

# Evaluation of Vaginal Discharge and Genital Hygiene Habits in Women: Turkish Republic of North Cyprus Example

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## Abstract

**BACKGROUND/AIMS:** This research was conducted with the aim of evaluating vaginal discharge and genital hygiene in women between the ages of 18-49 who live in the Turkish Republic of Northern Cyprus.

**MATERIALS AND METHODS:** This research, which was planned as a descriptive study, was carried out on an online basis. The sample scope was determined as 95% confidence interval with a 5% margin of error with at least 382 women using a well-known sampling formula and 408 women volunteered for this study. The data were collected using a personal information form, vaginal discharge question form and Genital Hygiene Behaviors Inventory (GHBI). Number, percentage and average tests were used for the descriptive analysis. The conformity of the dependent and independent variables to the normal distribution was tested with the Kolmogorov-Smirnov test. The Independent t-test and One-Way ANOVA test were used to determine any differences between dependent and independent variables.

**RESULTS:** In this study, 36.5% of the participants were between the ages of 25-34, 59.8% were married, and in terms of their levels of education, 54.9% had university or higher-level qualifications. 8.3% of the women had a previous medical history of a sexually transmitted disease and this was continuing in 3.9% of them. It was determined that 46.8% of the women participating in this study had abnormal vaginal discharge. It was determined that the abnormal discharge of 14.2% of the women had lasted for 1 month and, for 13% of the women, it had lasted for 1 year or more. Also, it was seen that 30.2% of the women resorted to traditional methods for dealing with their abnormal vaginal discharge, including 11.5% of them who cleaned their vagina with vinegar, soda and/or lemon juice. The average score that the women obtained from the "GHBI" was  $78.24 \pm 12.07$  (minimum: 49.0, maximum: 108.0). A statistically significant difference was found between the GHBI mean score of the women participating in this study according to their past experiences of having abnormal vaginal discharges, the presence of previous sexually transmitted diseases and vaginal douching ( $p < 0.05$ ).

**CONCLUSION:** It was found that nearly half of the women had abnormal vaginal discharge (curd, green-yellow or grey in color and foul-smelling). In addition, it was determined that 30.2% of the women resorted to traditional methods for treating their abnormal vaginal discharge, including 11.5% of the participants who cleaned their vagina with vinegar, soda and/or lemon juice. Within the scope of primary health care services, it is recommended that midwives and nurses question the genital hygiene behaviors of women by both planning home visits and during the women's visits to health institutions, and by providing accurate information on reproductive health, genital hygiene, sexually transmitted diseases and family planning through brochures or training booklets.

**Keywords:** Vaginal discharge, genital hygiene, women's health

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## INTRODUCTION

Genital infections are recognized as the most common health problems seen in women in their reproductive stage between the ages of 18-49. Every year, one million women contract urogenital infections around the world and it has been reported that at least 75% of them have a history of vaginal infection.<sup>1-3</sup> Research conducted in Türkiye shows that the frequency of genital tract infections in women is between 52% and 92%.<sup>4-9</sup>

There are many reasons why genital infections are so common in women. The anatomic structure in which the urethra, vagina and anus are close together increases the risk of genital tract infections. Additionally, having multiple sexual partners, poor genital and menstrual hygiene, tight and synthetic underwear, bad nutrition, systemic diseases such as diabetes, poor obstetric history, stress, long term antibiotic and/or steroid use, incorrect genital hygiene applications, vaginal douche (VD), tampon use, poor environmental conditions, lack of education and many other factors can lead to genital infections.<sup>9-13</sup> Ensuring genital hygiene is one of the most important steps in preventing the serious problems which can be caused by genital infections, as well as protecting and maintaining women's health and their reproductive health. This is because when genital hygiene is neglected, the tendency for infection increases, and if the infection is not treated correctly and in a timely manner, this can have a negative impact on the woman's reproductive ability.<sup>1,8,9</sup> Additionally, genital infections can result in problems such as babies with low birth weight, abortion, fetal death, congenital infections in newborns, ectopic pregnancy, sepsis, cervical cancer, chronic pelvic pain etc.<sup>1,9,13</sup> In order to protect and enhance women's health, it is important to provide early diagnosis and treatment services along with protective measures against genital infections, and for health professionals to provide education and counselling for women.<sup>9</sup>

