used water for cleaning the genital area (Table 3). Genital infections was significantly less common among those who told that they practiced genital cleaning ( $p = 0.000$ ), while they were more common among those who described that they cleaned the genital randomly ( $p = 0.001$ ), used soap/shampoo ( $p = 0.004$ ), did not dry the area ( $p = 0.000$ ), used cloth for drying ( $p = 0.000$ ), performed frequent genital area cleaning with materials such as razor ( $p = 0.000$ ) and did not always pay attention to hand washing ( $p = 0.002$ ) (Table 3).

As shown in Table 4, 1032 (97.6%) of the students used 'pads' during menstruation and the majority of them (96.9%) changed the material they used during menstruation more frequently than 2 times a day. Of the study group, 94 (8.9%) of the students did not bathe during menstruation and 606 (57.3%) used 'perfume' for malodour during menstruation. The frequency of genital infections was significantly higher among those who used cloth and those who did not bathe during menstruation ( $p = 0.000$  and  $p = 0.003$ , respectively).

The students had had previous knowledge on genital hygiene ( $n = 576$ , 54.5%) and healthcare professionals were the source of information for most of them ( $n = 279$ , 48.4%). Of the students, 682 (64.5%) told that they were willing to receive information on genital hygiene, with 78% of them describing healthcare professionals as their preferred source of information. The topics of genital hygiene the students felt the need to receive information on were as follows: genital cleaning ( $n = 779$ ; 28.3%), symptoms of infection ( $n = 674$ ; 24.5%), genital area anatomy ( $n = 347$ ; 12.6%), genital examination ( $n = 373$ ; 13.6%), and dysmenorrhoea ( $n = 576$ ; 21.0%).

## Discussion

Studies involving different levels of society report the prevalence of abnormal vaginal discharge as 12.1 to 30% [3,9,10]. In a study by Özdemir et al. 25.1% of the students described history of abnormal vaginal discharge [3]. The frequency of genital infection in the present study (13.0%) is consistent with the previous reports.

In a study by Ardahan and Bay, the reported frequencies of vaginal discharge in first and fourth grade students of the nursing college were 24.7 and 12.1%, respectively [9]. Özdemir et al. reported a higher percentage of students who described vaginal discharge among the first and second grade students compared to the third and fourth grade students [3]. The present study, however, did not identify any differences between the grades regarding the presence of genital infections ( $p > 0.05$ ).

There are reports supporting an increased frequency of genital infections with increasing age. Among these, a study by Cangol observed less genital infections in women below the age of 25 (22.8%), and studies by Hacıalioglu et al. and Oner et al. described that the frequency of genital infections increased with age [2,11,12]. In the present study, no correlation was found between genital infections and age groups ( $p > 0.05$ ). This may be associated with the fact that the students in the study group were of similar age ranges.

There are studies which establish mothers as the most important individuals to educate their daughters on the aspects of genital area and menstrual hygiene [4,13]. Higher levels of maternal education are therefore important. However, the present study did not identify a relationship between the maternal education level and the frequency of genital infections ( $p > 0.05$ ). This may be explained by the limited number of the students whose mothers had high levels of education in the present study.

Investigating the effects of the level of income on the knowledge and habits of genital hygiene, Yıldırım found that women with good monthly income had higher mean scores from the genital hygiene questionnaire and similarly, Dan et al. reported more common vaginal infections among women with poorer socioeconomic status [14,15]. Better income makes it easier to meet hygiene requirements and helps women to conveniently utilize healthcare institutions should they experience any problems with their health. Consistent with previous reports, the present study also found that genital infections were significantly less common among the students whose families had good levels of income ( $p < 0.05$ ).

The type and cleanliness of the underwear as well as the frequency with which it is changed are important factors regarding the risk of getting a urinary infection. There is a commercial trend to make nylon and synthetic underwear more attractive to women, especially younger ones. These types of underwear, however, does not absorb perspiration as much as the cotton underwear does, causing the perineum to remain humid and leading an increased risk of genital tract infections [4,12,14]. The present study also demonstrated a significantly higher frequency of genital infections among the students who used underwear made of satin or flannel ( $p < 0.05$ ).

Changing the underwear frequently is critical in preventing genital and urinary infections. The underwear may be changed even multiple times throughout the day during the period of intensive discharge [12]. According to Kisa, women who changed underwear less frequently were more prone to getting vaginal infections than those who changed more frequently. In their study, Ozkan and Demir found that 53.4% of the women changed their underwear every 2-3 days and demonstrated a higher incidence of vaginitis for this group compared to those who changed underwear daily [16,17]. On the contrary to previous reports, the present study did not demonstrate any relationship between the frequency of changing underwear and of genital infections ( $p > 0.05$ ).

The present study found a higher frequency of genital infections among students who used pads daily ( $p < 0.05$ ). This may be, in part, explained by the fact that not changing the daily pads at appropriate intervals will increase the humidity of the genital area especially during the periods of intensive discharge and in increased temperatures leading to poor ventilation and thus providing a suitable environment for infections [16,18].

Bathing in sitting position is a common behaviour in communal settings such as dormitories. Bathing in this position may increase the prevalence of genital and urinary tract infections particularly during menstruation during which the cervical canal width increases [14,19]. The present study found a higher frequency of genitally tract infections among students who bathed in sitting position ( $p < 0.05$ ).

