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Genital Hygiene Behavior and its Relationship with Vaginitis

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Abstract

Purpose: To determine the relationship between genital hygiene behavior and the emergence of vaginitis, especially in female motorcycle taxi drivers at Jakarta area

Patients and methods: Subjects are 50 female motorcycle taxi drivers in Jakarta area who met inclusion/ exclusion criteria. A questionnaire of genital hygiene behavior inventory (GHBI) was used to obtain the genital hygiene behavior among subjects. Vaginal examination and microbiological swab from vaginal discharge were then performed as diagnostic for any type of vaginitis. Data collected were then analyzed using SPSS application for univariate and bivariate analysis to show subjects' characteristics and to look for relationships between variables.

Results: 62% of respondents are over 40 years old and most of them work more than 8 hours per day. Vaginitis was found in 42% of drivers divided into 21 subjects with bacterial vaginosis (42%) and 8 subjects with vaginal candidiasis (16%). There are more subjects with poor knowledge of general genital hygiene, menstrual hygiene management, and self-awareness of abnormal genital symptoms, but no statistically significant difference in the incidence of vaginitis and the total GHBI score ($p>0,05$). This study found a relationship between age and the incidence of vaginitis in female motorcycle taxi drivers in Jakarta area.

Conclusion: There is no relationship between the GHBI score, duration of work, length of working experience, access to clean toilet and the incidence of vaginitis. There is a significant relationship between age and the incidence of vaginitis in female motorcycle taxi drivers.

Keywords: female motorcycle taxi drivers, genital hygiene behavior inventory (GHBI), vaginal swab, vaginitis.

Introduction

Genital hygiene is very important to reproductive function. Poor genital hygiene may end in reproductive tract infection which can cause advanced problem. Many habits in daily life especially during menstruation thought as an effort

to increase genital hygiene were actually harmful, such as vaginal douching, tampon using, etc. These activities may result in vaginal flora shifting and cause vaginal dysbiosis.^(1,2)

Bacterial vaginosis (BV) is an unspecific vaginal inflammation (vaginitis) caused by imbalanced

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vaginal flora, with less lactobacillus (peroxide produced bacteria) and other bacteria to be dominant such as *Gardnerella vaginalis*.⁽³⁻⁵⁾ Other inflammation can be caused by fungi and parasite. Many factors have been identified to correlate with vaginitis, like smoking, vaginal douching, wrong method of genital wiping, types of underwear, and menstruation hygiene. Vaginitis is thought to be a result of complex interaction between host, environment and vaginal microbe.⁽⁶⁾ It has been known that vaginitis is a risk factor of many advanced reproductive tract damages such premature labor, pelvic infection, infertility, ectopic pregnancy, cervical cancer and with more following problems.^(7,8)

Motorcycle taxi (Ojek) is one of transportation mode widely known nowadays, especially in Indonesia. Many women, especially single moms, choose this job for it is considered easy because the time is flexible. All drivers, including female drivers, must spend most of the time on the road, despite sunny or rainy weather, wearing thick pants especially made from denim material, with limited access to clean toilet and water supply. This condition could create a big problem especially in women for vulvovaginal hygiene care, especially during period.⁽⁹⁾

Previous studies showed contradictive results about the relationship of genital hygiene and bacterial vaginosis. Bahram et al conducted a study in Zanzibar, Iran showed positive relationship, while study by Demba et al in Gambia, West Africa showed the opposite.^(10,11) Most studies were performed in adolescents around menarche. This inconsistencies encourage us to conduct a similar study in female motorcycle taxi drivers with limited access to clean toilet and water supply.

Material and methods

An analytic observational designed as a cross sectional study has been performed in 50 subjects who are online motorcycle taxi drivers around Jakarta areas. The study itself took place at Faculty of Medicine Universitas Trisakti during January 2023. Data collection were taken using genital hygiene behavior inventory (GHBI) questionnaire, followed by vaginal examination and vaginal swab was performed for microbiology testing. All subjects have been informed completely the purpose of this study

as well as the examination that will be performed, and asked to sign their approval.