The way each woman describes and perceives vaginal discharge is different because many women do not know their body or how to identify abnormal vaginal discharge. Some women perceive their vaginal discharge as abnormal and consult health institutions, whereas even though others may have excessive discharge, they think that this is normal and take no action. Women's perception of genital infection risks differ according to their cultural structure, socio-economic situation, environmental conditions, stories they hear from their loved ones, traditional methods they may use for treatment, negative social exclusion and embarrassment with regard to gynecological examinations.<sup>1,9</sup> Due to these reasons, women often resort to traditional methods to solve their problems rather than using medical treatments. However genital infections which are not treated can cause serious reproductive health problems.<sup>1,6</sup> Many studies have examined the genital hygiene behaviors of women in Türkiye.<sup>9,14,15</sup> However, no studies have evaluated the genital hygiene behaviors of women living in the Turkish Republic of Northern Cyprus (TRNC). It is clear that midwives and nurses have an important role in protecting, maintaining and treating women's health conditions. Midwives in particular play an important role in determining the groups at risk of genital infections, evaluating the presence of genital infections in women and maintaining preventive health services in order to prevent their occurrence. For this reason, this study aimed to evaluate the abnormal vaginal discharge and genital hygiene behaviors of women between the ages of 18-49 living in the TRNC.

## Research Questions

1. Is there a statistically significant difference between the mean scores of the Genital Hygiene Behaviors Inventory (GHBI) of women according to some socio-demographic characteristics and their vaginal discharge status?
2. Is there a significant difference between women's socio-demographic characteristics and their experiencing abnormal vaginal discharge?
3. Is there a significant difference between the socio-demographic characteristics of women and the practice of vaginal douching?

## MATERIALS AND METHODS

### Study Design and Sampling

This cross-sectional and descriptive study was carried out between 01.06.2021 and 30.06.2021 on an online basis. The universe of this study comprised n=77,920 women between the ages of 18-49 in accordance with the TRNC 2011 census. The sample, on the other hand, was calculated to be at least 382 women, with a 95% confidence interval (CI) with a 5% margin of error, according to a known sampling formula. The sample of this study consisted of n=408 women.

### Data Collection

The data collection phase was conducted online. The data were collected by the researchers at a specified time on a web basis with an online questionnaire form. Invitations to participate in this study were shared via social media accounts and the WhatsApp application. Individuals who were directed to the link address were presented with an information and consent section. Individuals who provided their consent were then directed to the research form and participated in this study. Completing the online form took an average of 5 minutes.

### Data Collection Tools

The data collection form consists of two sections. The first section includes all information regarding this study as well as a consent form. The second section consists of the data collection forms. In the first part of the information form, there are 20 questions including information about age, marital status, socio-economic characteristics and obstetric history, and some introductory features regarding vaginal discharge. The second part consists of 15 questions about vaginal discharge. These questions were prepared in line with the purpose of this study. Their validity and reliability were not determined. The scope validity was evaluated regarding the items on the question form. In order to achieve this, the expert opinions of five specialist lecturers of whom one specialized in the basics of nursing, one in public health nursing and three in the field of midwifery, were taken into account. Necessary changes were made to the data collection form according to the feedback from these experts. A pilot study of the data collection form was conducted with 20 women in the TRNC who were not included in the sample group. Any necessary changes were made to the data collection form according to the results of the pilot study.

**Genital Hygiene Behaviours Inventory:** GHBI is a one-dimensional scale consisting of 27 questions developed by Ege and Eryılmaz<sup>16</sup> in 2005. Every statement in the inventory is graded between 1 and 4. For the positive statements, one 1 point is given for the answer "never", 2 for "sometimes", 3 for "often" and 4 for "always" and vice versa for negative statements. Due to the fact that items 17, 26 and 27 in the

inventory include negative statements, they are reverse scored. The minimum score which can be obtained from the GHBI is 27 and the maximum is 108. The total scores obtained from the inventory indicate the genital hygiene behavior scores. As the scores obtained from the inventory increase, it is evaluated that genital hygiene behaviors improve. The Cronbach's alpha reliability coefficient was calculated to be 0.86.<sup>16</sup> In the current study, the Cronbach's alpha value of the scale was determined to be 0.77.

