

# The Association between Genital Hygiene and Cytological Papsmear between Women in Takengon

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Abstract: Genital hygiene is part of women's reproductive health and contributes to the protection of cervix inflammatory. Several studies reveal that poor genital hygiene was one of condition that leads to developing incidence of cervical squamous intraepithelial lesions (SIL). Papsmear has known as a screening method to detect cervical cancer. The objective of this study was to assess the association between genital hygiene and cytological papsmear between women in Takengon. The study design was a cross-sectional approach by collecting cervical swab of 73 women and evaluate genital hygiene by observed cervical hygiene, presence of erosion, and fluor albus. Cytopathological papsmear was reported according to the Bethesda classification. The study found that 10(13.7%) women had good genital hygiene, while 29(39.7%) women had moderate genital hygiene and poor genital hygiene found in 34(46.6%) women. The study also showed that cytological papsmear of 8(11.0%) women were NILM (negative for intraepithelial lesion or malignancy) with normal smear, and 65(89.0%) women were NILM with inflammation. Chi-square test reveals no association between genital hygiene and cytological papsmear.

## 1 INTRODUCTION

The female genital tracts of microorganisms as known as microflora which the mostly occupied by lactobacilli, contributed in the healthy state of the vagina and may play a beneficial role in body sites without causing infection even protect reproductive health (Pete et al., 2019)(Hamed, 2015)(Reid et al., 2015).

Several studies showed that genital hygiene plays a role in decreasing the chances of yeast infections, bacterial vaginosis, and *Human Papillomavirus* (HPV) (Jeevita et al., 2018). While some hygiene behavior actually could disrupt by using specific products applied to genital such as vaginal douching, which could change the vaginal microbiome and lead yeast and bacterial infections (Crann et al., 2018).

According to WHO, 2016, over 90% of cervical cancers are caused by HPV, and type 16 and 18 have a significant role in causing cervical cancer.

The incidence of cancer in Indonesia (136.2 / 100,000 population) ranks 8th in Southeast Asia, while in Asia ranks 23rd. The highest incidence of breast cancer in women is 42.1 per 100,000

population, with an average death rate of 17 per 100,000 population followed by cervical cancer of 23.4 per 100,000 population with an average death rate of 13.9 per 100,000 population (Bray et al., 2018). Based on Riskesdas data, 2018, the prevalence of tumors/ cancers in Indonesia shows an increase from 1.4 per 1000 population in 2013 to 1.79 per 1000 population in 2018.

Since the implementation of widespread screening with the Papanicolaou test, rates of cervical cancer in the United States have decreased from 14.2 per 100 000 in 1973 to 7.8 per 100 000 in 1994 (Landis et al., 1999).

Papanicolaou cervical cytology test is used widely in developed countries due to the simple and cost-effective technique. Unfortunately, most developing countries cannot perform wide-ranging Pap screening (Bukhari et al., 2012).

Poor genital hygiene due to illiteracy and poverty prevailing may lead to vaginal infections, which persist being undetected and untreated-emphasized illiteracy as a contributing factor in the development of carcinoma cervix (Koteswari et al., 2015)(Misra et al., 2019).

Vaginal discharge is a common issue among women. Changes in the balance of normal vaginal flora due to genital hygiene can cause an overgrowth of pathogens that lead to discharge. The previous study showed that cytological smear with inflammatory was higher among women with an unhealthy cervix in comparison to the healthy cervix (Valiya et al., 2015).

The objective of this study was to assess the association between genital hygiene and cytological papsmear between women in Takengon.

## 2 MATERIALS AND METHODS

### 2.1 Study Population and Study Design

This study was a cross-sectional study conducted at a health facility in Takengon, Aceh Tengah district, from April to May 2019. This study has recruited 73 participants who were reproductive women, married, and aged above 18 years for consented information and willing to undergo a pelvic examination. Women who were pregnant or had vaginal bleeding were excluded from the study. Participants in this study were chosen and instructed not to have sexual intercourse three days earlier and were recruited based on the above requirements, in collaboration with local health workers, and then the eligible participants were led to a research interviewer who described the study in more detail.

#### 2.2.1 Ethics Statement

This study was approved by the Medical Ethics Committee University of Sumatera Utara (No 490/TGL / KEPK FK USU-RSUP HAM/2019), and all participants were given written, informed consent to participate in the study.

### 2.3 Data Collection Procedure

Health workers at the health facility were recruited and trained in the interview process and data reporting. After a signed informed consent was obtained, socio-demographic characteristics and awareness of hygienic practices were collected from participants using a paper-based standardized questionnaire directly self-administered under the supervision of the interviewers.

All participants underwent a speculum examination, and we evaluate the genital hygiene by observed cervical hygiene, presence of erosion and fluor albus with previously cleared excess mucus around the cervical using a filamented swab. The

degree of cervical erosion divided into mild, moderate, and severe erosion, and as well as the degree of fluor albus. Genital hygiene classified as 'good' if cervical erosion and fluor albus were not found, 'moderate' if cervical erosion was mild or not found, and fluor albus was mild or not found, and 'poor' if cervical erosion was moderate or severe and fluor albus was moderate or severe. This study was accompanied by extracting the cervical frottis for Papanicolaou (Pap) by inserting the cytobrush into the mouth of the cervix and spinning the cytobrush at 360 degrees three times and immediately scraping the object-glass slip, then fixing it using absolute alcohol.

