A Survey of Daily Genital Care Practices among Reproductive-aged Female Personnel at Siriraj Hospital

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ABSTRACT

Objective: To demonstrate the genital cleansing habit and associating factors among reproductive-aged Thai women.

Materials and Methods: The survey was conducted at Siriraj Hospital between June and September 2022 (COA no. Si 370/2022). Twenty patient unit wards and 20 office units were randomly selected. Only active Siriraj female staff aged 18-50 were approached. The exclusion criteria included medical students and doctors, pregnant women, incomplete questionnaires, and women with immunocompromised conditions. Twenty sets of questionnaires, together with an information sheet as well as a box to return the questionnaire, were left at each unit. The primary outcome was the frequency of daily genital cleansing done outside of shower time. Associating factors and other genital care practices were secondary outcomes.

Results: Of the 800 distributed questionnaires, 611 were returned (response rate of 76.4%) and 504 were eligible for the study. The participants were 32.7±7.3 years old and most were in the 25-40 age group. Up to 90% reported genital cleansing outside shower time and 74.2% (374/504) of all respondents and 74.7% (236/316) of those with sexual experience cleansed >2 times daily. Twenty-four participants (4.8%) practiced vaginal douche. Water without genital care products is the most common method of cleansing. There was no association between sexual health risks and frequency of cleansing.

Conclusion: Three fourths of reproductive aged Thai women practice genital cleansing >2 times per day. Water without genital care products is the most common method of cleansing. There is no association between the habit and any demographic data and sexual health risks.

Keywords: Survey; genital care; women; reproductive age; Thai (Siriraj Med J 2023; 75: 259-265)

INTRODUCTION

The vagina is a pivotal part of all women as it is the route of menstruation and birth, sexual intercourse, and is a big commensal community of organisms. Together with *Lactobacilli spp*., which are facultative bacteria that protect the vagina, aerobic bacteria, anaerobic bacteria and fungus, particularly *Candida spp*., live in balance.[1] Other protective factors of the vagina are non-keratinizing, stratified squamous epithelium which contain innate immune cells, protein covering its surface, and secretion from surrounding glands.[2] The Society of Gynecologists and Obstetricians (SOGC) states that vaginal douche is not necessary and may negatively affect vaginal health.[3] Excessive vulvar cleansing during pregnancy may also

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lead to adverse perinatal outcomes.[4,5] At the moment, many genital care products are available in the market, but none provides strong evidence of improving the vaginal ecosystem. On the contrary, they may derange the ecosystem and increase the risk of infection.[4,5] The Canadian Women's Health Network recommends that water for vulvar cleansing should be adequate.[6]

Both vaginal candidiasis (VC) and bacterial vaginosis (BV), which are two forms of vaginal dysbiosis, account for the majority of abnormal vaginal discharge at gynaecologic clinics.[7] They markedly affect women's lives, both physically and mentally. VC causes marked vaginal/vulvar pruritus, increases the amount of vaginal discharge, dysuria and dyspareunia, while BV causes fishy-odor and/or increases amount of vaginal discharge.[8] Dysbiosis facilitates infections, including pelvic inflammatory disease (PID), human immunodeficiency virus (HIV) infection, and herpes genitalis.[9-11] Moreover, pregnant women with BV or VC tend to have adverse pregnancy outcomes such as preterm birth (PB), premature rupture of membranes (PROM) and chorioamnionitis.[4,5,12,13] Recently, aerobic vaginitis (AV) and cytolytic vaginitis (CV) have also been considered as other forms of vaginal dysbiosis.[8]

According to literature review, data regarding genital care is rarely studied since it may be influenced by culture and climate. A study of 220 Brazilian gynecologists with a mean age of 37 years who worked outside their home >10 hours per day showed that 17.8% did one-time external cleansing per day, while 52% did it twice per day. Their cleansing habits were as follows: 25.9% after voiding, 21.5% after defecation; 52.7% before having sex, and 78.5% after having sex.[14] Another study from Canada, which was an anonymous survey, included 1,435 participants.[15] In that study, genital care products used were vaginal moisturizer/lubricants (40.6%), vaginal tablets (34.8%), wet tissue paper (4.2%), and genital soap (4%). Women who used these products were three times as likely to experience vaginal symptoms. Besides, vaginal douche is also commonly practiced by women from specific regions and shows a negative impact on vaginal health.[16-18]