### Statistical Analysis

The data collected online were evaluated by transferring to the Statistical Package for Social Sciences software version (SPSS 21.0- IBM SPSS Corp.; Armonk, NY USA) package program. The Cronbach's  $\alpha$ -value was calculated in order to test the internal reliability of the scale. The number, percentage and test averages were used for descriptive analysis. The conformity of the dependent and independent variables to the normal distribution was tested with the Kolmogorov-Smirnov test. The Independent t-test and One-Way ANOVA test were used to determine the difference between the dependent and independent variables. The data were evaluated with a 95% CI and  $p=0.05$  as the margin of error.

Approval from the Near East University Hospital Scientific Research Ethic Board was obtained before starting this research (approval number: 2021/1367). It was stated to the participants in the informed consent section that this study was voluntary, it could be completed at any time and the data would remain anonymous. No payment was made to or charged by the participants in this study. However, it was stated that they could receive summary information about the results of this study upon request.

### RESULTS

The women's socio-demographic information is given in Table 1. 36.5% of the participants were between the ages of 25-34 years, 59.8% were married and the level of education of 54.9% was university or higher. The obstetric and gynecological details of the women are given in Table 2. It was determined that 46.8% of the women used family planning, 15.9% of the women used condoms, and 10.5% used intrauterine devices (IUD) for family planning. 8.3% of the participants had a previous

sexually transmitted disease and 3.9% of them still had this disease. It was determined that 46.8% of the women in this study had abnormal vaginal discharge. It was determined that the discharge of 14.2% of the women had lasted for 1 month or less, and 13.0% of them had discharge which had lasted for 1 year or more. In addition, it was determined that 30.2% of the women resorted to traditional methods to treat their abnormal vaginal discharge, including 11.5% of the participants who cleaned their vagina with vinegar, soda and/or lemon juice.

The women who participated in this research had a mean score of  $78.24 \pm 12.07$  (minimum: 49.0, maximum: 108.0) from the "GHB". A comparison of the GHBI mean scores according to the participants' ages and levels of education is given in Table 3. According to this, a statistical difference was found between the GHBI mean scores of the women according to their ages and levels of education ( $p < 0.05$ ).

Table 4 shows a comparison of the GHBI mean scores of the participants according to certain obstetric and gynecological specifications and their discharge situations. It was found that there was a statistically significant difference between the mean scores of the "GHB" according to the women's status of distinguishing the normality of their vaginal discharge, their use of perfume, deodorant, or soap to prevent discharge, and keeping their vagina dry to prevent discharge ( $p < 0.05$ ). Additionally, a statistically significant difference was found between the GHBI mean scores of those who had abnormal vaginal discharge, those who had a previous history of sexually transmitted diseases and those who applied VD ( $p < 0.05$ ).

### DISCUSSION

Genital tract infections, which are commonly seen in women, can be prevented and easily treated by changing certain hygiene habits and consulting health facilities in the presence of abnormal discharge. Therefore, the reproductive health, sexual health, emotional health and quality of life of women can be positively affected. According to the data of our study, in which the vaginal discharge and genital hygiene behaviors of 408 women in the TRNC were evaluated, it was determined that nearly half of the women had a history of abnormal vaginal discharge. When other studies were examined, it was seen that

**Table 1. Socio-demographic characteristics of the women (n=408)**

Socio-demographic characteristics		n	%
Age group	18-24 age	124	30.4
	25-34 age	149	36.5
	35-49 age	135	33.1
Marital status	Married	244	59.8
	Single	164	40.2
Educational status	Middle school or below	74	18.1
	High	110	27.0
	University or above	224	54.9
Working status	Working	234	57.4
	Not working	174	42.6
Economic status	Low	19	4.7
	Medium	268	65.7
	High	121	29.7
Child presence	Yes	201	49.3
	No	207	50.7

one out of every two women experience abnormal vaginal discharge due to poor genital hygiene habits.<sup>3,17-20</sup> Our study showed that this was not only related to hygiene habits, but it was also determined that about a third of the participants found it difficult to distinguish abnormal discharge. Additionally, it was determined that more than half of the women who experienced abnormal vaginal discharge did not consult health services and that about a third resorted to traditional methods (vinegar, soda, lemon juice etc.) in cases of abnormal vaginal discharge. The study conducted by Okumuş and Demirci<sup>21</sup> showed that although 22.8% of the women had abnormal vaginal discharge, they did not consult a health facility. The study conducted by Özcan et al.<sup>22</sup> showed that 26.6% of the women waited for their abnormal vaginal discharge to clear up on its own and that 13.9% of them resorted to traditional methods to treat themselves. Many other studies have shown that women use traditional applications for their abnormal vaginal discharge and urogenital tract infections, which are commonly seen in women.<sup>23-25</sup> In our study, the rates of applying to health services

and using traditional methods in cases of abnormal vaginal discharge were found to be slightly higher compared to the literature. There are many reasons for this, such as delaying visiting health services for economic reasons, the exchange of information about health among women, considering an abnormal vaginal discharge to be an infection which heals easily, feelings of embarrassment about gynecological examinations, and regarding their situation as normal.