### 2.4 Statistical Analysis

Data analysis was performed using SPSS. A descriptive analysis of participants' characteristics was conducted with the participant socio-demographic data. Correlation between genital hygiene with cytological papsmear was analyzed using Chi-square test (with two-tailed p-value)

## 3 RESULTS AND DISCUSSION

### 3.1 Socio-demographics Background

In this study, most participants above 40 years old (42.5%), followed by under 35 years old (34.2%) and at least between 35-40 years old (23.3%). Most participants were a housewife (83.5%), and the rest were working women

### 3.2 Genital Hygiene

The majority of the participants (46.6%) had poor genital hygiene, followed by 39.7% had moderate genital hygiene; meanwhile, only 13.7% had good genital hygiene.

The data summarized in Table 1 showed the distribution of age according to genital hygiene. This study showed that good genital hygiene was higher in women aged >40 years old (22.6%) while that moderate and poor genital hygiene were found higher as well as the same group (45.2% and 67.7%).

Table 1: Distribution of age class interval in genital hygiene

Genital Hygiene	Total n=73	Age in years		
		<35 n=25 (34.2)	35-40 n=17 (23.3%)	>40 n=31 (42.5%)
Good	10(13.7)	3(12)	0(0)	7(22.6)
Moderate	29(39.7)	9(36)	6(35.3)	14(45.2)
Poor	34(46.6)	13(52)	10(58.8)	21(67.7)

The result of this study was not in line with the study from India by Misra et al. in June 2019 which revealed that poor genital hygiene as shown by a present of vaginal discharge was higher in women which younger group between 21-30 years old and lowest in the older women beyond 40 years old. The study also concludes that poor genital hygiene due to illiteracy and poverty of rural women population may lead to vaginal infections and lead to the development of premalignancy.

The result was consistent with the previous study by Hamed, 2015 conducted in Zagazig University Hospitals showed that an association between vaginal infection which most common symptom was vaginal discharge with increasing age, which was more likely to be 35 years old and more, explained by the fact that low income and increased parity is associated with unhealthy diet and poor nutritional status that make woman vulnerable to infection.

### 3.3 Cytological Papsmear

Cervical smears were stained according to the papanicolaou technique, then cytopathological changes observed by two pathologist to evaluate cervical epithelial cells. The cytological papsmear report, according to the Bethesda system.

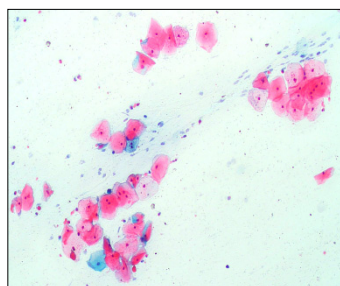


Figure 1: Cervical smear: NILM with normal smear (Pap stain x200)

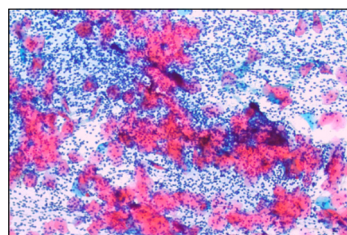


Figure 2: Cervical smear: NILM with inflammatory smear (Pap stain x200).

In this study, all participant's cervical smear showed negative for intraepithelial lesion or malignancy (NILM), 11% of participants with normal smear while the rest with inflammation. Three participants were diagnosed with inflammation with bacterial vaginosis (BV).

The data summarized in Table 2 showed no association of genital hygiene with cytological papsmear (Chi-square test, p-value 0.979).

In this study, the high percentage of smears was inflammatory (46.6%) found in 34 participants which 30 participants with poor genital hygiene, yet found no association (p-value 0.979). This study was not consistent with the study by Jeevitaa et al., 2018, noted that genital hygiene plays a role in decreasing the chances of yeast infection, bacterial vaginosis, and HPV, verified with the study by Shaw et al., 2016 that examined the determinants of genital health related to cohort HPV infection.

As well as a study conducted in India concluded reproductive tract infection is exacerbated by poor genital hygiene, which has a role in the development of cervical dysplasia and cervical cancer (Yasmeen et al., 2010).

This study showed that not all participants with moderate and poor genital hygiene had inflammatory smear in their papsmear result. There were 10.3%, and 11.8% had a normal smear. As well as study by Rahman et al, 2017 held cytological evaluation of cervical that carried out in 230 women with complaint of vaginal discharge in Bangladesh with the age ranging from 15-45 years found as normal were 4(1.7%), inflammatory were 204(88.3%), cervical squamous intraepithelial lesions (SIL) were seen in 22 cases (10%).