In 2011, a study was conducted among 400 young Thai women aged 20-35.[19] At that time, the prevalence of external genital cleansing and vaginal douche were 70.5% and 14.3%. Cleansing habits were linked to sexual experience, an unpleasant odor, or an increased amount of vaginal discharge. However, in the past decade, more genital care products have been launched and information online has become easily accessible. Moreover, the 2011 study of young Thai women does not represent other age groups. Therefore, the present study aims to demonstrate the prevalence of genital cleansing habit, current trends of genital care practice, and associating factors among reproductive-aged Thai women.

MATERIALS AND METHODS

The survey was conducted at Siriraj Hospital, which is the biggest hospital in Thailand, between June and September 2022. It was ethically approved by the Siriraj Institutional Review Board, Mahidol University (COA no. Si 370/2022).

Survey development

In brief, the survey took around 10 minutes to complete, was completely anonymous, and included controversial choices (no absolute right option). The survey about women's health and genital care practice was developed after literature review[14,15,19] and questions routinely asked at the Siriraj Female STD Clinic.[7] Four pages of questionnaires contained three parts, including demographic data, obstetric-gynecologic history, and genital care. In total, there were 48 questions.

Participants

Siriraj Hospital is a quaternary hospital with over 10,000 staff, including doctors, nurses, and back-office employees. Twenty patient ward units and 20 office units were randomly selected. Active Siriraj female personnel aged 18-50 were approached. The exclusion criteria included being medical students or doctors, pregnant women, or women with immunocompromised conditions such as diabetes mellitus (DM), systemic lupus erythematosus (SLE), or human immunodeficiency virus. Moreover, questionnaires without complete answers in the 'genital care' section were also excluded.

After receiving ethical approval and permission from the Director of Siriraj Hospital as well as the Head of Siriraj Nursing Department, the study team randomly chose 20 back-office units and 20 patient wards. The head of each sampled unit was approached to explain the details of the study and to ask for permission. If the head agreed, 20 sets of the questionnaire together with an information sheet were left at the unit. The study team provided a box for participants to return the questionnaires. As the survey was anonymous, informed consent was exempted. However, the return of questionnaires implied consent. After one week, the study team collected all the boxes to minimize identification. Next, the study team scanned completeness of the questionnaires and data was transferred to an Excel spreadsheet by two-blinded officers, and statistical analysis was carried out.

Outcome measures

The primary outcome was frequency of daily genital cleansing outside the shower. Internal cleansing was defined as use of water and/or soap to clean the inner side of labia majora or labia minora. External cleansing was defined as the use of water and/or soap to wash the mons pubis and/or outside of the labia majora. Vaginal douche was defined as using a syringe to push fluid into the vagina for cleansing. Other genital care practices and associating factors were secondary outcomes.

Sample size calculation and statistical analysis

Given the fact that 52% of Brazilian female gynaecologists practiced external genital cleansing at least two times per day[14] the sample size was 384 when alpha was set at 0.05. An additional 20% was added in case of incomplete questionnaires. Therefore, the required number of participants was 470.

Statistical analysis was done using Stata version 12.1 (Statacorp LP, College Station, Texas USA). Descriptive data was shown as n (%), mean±SD, and median with interquartile range (IQR). A Chi square test and Fisher's exact test were used to compare categorical data. The student T-test and Wilcoxon Ranksum test was used to compare parametric and non-parametric continuous data. P<0.05 was set as statistically significant.

RESULTS

From the 800 questionnaires distributed, 611 were returned (response rate 76.4%). Of the returned questionnaires, 504 were eligible for the study. There were three women aged >50, three with SLE, nine with diabetes mellitus, and 92 incomplete questionnaires.

Participants were aged 32.7±7.3, and most were in the 25-40 age group. Of all the participants, two thirds finished a bachelor's degree, half were nurses, and 58.5% had a normal BMI. Up to 40.2% of participants reported sitting behavior greater than 5 hours per day and 22.5% did not exercise at all. Consumption of sugar-rich diet included 59.5% of participants who drank ≥5 glasses of juice per week, and 71.6% who ate sweets ≥3 times per week. Only 18.5% had received the HPV vaccine (Table 1). Seventy-two experienced abnormal vaginal discharge in the prior one year. Of this group, 66 reported one episode of VC, one had two episodes of VC, and 57 had bacterial vaginitis. The route of preferred drug administration was oral (63.3%), vaginal (19.6%) or either (17.1%).