VD is a common method applied by women where the vagina is cleaned with water or antiseptic liquids.<sup>26</sup> In our study, about one third of the women stated that they applied VD. The study conducted by Yağmur<sup>8</sup> in 2007 showed that 57.2% of women applied VD, and in similar studies, it was reported that 88%, 59%, and 72.7% of women applied VD and that this practice increased the risk of infection by 2.5 times.<sup>10,27,28</sup> Although it is not as high as in the literature, the number of women who applied VD in the TRNC was also high. Approximately one out of three women stated that they applied VD. The most common reasons why women apply VD include "being hygienic",<sup>2</sup> as well as the belief that it is a

**Table 2. Obstetric and gynecological details of the women (n=408)**

Obstetric and gynecological features		n	%
Family planning usage status	Yes	191	46.8
	No	217	53.2
Using family planning method	Condom	65	15.9
	Intrauterine device	43	10.5
	Tablet	32	7.8
	Tube ligation	25	6.1
	Other (monthly injection and traditional methods)	26	6.5
	No	217	53.2
Past sexually transmitted disease status	Yes	34	8.3
	No	374	91.7
Vaginal douche application status	Yes	146	35.8
	No	262	64.2
Abnormal vaginal discharge	Yes	191	46.8
	No	217	53.2
The case of applying to the health service for abnormal vaginal discharge	Yes	158	38.7
	No	250	61.3
Traditional methods to treat abnormal vaginal discharge	Yes	123	30.2
	No	285	69.8
Used traditional methods to treat abnormal vaginal discharge	Cleaning the vagina with vinegar, soda or lemon juice	47	11.5
	Drink with onion, parsley, chamomile tea	28	6.8
	Cleaning the vagina with yoghurt	38	9.4
	Other (cleaning with garlic or nettle water)	10	2.5
	None	285	69.8

**Table 3. Comparison of GHBI mean scores according to some socio-demographic specifications of participants (n=408)**

Socio-demographic characteristics		GHBI (mean ± SD)	F	p
Age groups	18-24 age	73.61±12.19	17.53	0.001
	25-34 age	78.57±12.32		
	35-49 age	82.14±10.15		
Educational status	Middle school and below	75.70±11.62	11.581	0.001
	High school	74.80±11.87		
	University and above	80.77±11.76		

P<0.05; F: One-Way ANOVA, SD: Standard deviation, GHBI: Genital Hygiene Behaviors Inventory

contraceptive method and also due to religious views.<sup>29</sup> The results of our study show that vaginal douching is also a common practice in North Cyprus and it is a risk factor for vaginal infections. It is thought that this practice, which is adopted as a hygiene practice, is actually an application which affects the pH of the vagina and increases exposure to infection, but most women are not aware of its potential harm.

It is also thought that another factor which can increase the risk of vaginal infection is the family planning method they use as 10.5% of the women were using IUD, while 15.9% used condoms as protection. It is known that IUDs change the vaginal flora and create a suitable environment for anaerobic bacteria causing infection.<sup>4</sup> It is thought that the very low rate of condom use increases the risk of sexually transmitted infections in women whose spouses do not use condoms, and this may pave the way for the transmission of other infections which may cause abnormal vaginal discharge.

The mean score that the women obtained in this study from the GHBI was determined to be 78.24±12.07 (minimum: 49-maximum: 108). When it is considered that the highest score which can be obtained from this scale is 108, it can be said that the genital hygiene behaviors of the women are at the required level. In this study, it was found that the GHBI scores significantly increased with age (82.14±10.15) (p<0.001). It is known that most women experience genital infections at least once in their lifetime. Considering that 66.9% of the women participating in this study were young women under the age of 35, it is clear that these women have a higher risk of contracting genital tract infections during their lifetime. The reason that the older women received higher scores from the inventory may be due to them going to the hospital more often after experiencing birth, discharge and/or infection and trying to apply the information which they have obtained from health workers.