Genital hygiene behavior questionnaire consists of 23 question that divided in 3 groups, that is 12 questions about general genital hygiene, 8 questions about menstrual hygiene management and 3 questions about their self-awareness of genital abnormal signs and symptoms. Subjects are also asked to fulfill a form about their characteristics as age, length of work hour, etc. After completing the questionnaire, respondent's vaginal examination and swab were taken privately, and the specimens were then sent to microbiology department Faculty of Medicine, Universitas Trisakti for vaginitis testing using Nugent score for detecting bacterial vaginosis and detection of hyphae for candidiasis.

All data from questionnaire and microbiology findings were recorded and will be presented in tables and then analyzed using Statistical Package for Social Sciences (SPSS) application for univariate and bivariate analysis.

Results and discussion

Table 1 showed characteristics data from the total of 50 subjects. According to the characteristics, it was found that most subjects were ≥ 40 years of age (62%), have been working as motorcycle taxi driver for less than 5 years with more than 8 working hours per day and mostly have no problems with access to clean toilet. From further discussion, they stated that they can use public toilet at some minimarket or at gas station, and they were quite satisfied with the toilet's condition. The questionnaire showed that most subjects have poor knowledge about genital hygiene, menstrual hygiene, and self-awareness of abnormal genital symptoms, but the result of microbiology testing for vaginitis were quite similar (42% negative and 58% positive results).

Table 2 were designed to look for relationship between respondents' characteristics with the microbiology result. There is no relationship between length of working experience, daily working hours and difficulty in access to clean toilet. However, there is a relationship between age and the incidence of vaginitis in female online motorcycle taxi drivers ($p=0,01$).

Table 3 showed the relationship between respondents' knowledge and awareness with microbiology result. Although there were more drivers who had poor knowledge about general genital hygiene, menstrual hygiene management, and

self-awareness about abnormal genital symptoms, the relationship with the incidence of vaginitis was not statistically significant ($p>0,05$). Thus, GHBI total score has no significant relationship with the incidence of vaginitis ($p>0,05$)

Table 1 Characteristics of respondents

Characteristics			n	%
Age (years)	<40		19	38
	≥40		31	62
Experience in this job (years)	≤ 5		39	78
	>5		11	22
Working hour per day (hours)	≤ 8		12	24
	>8		38	76
Difficulty in access to clean toilet	Yes		23	46
	No		27	54
Knowledge of general genital hygiene	Poor		28	56
	Good		22	44
Knowledge of menstrual hygiene management	Poor		28	56
	Good		22	44
Self awareness of abnormal genital symptoms	Poor		27	54
	Good		23	46
Total genital hygiene knowledge	Poor		26	52
	Good		24	48
Vaginitis finding of vaginal swab	Negative		21	42
	Positive	Bacterial vaginosis	21	42
		Vaginal candidiasis	8	16

Table 2. Relationship of respondent's characteristics and bacterial vaginosis

Characteristics		Vaginitis findings				p
		Positive		Negative		
		n	%	n	%	
Age (years)	< 40	15	78,9	4	21,1	0.01*
	≥40	8	25.8	23	74.2	
Experience in this job (years)	≤ 5	18	46.2	21	53.8	1*
	> 5	5	45.5	6	54.5	
Working hour per day (hours)	≤ 8	5	41.7	7	58.3	0,98*
	>8	18	47.4	20	52.6	
Difficulty in access to clean toilet	Yes	12	60	8	40	0,18*
	No	11	35.7	19	64.3	

* chi-square test

Table 3. Relationship of genital hygiene behavior and bacterial vaginosis

Characteristics		Bacteriology findings				p
		Positive		Negative		
		n	%	n	%	
Knowledge of general genital hygiene	Poor	12	54.5	10	45.5	0,43*
	Good	11	39.3	17	60.7	
Knowledge of menstrual hygiene management	Poor	11	50	11	50	0.82*
	Good	12	42,8	16	57.2	
Self awareness of abnormal genital symptoms	Poor	13	56.5	10	43.5	0,27*
	Good	10	37.0	17	63.0	
Total genital hygiene knowledge	Poor	13	54.2	11	45.8	0,40*
	Good	10	38.5	16	61.5	