Fig 1 shows the frequency of genital cleansing per day. Almost 20% of participants reported internal cleansing while 90% reported external cleansing. Twenty-four (4.8%) participants practiced vaginal douche. Most used only water to cleanse (70%), followed by genital soap (34%), and other special products (11%). The median duration of genital cleansing was one[1,3] minute. Most participants (95.8%) used sanitary pads instead of vaginal cups or tampons during menstruation. Around half of all participants did nothing with pubic hair and 37.5% shaved regularly, followed by LASER (8.1%), waxing (6.7%) and chemical agents (2.6%). The reasons for pubic hair removal (n=277) included hygiene (225, 81.2%), cosmetics (30, 10.8%), and soothing (22, 7.9%). Only 32/504 (6.3%) reported using pads outside of menstrual periods.

The cleansing habits are shown in Fig 2. The majority of respondents reported cleaning every time in the following situations: before sex (65.7%), after sex (76.2%), bad-smelling discharge (75.4%), increased amounts of discharge (66.3%), itching (70.3%), after defecation (82.3%), and after voiding (68.9%).

Of the 316 participants who had sexual experience, 37 had a history of miscarriage; and 95 had children. Hormonal contraceptions were used by 160 respondents, including 83 instances of combined oral contraceptive pills, 24 progestin only pills, 21 implants, 19 depo-medroxy progesterone acetate, and 13 levonorgestrel intra-uterine system. Most participants had one lifetime sex partner; one partner in the prior three months; and a male sex partner. Twenty-four women experienced STIs, including 20 cases of herpes genitalis, one of gonorrhea, one of ano-genital wart, one of chlamydia cervicitis, and one of trichomoniasis.

When combining internal and external cleansing, 74.2% (374/504) of all respondents and 74.7% (236/316) of those with sexual experience cleansed more than two times outside of the shower each day. Table 2 demonstrates associating factors with daily cleansing habits. There was no association between sexual health risks and cleansing frequency.

DISCUSSION

The genital care survey in reproductive-aged Thai women shows that three-fourths of all participants cleansed more than two times per day. This was similar to a study in young Thai women aged 20-35[19], but higher than that reported in Brazilian gynaecologists.[14] As culture and personal belief comes before clinical evidence[20], habits of genital care are normally taught from one generation to the next. Since Thailand is near the equator where the climate is hot and humid, women may consider genital cleansing a routine practice. However, genital cleansing is more controversial than vaginal douche in that the

TABLE 1. Characteristics of the participants (n=504).

	Categories	N(%), mean and SD (n=504)
Age (year)		32.7±7.3
	<25	99 (19.6)
	25-40	320 (63.5)
	41-50	85 (16.9)
Education		
	High school	69 (13.7)
	Bachelor	338 (67.1)
	Master degree or more	91 (18.1)
	Philosophy degree	6 (1.1)
Body mass index (kg/m^2)		22.8±4.5
	<23	295 (58.5)
	23-30	174 (34.5)
	>30	35 (7.0)
Sedentary lifestyle (hr/d)	0	65 (12.9)
	1-3	129 (25.6)
	3-5	108 (21.4)
	>5	202 (40.1)
Exercise	No	114 (22.5)
	Sometimes	345 (68.5)
	Regular	45 (9.0)
HPV vaccine		93 (18.5)
Juice at least 5 glasses per week		300 (59.5)
Sweet at least 3 times per week		361 (71.6)
Social alcohol consumption		215 (42.7)