It has been described by the previous studies that wrong perineal hygiene practices (i.e. back to forward) may lead to infections due to the transfer of microorganisms from the anus to the vagina [12,15,16]. The study by Cangöl reported the frequency of genital infections as 35.1% among the participants practicing correct genital hygiene vs. 38.1% in those who clean the genital area incorrectly [2]. Likewise, Hacıoğlu et al. found a higher incidence of genital infections among women using incorrect cleaning practices [11]. The present study also found a higher frequency of genital infections among participants who practiced random perineal hygiene and/or those who did not clean the perineum at all ( $p < 0.05$ ). All these findings indicate that perineal cleaning is performed incorrectly in our country.

Materials used for genital hygiene vary across different cultures. For

example, home-brewed solutions prepared from several herbs are used in Indonesia, while commercially available products and shampoos are used in Thailand, another Asian country, and home-made soaps are preferred for genital area cleaning in Africa [20]. A study by Czerwinski in California demonstrated that toilet rolls were the most commonly used material [21]. Cangöl and Hacıoğlu reported higher frequencies of genital infections among women who used water and wiping cloth for genital area cleaning [2,11]. Multiple use of wiping cloth before washing it and other family members using the same wiping cloth are high-risk behaviours for infection [22]. Similarly, our study found a significantly higher frequency of genital infections among women who used soap/shampoo and used cloth for drying for genital are cleaning ( $p < 0.05$ ).

After cleaning, the genital area should be dried to avoid a wet environment which facilitates growth of microorganisms [14]. Hacıoğlu et al. reported a lower frequency of genital infections among students who dried the genital area after cleaning compared to those who did not [11]. In the present study, the frequency of genital infections was higher among the students who dried the genital area than those who did not ( $p < 0.05$ ).

In the studies by Karatay and Ozvarış and by Temel and Metinoglu the proportion of participants using water and toilet roll was lower compared to those found in the present study [18,23]. Results from all these studies demonstrate a higher preference of water for genital area cleaning in our country associated with traditional practice. The present study found a lower frequency of genital infections among the students who used water and toilet roll for genital area cleaning ( $p < 0.05$ ).

The literature describes that razors and depilatory creams may cause microscopic cuts on the skin, providing a suitable environment for bacterial growth [10]. In the study group, the frequency of genital infections was significantly lower among the students who performed genital hair cleaning once every two months or less frequently ( $p < 0.05$ ).

The most important and simplest practice to prevent infections is washing hands with water and soap and, when necessary, with an aseptic solution. Hand-washing habit is achieved within the family during the early childhood and is expected to become an established behaviour with increasing level of knowledge. In a study, it has been reported that hand-washing habit was not at the desired levels among students and that none of them washed their hands before and after using the restroom, particularly after changing the pad, during menstruation [4]. The present study found that the lowest frequency of genital infections was among the students who had the habit of washing hands before and after using the restroom and that the highest frequency was among those who did not always pay attention to washing hands ( $p < 0.05$ ).

Several studies have reported that using ready-to-use pads during menstruation was a common practice among students [4,7,24]. During menstruation, pads should be changed every 3-4 hours, i.e. 6-8 times a day. Failure to change hygienic pads frequently (4-6 times/day) increases the risk of infection due to accumulation of blood within the pads associated with prolonged use, providing a moist and warm environment which facilitates growth of microorganisms [14,22]. Kostu and Beydag reported that 34.3% of the women changed pads less frequently than every 7 hours, while Karatay and Ozvarış described that 97.1% of the women changed their pads less frequently than needed. Moist, warm and haematic environment resulting from accumulation of menstrual blood within the pads provides a suitable habitat for microorganism growth and increases the risk of infection [18,25].

Therefore, absorbent hygienic pads must be used during menstruation and these should be changed every 3-4 hours. When using cloths is inevitable due to financial or other reasons, it is important that the used cloth is cleaned and stored appropriately. The present study did not identify any correlation between the material used during menstruation and the frequency of genital infections ( $p>0.05$ ).

Avoiding bathing during menstruation due to religious beliefs and other cultural rationale is a common erroneous misconception [3,21]. During this period of increased risk of infection, bathing is highly important in preventing infections and achieving physical and physiological relief [21,23]. In the study by Ozdemir et al. abnormal vaginal discharge was described by a significantly higher proportion of students who strictly avoided bathing during menstruation [3]. In the present study, the frequency of genital infections was lower among students who bathed during menstruation ( $p<0.05$ ), which was consistent with the literature.

According to the study by Cangül, 34.3% of the women had received information on genital hygiene from healthcare professionals and 25.3% from TV programs and, according to the study by Karatay and Ozvarış only 13.2% of the participant women had information on genital hygiene and they usually received the information from healthcare professionals [2,18]. In the study by Temel and Metinoğlu, the source of information on genital hygiene was families (34%) and healthcare professionals (23.9%) [23]. In the study group of the present study, nearly half of the students with previous knowledge on genital hygiene had received this information from healthcare professionals and most of those who wished to learn about genital hygiene described that healthcare professionals were their preferred source of information.

## Conclusion and Recommendation

The present study demonstrated that the frequency of genital infections was higher among women with incorrect genital hygiene habits. Principles of correct genital hygiene are not adequately known among the students. They described that they wished to learn more about genital hygiene, particularly about genital area cleaning and the signs of genital infections and that healthcare professionals were their preferred source of information. Training programs are required on genital hygiene, which is a crucial aspect of women's health. More comprehensive studies are needed to reveal any relationships between genital hygiene and genital infections.

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## Authors' Contributions

Study concept and design: Sahin S, Ozdemir K, Unsal A, Aygin D, Nemet T

Acquisition of subjects and data: Sahin S, Ozdemir K, Nemet T

Analysis and interpretation of data: Unsal A, Sahin S, Ozdemir K

Preparation of manuscript: Sahin S, Ozdemir K, Unsal A, Aygin D, Nemet T

All authors have read and approved the final version of the manuscript.

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