It was found that the GHBI scores (80.77±11.76) of the women with university or above levels of education were higher than the women in the other groups (p<0.001). Similar to our study, in a study conducted with women who applied to a health center, it was reported that their GHBI mean score was 80.28 (minimum: 48-maximum: 107). It has been reported that hygiene behavior is affected by education, being employed and having a higher income.<sup>8,30</sup> It has been proven that

raising the level of education and making women more productive in working life have positive effects on women's health. Educated women have the awareness to seek health advice from the right sources, and to visit health institutions, instead of using traditional practices, in order to receive the right treatment in abnormal situations.

It was found that women who obtained higher scores in the GHBI could identify abnormalities in their discharge better than those who received lower scores (p<0.001), they understood the importance of keeping their vagina dry (p<0.03), they did not apply VD (p<0.007), and they avoided applying products such as soap, deodorant and/or perfume to their perineal area (p<0.03). Those women with a previous history of sexually transmitted diseases had significantly higher GHBI scores than those who did not (p<0.005), and this caused these women to be uncomfortable due to the negative effects which these infections had on their sexual health, reproductive health and quality of life, or they were afraid of the possibility that the infection would reoccur resulting in them having a more careful attitude towards their genital hygiene.

**Study Limitations**

Our study is limited to only those women who live in North Cyprus and who agreed to participate in this study and so increasing the sample size of the study would increase its power.

**CONCLUSION**

It was determined that about half of the women experienced abnormal vaginal discharge. Genital tract infections are diseases which can be prevented and quickly treated with the correct hygiene habits and timely treatment. However, when most women are faced with abnormal vaginal discharge, they do not apply to health establishments due to neglect, lack of education, embarrassment or economic reasons. Within the scope of primary health care services, it is recommended that midwives and nurses investigate the genital hygiene behaviors of women both by planning home visits and during women's visits to health institutions, and by providing accurate information on reproductive health, genital hygiene, sexually transmitted diseases and family planning with brochures or training booklets.

**Table 4. Comparison of GHBI mean scores of participants according to certain obstetric and gynecological specifications and vaginal discharge situation (n=408)**

Vaginal discharge condition			GHBI (mean ± SD)	t	p-value	
	n	%				
Distinguishing normality of vaginal discharge	Yes	283	69.4	82.55±10.02	12.619	0.001
	No	125	30.6	68.48±10.54		
Use of perfume, deodorant, soap to prevent vaginal discharge	Yes	52	12.7	74.84±9.92	-2.184	0.03
	No	356	87.3	78.74±12.28		
In abnormal vaginal discharge, the vagina should be kept dry	Yes	220	53.9	79.47±10.06	2.233	0.03
	No	188	46.1	76.80±13.94		
Abnormal vaginal discharge	Yes	191	46.8	79.51±10.27	1.940	0.05
	No	217	53.2	77.19±13.31		
Past sexually transmitted disease status	Yes	34	8.3	83.79±1.46	2.824	0.005
	No	374	91.7	77.74±12.09		
Vaginal douche application status	Yes	146	35.8	76.11±11.53	-2.679	0.007
	No	262	64.2	79.43±12.21		

P<0.05; t: Independent t-test, SD: Standard deviation, GHBI: Genital Hygiene Behaviors Inventory



**MAIN POINTS**

- About half of the women participating in this study complained of abnormal vaginal discharge.
- About one-third of women used traditional methods to treat their abnormal vaginal discharge.
- Vaginal douche is a common practice among women.
- Increasing age and educational status of women were associated with an increase in the scores they obtained from the “GHBI”.
- In this study, the GHBI mean scores of the women participating was determined to be high, and their Genital Hygiene Behaviors were determined to be at the desired level.

**ETHICS**

**Ethics Committee Approval:** Approval from the Near East University Hospital Scientific Research Ethic Board was obtained before starting this research (approval number: 2021/1367).

**Informed Consent:** Written informed consent was obtained from the who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Authorship Contributions**

Concept: F.Y., B.M., D.N., Design: F.Y., B.M., D.N., Supervision: F.Y., B.M., D.N., Resources: F.Y., B.M., D.N., Materials: F.Y., B.M., D.N., Data Collection and/or Processing: F.Y., B.M., D.N., Analysis and/or Interpretation: F.Y., B.M., D.N., Writing: F.Y., B.M., D.N., Critical Review: F.Y., B.M., D.N.

**DISCLOSURES**

**Conflict of Interest:** No conflict of interest was declared by the authors.

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