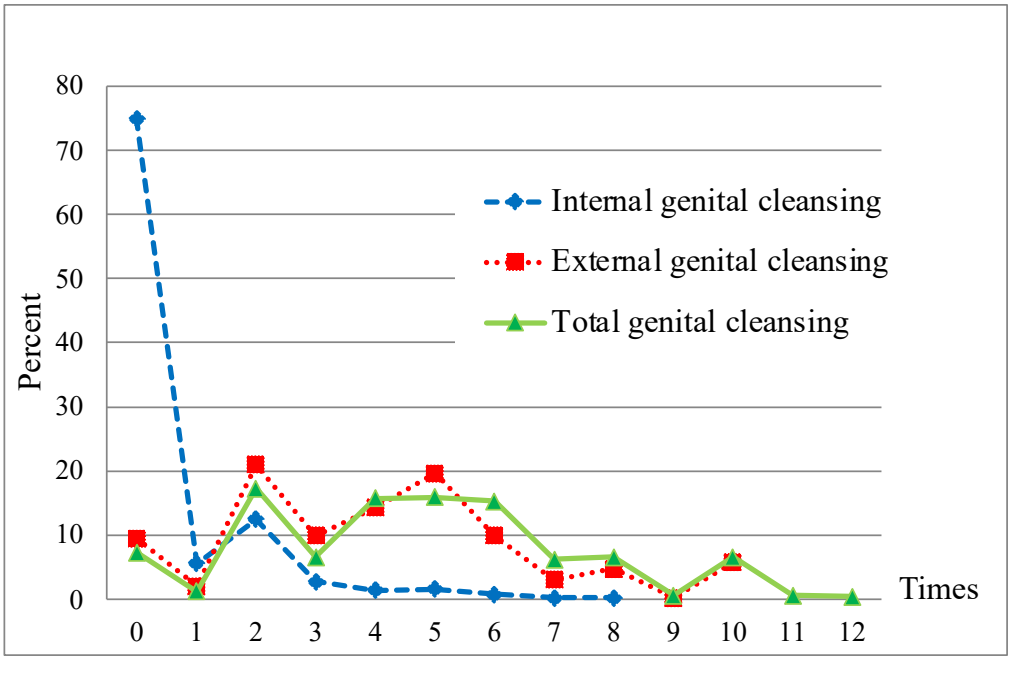


Fig 1. Frequency of internal and external genital cleansing per day (N=504).

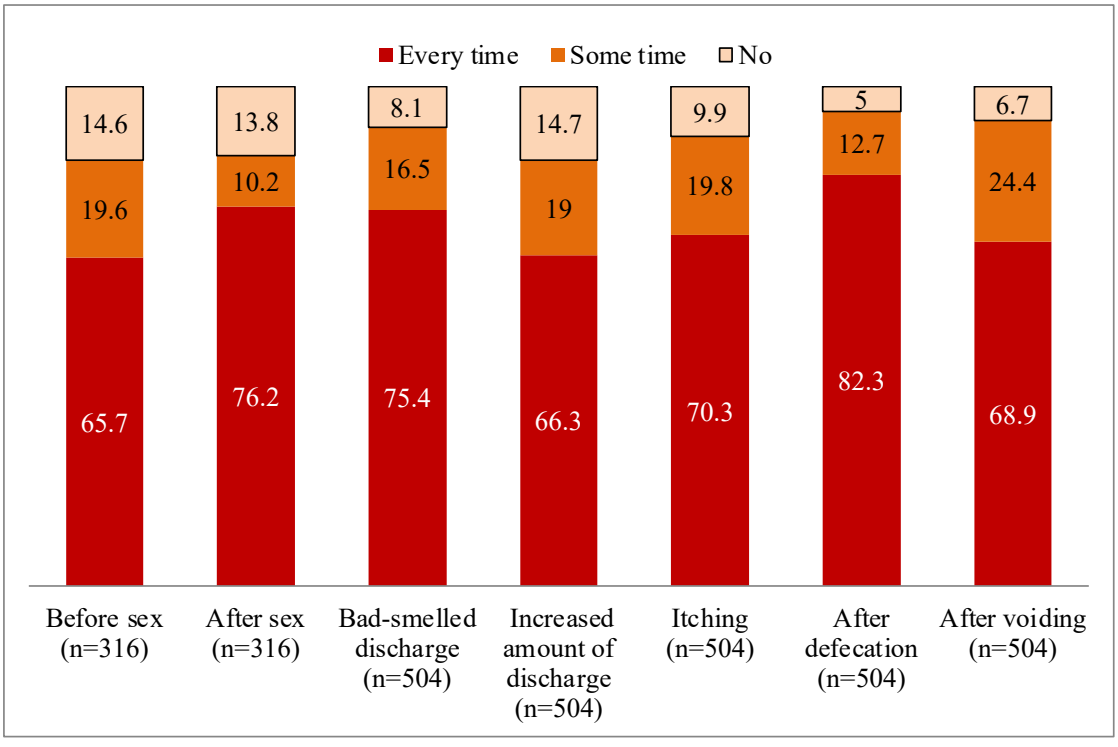


Fig 2. Cleansing habit.