* Chi-square test

Discussion

Environment is one of the factors that encourage women to choose a job. The internal environment that has the most effect is their family. They want their family's needs to be met.⁽¹²⁾ Being an online motorcycle taxi driver is easier and has flexible working hours. especially for single mothers. Most of drivers who took part in this study were ≥ 40 years old. Some of them are single parents and others has to work to support the husband for their ability to earn money have declined due to age, illness or being laid off from workplace. Most of them have been working for 1-5 years as an online female motorcycle taxi driver. Although they have to work with male drivers, they feel safe because their male fellow drivers treat them well and considered equal by others driver. They are more worried about the indecent behavior of the male passengers so for safety reason, they prefer to be an online food delivery drivers instead of taking passengers. Regarding the duration of work, even though they work a total of more than 8 hours a day, they can start working after finish preparing for their family's household needs such as cooking and taking the children to school. This is in accordance with the study from Rafidan H. qualitative study that states that online motorcycle taxi women interpret their profession as fulfilling economic needs for their families and themselves. And this kind of profession has a comfortable work environment.⁽¹³⁾

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In this study, it was found that 58% of female drivers had vaginitis (21 of them were bacterial vaginosis and 8 were candidiasis). The use of tight pants, thick or made of denim material is associated with an increased incidence of vulvovaginitis.⁽¹⁵⁾ Moreover, most subjects did not change their wet pants but left the wet pants to dry after hit by rain during their working hours. This risk factor is also supported by the finding that almost all drivers have been experienced fungal inflammation in the genital area.

Age has a significant relationship with vaginitis. Li Meng et al found that the possibility of getting bacterial vaginosis was higher with the age of 40-50.⁽¹⁶⁾ Ocviyanti et al also found that age above 40 years old was risk factor for BV.⁽¹⁷⁾ At that age, approaching perimenopausal stage, there is a decrease in estrogen levels which will affect the

vaginal acidity. This environmental change made it harder for *Lactobacillus* sp. to grow and causing other microorganisms to be more dominant.

Conclusion

There is no statistically significant relationship between the GHBI score, working hours, length of working experience, or access to clean toilet and the incidence of vaginitis. There is a relationship between age and the incidence of vaginitis in female motorcycle taxi driver.

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Genital Hygiene Behavior and its Relationship with Vaginitis

by Rully Ayu Nirmalasari

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Introduction

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Genital hygiene is very important to reproductive function. Poor genital hygiene may end in reproductive tract infection which can cause advanced problem. Many habits in daily life especially during menstruation thought as an effort

to increase genital hygiene were actually harmful, such as vaginal douching, tampon using, etc. These activities may result in vaginal flora shifting and cause vaginal dysbiosis.^(1,2)

Bacterial vaginosis (BV) is an unspecific vaginal inflammation (vaginitis) caused by imbalanced

vaginal flora, with less lactobacillus (peroxide produced bacteria) and other bacteria to be dominant such as *Gardnerella vaginalis*.⁽³⁻⁵⁾ Other inflammation can be caused by fungi and parasite. Many factors have been identified to correlate with vaginitis, like smoking, vaginal douching, wrong method of genital wiping, types of underwear, and menstruation hygiene. Vaginitis is thought to be a result of complex interaction between host, environment and vaginal microbe.⁽⁶⁾ It has been known that vaginitis is a risk factor of many advanced reproductive tract damages such premature labor, pelvic infection, infertility, ectopic pregnancy, cervical cancer and with more following problems.^(7,8)

Motorcycle taxi (Ojek) is one of transportation mode widely known nowadays, especially in Indonesia. Many women, especially single moms, choose this job for it is considered easy because the time is flexible. All drivers, including female drivers, must spend most of the time on the road, despite sunny or rainy weather, wearing thick pants especially made from denim material, with limited access to clean toilet and water supply. This condition could create a big problem especially in women for vulvovaginal hygiene care, especially during period.⁽⁹⁾

Previous studies showed contradictive results about the relationship of genital hygiene and bacterial vaginosis. Bahram et al conducted a study in Zanjan, Iran showed positive relationship, while study by Demba et al in Gambia, West Africa showed the opposite.^(10,11) Most studies were performed in adolescents around menarche. This inconsistencies encourage us to conduct a similar study in female motorcycle taxi drivers with limited access to clean toilet and water supply.