TABLE 2. Sexual health risks (n=316).

	Categories	Total N (%)	Cleansing ≤2 /day	Cleansing >2 /day	P
All respondents (n=504)					
		N=504	N=130	N=374	
Age (years)	<25	99 (19.6)	23 (17.9)	76(20.2)	0.639
	25-40	320 (63.5)	88 (67.4)	232 (61.9)	
	41-50	85 (16.9)	19 (14.7)	66 (17.9)	
Sexual experience		316	80(61.1)	236(63.1)	0.934
Body mass index (kg/m²)	<23	295 (58.5)	84 (64.6)	211 (56.5)	0.278
	23-30	174 (34.5)	40 (30.7)	134 (35.7)	
	>30	35 (7.0)	6 (4.6)	29 (7.8)	
Experience of vaginal candidiasis		66 (13.1)	16 (12.3)	50 (13.4)	0.816
Experience of bacterial vaginitis		57 (11.3)	17 (13.1)	40 (10.7)	0.460
Respondents with sexual experience (n=316)					
		N=316	N=80	N=236	
Number of children	0	221 (70.0)	58 (72.5)	163 (69.1)	0.498
	1	60 (19.0)	16 (20.0)	44 (18.6)	
	≥2	35 (11.0)	6 (7.5)	29 (12.3)	
Having history of miscarriage		37 (11.7)	8 (10.0)	26 (11.0)	0.800
Number of lifetime sex partners	1	216 (68.4)	55 (68.8)	161 (68.2)	0.641
	2	40 (12.7)	8 (10.0)	32 (13.6)	
	≥3	60 (18.9)	17 (21.3)	43 (18.2)	
Currently being in relationship		257 (81.3)	65 (81.2)	192 (81.4)	0.949
Gender of partners	Male	291 (92.1)	69 (86.3)	222 (94.1)	0.076
History of STD		24/316(7.6)	8/80 (10.0)	16/236 (6.8)	0.552

vaginal douche can cause vaginal dysbiosis and harm vaginal microflora.[16] However, as BV and VC account for the majority of Thai women presenting abnormal vaginal discharge[7], reduction of cleansing habits should be included in a routine education session.

Compared to a study in Thai women aged 20-35[19], the respondents of the present study were three times less likely to practice vaginal douche. This may be explained by the fact that the present study surveyed women at work whereas the previous study included young patients at a gynecologic clinic. Although 10-20% of respondents reported experiencing BV or VC, and 7.6% had at least one STD, all reported being in good health at present. This supports previous studies that vaginal douche adversely affects vaginal ecosystem and brings about a variety of diseases.[16]

No associating factors with cleansing habits were demonstrated in the present study. This contrasts previous studies in young Thai women which showed that women with sexual experience tend to practice genital cleansing.[19] As young people tend to be more sexually active and have a higher incidence of STIs, vaginal douche may increase the risk of PID and its sequelae such as pelvic adhesion, chronic pelvic pain, and ectopic pregnancy.[21] Moreover, unplanned pregnancies are not uncommon at this age and vaginal dysbiosis from any cause, including excessive cleansing, results in PB, PROM and chorioamnionitis.[22] The present study suggests that education regarding sexual health for young Thai people should be enhanced.

Besides sexual experience, other sexual risks did also not affect cleansing habits. This may imply that genital care practice is generalized among Thai women as they demonstrated a high likelihood of frequent cleansing in many occasions such as after a period, before sex and after sex. The promotion of many genital products through multiple media streams using social idols as presenters has had a remarkable impact. Despite that, having been taught that the products are unnecessary, in line with the study in Brazil[14], most of the Siriraj female staff practiced genital cleansing using only water.

With increasing evidence showing that vulvar cleansing negatively affects the vaginal ecosystem[2], reducing genital cleansing habits may partly reduce the incidence of BV and VC. At the Siriraj Female STD Clinic, all patients with BV or VC were asked to explore their genital care practice and to minimize their cleansing habits. As a consequence, the recurrence of BV at 6-12 months was 6%[23] while a quarter of women with BV experienced recurrence in previous studies.[24] Compared to women in other countries[14,15,17,18,25], Thai women use less genital products and do not practice vaginal douche as often. As a result, our survey showed that only 13.1% and 11.3% of participants experienced VC and BV, whereas 80% of respondents in the Canadian survey[15] reported vaginal symptoms ≥1 times. There may not be the best practice that fits all; however, for those with any vaginal dysbiosis, reduction of cleansing habits is one of the musts to follow.

The guidance for proper female genital hygiene varies by regions. The Middle East and Central Asia (MECA) guideline one states that women of all ages require daily intimate hygiene which should be done before and after intercourse; and hypoallergic liquid wash is acceptable.[26] In contrast, the Royal College of Obstetricians and Gynaecologists (RCOG) recommends shower rather bath and cleaning the vulva only once a day; and warns that washing with water can also cause dry skin.[27] An Australian health center suggests women limit genital washing to once a day using warm water with or without a pH adjusted soap and unperfumed moisturizer.[28] Adding to the genital cleansing with warm water, a clinic in the United States advice a thorough dry with a clean towel or a blow dryer set on cool.[29] As such, our findings are essential supporting data to form the Thai guideline which should be provided by domestic multidisciplinary care team.

This big survey on the unique issue of reproductive aged Thai women from different backgrounds is the strength of the study. Siriraj Hospital is a big hospital locating in the historical Thonburi area of Bangkok where many staff members are daily commuters from nearby provinces. The paper survey and clear understanding of the study enhanced its reliability. However information bias due to ambiguous questions could have occurred. As questions regarding genital care may be controversial, respondents, who were working in the hospital, possibly reported the answers they thought were correct, and not what they really did. Prospective studies using daily records of genital care practices should be further conducted.

CONCLUSION

Three fourths of reproductive aged Thai women practice genital cleansing more than two times per day, particularly the external one. Vaginal douche was less frequent. Water without genital care products is the most common method of cleansing. The cleansing habits are remarkable in the following situations: before and after sex, bad-smell discharge, increased amount of discharge, vulvar itching, after defecation and after voiding. There is no association between the habit and any demographic data or sexual health risks.