Material and methods

An analytic observational designed as a cross sectional study has been performed in 50 subjects who are online motorcycle taxi drivers around Jakarta areas. The study itself took place at Faculty of Medicine Universitas Trisakti during January 2023. Data collection were taken using genital hygiene behavior inventory (GHBI) questionnaire, followed by vaginal examination and vaginal swab was performed for microbiology testing. All subjects have been informed completely the purpose of this study

as well as the examination that will be performed, and asked to sign their approval.

Genital hygiene behavior questionnaire consists of 23 question that divided in 3 groups, that is 12 questions about general genital hygiene, 8 questions about menstrual hygiene management and 3 questions about their self-awareness of genital abnormal signs and symptoms. Subjects are also asked to fulfill a form about their characteristics as age, length of work hour, etc. After completing the questionnaire, respondent's vaginal examination and swab were taken privately, and the specimens were then sent to microbiology department Faculty of Medicine, Universitas Trisakti for vaginitis testing using Nugent score for detecting bacterial vaginosis and detection of hyphae for candidiasis.

All data from questionnaire and microbiology findings were recorded and will be presented in tables and then analyzed using Statistical Package for Social Sciences (SPSS) application for univariate and bivariate analysis.

Results and discussion

Table 1 showed characteristics data from the total of 50 subjects. According to the characteristics, it was found that most subjects were ≥ 40 years of age (62%), have been working as motorcycle taxi driver for less than 5 years with more than 8 working hours per day and mostly have no problems with access to clean toilet. From further discussion, they stated that they can use public toilet at some minimarket or at gas station, and they were quite satisfied with the toilet's condition. The questionnaire showed that most subjects have poor knowledge about genital hygiene, menstrual hygiene, and self-awareness of abnormal genital symptoms, but the result of microbiology testing for vaginitis were quite similar (42% negative and 58% positive results).

Table 2 were designed to look for relationship between respondents' characteristics with the microbiology result. There is no relationship between length of working experience, daily working hours and difficulty in access to clean toilet. However, there is a relationship between age and the incidence of vaginitis in female online motorcycle taxi drivers ($p=0,01$).

Table 3 showed the relationship between respondents' knowledge and awareness with microbiology result. Although there were more drivers who had poor knowledge about general genital hygiene, menstrual hygiene management, and

self-awareness about abnormal genital symptoms, the relationship with the incidence of vaginitis was not statistically significant ($p>0,05$). Thus, GHBI total score has no significant relationship with the incidence of vaginitis ($p>0,05$)

Table 1 Characteristics of respondents

Characteristics			n	%
Age (years)	<40		19	38
	≥40		31	62
Experience in this job (years)	≤ 5		39	78
	>5		11	22
Working hour per day (hours)	≤ 8		12	24
	>8		38	76
Difficulty in access to clean toilet	Yes		23	46
	No		27	54
Knowledge of general genital hygiene	Poor		28	56
	Good		22	44
Knowledge of menstrual hygiene management	Poor		28	56
	Good		22	44
Self awareness of abnormal genital symptoms	Poor		27	54
	Good		23	46
Total genital hygiene knowledge	Poor		26	52
	Good		24	48
Vaginitis finding of vaginal swab	Negative		21	42
	Positive	Bacterial vaginosis	21	42
		Vaginal candidiasis	8	16

Table 2. Relationship of respondent's characteristics and bacterial vaginosis

Characteristics		Vaginitis findings				p
		Positive		Negative		
		n	%	n	%	
Age (years)	< 40	15	78,9	4	21,1	0.01 *
	≥40	8	25.8	23	74.2	
Experience in this job (years)	≤ 5	18	46.2	21	53.8	1 *
	> 5	5	45.5	6	54.5	
Working hour per day (hours)	≤ 8	5	41.7	7	58.3	0,98*
	>8	18	47.4	20	52.6	
Difficulty in access to clean toilet	Yes	12	60	8	40	0,18*
	No	11	35.7	19	64.3	

* chi-square test

Table 3. Relationship of genital hygiene behavior and bacterial vaginosis

Characteristics		Bacteriology findings				p
		Positive		Negative		
		n	%	n	%	
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