REFERENCES

1. Amabebe E, Anumba DOC. The Vaginal Microenvironment: The Physiologic Role of Lactobacilli. Front Med (Lausanne) 2018;5:181.
2. Chen Y, Bruning E, Rubino J, Eder SE. Role of female intimate hygiene in vulvovaginal health: Global hygiene practices and product usage. Women's Health 2017;13:58-67.
3. Yudin M, Money D. Screening and management of bacterial vaginosis in pregnancy. J Obstet Gynaecol Can 2008;30:702-8.
4. Freitas A, Bocking A, Hill J, Money D. Increased richness and diversity of the vaginal microbiota and spontaneous preterm birth. Microbiome 2018;6:117.
5. Paramel Jayaprakash T, Wagner E, van Schalkwyk J, Albert A, Hill J, Money D. High diversity and variability in the vaginal microbiome in women following preterm premature rupture of membranes (PPROM): A prospective cohort study. PLoS One 2016;11:11.
6. Canadian Women's Health Network. Keeping your vagina healthy 2006. Available from: http://www.cwhn.ca/node/40797. [Cited 14 December 2022].
7. Chayachinda C, Thamkhantho M, Chalermchockcharoenkit M, Nuengton C, Thipmontree W. Characteristics of Clients at the Siriraj Female STD Clinic during 2011-2015. Siriraj Med Bull 2018;11:182-9.
8. Chayachinda C, Chinhiran K, Kittiyaowamarn R, Chaithongwongwatthana S, Teeratakulpisarn N. The Thai 2022 Sexually Transmitted Infections Treatment Guideline: Abnormal vaginal discharge. Thai J Obstet Gynaecol 2022;30:222-33.
9. Atashili J, Poole C, Ndumbe PM, Adimora AA, Smith JS. Bacterial vaginosis and HIV acquisition: a meta-analysis of published studies. AIDS 2008;22:1493-501.
10. Nagot N, Ouedraogo A, Defer MC, Vallo R, Mayaud P, Van de Perre P. Association between bacterial vaginosis and Herpes simplex virus type-2 infection: implications for HIV acquisition studies. Sex Transm Infect. 2007;83:365-8.
11. Ravel J, Moreno I, Simón C. Bacterial vaginosis and its association with infertility, endometritis, and pelvic inflammatory disease. Am J Obstet Gynecol. 2021;224:251-7.
12. Tachawatcharapunya S, Chayachinda C, Parkpinyo N. The prevalence of bacterial vaginosis in asymptomatic pregnant women during early third trimester and the pregnancy complications. Thai J Obstet Gynaecol 2017;25:95-102.
13. Donders GG, Van Calsteren K, Bellen G, Reybrouck R, Van den Bosch T, Riphagen I, et al. Predictive value for preterm birth of abnormal vaginal flora, bacterial vaginosis and aerobic vaginitis during the first trimester of pregnancy. BJOG 2009;116:1315-24.
14. Ruiz C, Giraldo P, Sanches J, Reis V, Beghini J, Laguna C, et al. Daily genital cares of female gynecologists: a descriptive study. Rev Assoc Med Bras 2019;65:171-6.
15. Crann S, Cunningham S, Albert A, Money D, O'Doherty K. Vaginal health and hygiene practices and product use in Canada: a national cross-sectional survey. BMC Womens Health 2018;18:52.
16. Aslan E, Bechelaghem N. To 'douche' or not to 'douche': hygiene habits may have detrimental effects on vaginal microbiota. J Obstet Gynaecol 2018;38:678-81.
17. Chandra A, Martinez G, Mosher W, Abma J, Jones J. Fertility, family planning, and reproductive health of U.S. women: data from the 2002 National Survey of Family Growth. Vital Health Statistics 2005;23:1-160.
18. Cottrell B, Close F. Vaginal douching among university womenin the southeastern United States. Journal of American College Health 2008;56:415-21.
19. Suwanrattanadech S, Lertbunnaphong T, Boriboonhirunsarn D. Use of feminine hygiene products in Thai women. Siriraj Med J 2011;63:111-4.
20. Grimley D, Annang L, Foushee H, Bruce F, Kendrick J. Vaginal douches and other feminine hygiene products: women's practices and perceptions of product safety. Matern Child Health J 2006;10:303-10.
21. Chayachinda C, Rekhawasin T. Reproductive outcomes of patients being hospitalised with pelvic inflammatory disease. J Obstet Gynaecol 2017;37:228-32.
22. Panchalee T, Chayachinda C, Panyakat W, Chen M, Quinones-Garcia V, Pernsoongnern P. Characteristics and neonatal outcomes of teenage pregnant women diagnosed with syphilis at Siriraj Hospital. Siriraj Med J 2018;70:298-301.
23. Chayachinda C. A decade of fighting vulvovaginal candidiasis and bacterial vaginosis: The latest real-world study in Thailand with the clotrimazole and lactic acid. RTCOG 2022 meeting: Now and Beyond; Pattaya, Chonburi, Thailand 2022.
24. Javed A, Parvaiz F, Manzoor S. Bacterial vaginosis: an insight into the prevalence, alternative treatments regimen and it's associated resistance patterns. Microb Pathog 2019;127:21-30.
25. Ott M, Ofner S, Fortenberry J. Beyond Douching: Use of Feminine Hygiene Products and STI Risk among Young Women. J Med Sex 2009;6:1335-40.
26. Arab H, Almadani L, Tahlak M. The Middle East and Central Asia guidelines on female genital hygiene. BMJ Middle East 2011;19: 99-106.
27. Royal College of General Practitioners. The management of vulval skin disorders. Available from: https//www.snhcic.org.uk/assets/cms_page_media/211/RCOG%20-%20Vulval%20Skin%20Disorders.pdf [Cited 9 January 2023].
28. Melbourne Sexual Health Center. Genital skin care fact sheet. Available from: https://www.mshc.org.au/sexual-health/sexual-health-fact-sheets/genital-skin-care-fact-sheet [Cited 24 February 2023].
29. Cleveland Clinic. Vulvar care. Available from: https://my.clevelandclinic.org/health/articles/4976-vulvar-care [Cited 24 February 2023].