Table 2: Association of genital hygiene with cytological papsmear

Genital Hygiene	Cytological papsmear		Total	p-value
	Normal smear (%)	Inflammatory Smear (%)		
Good	1(10.0)	9(9.0)	10(13.7)	0.979
Moderate	3(10.3)	26(89.7)	29(39.7)	
Poor	4(11.8)	30(88.2)	34(46.6)	
Total	8(11.0)	65(89.0)	73(100)	

A study in Kashmir India by Yasmeen et al., 2010 revealed cytological examination from 270 married women aged 20-65 years were reported as normal in 91.4%. Inflammation was seen in 2.5%, and none of the study subjects had evidence of intraepithelial lesion, emphasizes the fact that socio-cultural factors play an important role in the low prevalence of cancer cervix despite the presence of the risk factors. Their study was the similarity of characteristic samples with our study in which majority religions were Muslim that had socio-cultural factors like the absence of promiscuity and male circumcision, which are directly related to the acquisition of infection by oncogenic strains of HPV.

Similar to a study from 340 women in Bhavnagar, Gujarat, India by Valiya et al. in 2015 showed inflammatory smears were higher among the women with unhealthy cervix in comparison to the healthy cervix but were statistically non-significant in epithelial abnormalities differences.

The study by Raychaudhuri et al., 2012 reviewed that acute lack of awareness and knowledge, including poor personal hygiene and low socio-economic status, are the principal risk factors for cervical cancer.

## 4 CONCLUSION

The study found that 10(13.7%) women had good genital hygiene while 29(39.7%) women had moderate genital hygiene and poor genital hygiene found in 34(46.6%) women. The study also showed that cytological papsmear of 8(11.0%) women were NILM with normal smear and 65(89.0%) women were NILM with inflammation. Chi square test reveals that no association between genital hygiene and cytological papsmear.

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## REFERENCES

- Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A., Jemal, A., 2018. Global Cancer Statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *Cancer J Clin*;68:394-424.
- Bukhari, M.H., Saba, K., Qamar, S., Majeed, M.M., Niazi, S., Naeem, S., 2012. Clinicopathological importance of Papanicolaou smears for the diagnosis of premalignant and malignant lesions of the cervix. *J Cytol*;29:20-25. doi: 10.4103/0970-9371.93213
- Crann, S.E., Cunningham, S., Albert, A., Money, D.M., O'Doherty, K.C., 2018. Vaginal health and hygiene practices and product use in Canada: a national cross-sectional survey. *BMC Women's Health*;18:52 <https://doi.org/10.1186/s12905-018-0543-y>
- Hamed, A.G., 2015. The impact of genital hygiene practices on the occurrence of vaginal infection and the development of a nursing fact sheet as prevention message for vulnerable women. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*; 4(6):55-64
- Koteswari, M., Rao, K.N., Renuka, I.V., Devi, C.P., 2015. A study of pap smear examination in women complaining of leucorrhoea. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*;14(1):37-42
- Jeevitaa, K., Meghnad, G. J., 2018. Genital hygiene and strategies for hpv prevention. *Nov Appro in Can Study*;1(2). NACS.000509. DOI: 10.31031/NACS.2018.01.000509
- Landis, S.H., Murray, T., Bolden, S., Wingo, P.A., 1999. Cancer statistics 1999. *Cancer J Clin*; 49:8-31
- Misra, J.S., Srivastava, A.N., Srivastava, S., 2019. Cervical cytology associated with leucorrhoea in rural women of India. *Era's Journal Of Medical Research*; 6(1)
- Pete, P., Biguioh, R. M., Izacar, A., Adogaye, S., Nguemo, C. 2019. Genital hygiene behaviors and practices: A cross-sectional descriptive study among antenatal care attendees. *Journal of public health in Africa*; 10(1):746. doi:10.4081/jphia.2019.746
- Rahman, M., Imam, S., Nessa, S., Saha, J., Islam, F., Raza, A.K.M.M., 2017. Pap smear in women with leucorrhoea: Experience in a tertiary medical college hospital of Bangladesh. *Northern International Medical College Journal*; 9(1):252-254. DOI: <http://dx.doi.org/10.3329/nimcj.v9i1.35921>
- Raychaudhuri, S., Mandal, S., 2012. Current status of knowledge and screening for cervical cancer with levels of economic development. *Asian Pacific Journal of Cancer Prevention*;13:4221-4227
- Reid, G., Brigidi, P., Burton, J.P., Contractor, N., Duncan, S., Fargier, E., Hill, C., Lebeer, S., Martin, R., McBain, A.J., Mor, G., O'Neill, C., Rodriguez, J.M., Swann, J., van Hemert, S., Ansell, J., 2015. Microbes central to human reproduction. *Am J Reprod Immunol*; 73: 1-11. doi:10.1111/aji.12319
- Riskeddas 2018. Badan penelitian dan pengembangan kesehatan kementerian kesehatan RI

- Shaw, E., Ramanakumar, A. V., El-Zein, M., Silva, F. R., Galan, L., Baggio, M. L., 2016. Reproductive and genital health and risk of cervical Human Papillomavirus infection: results from the Ludwig-McGill cohort study. *BMC infectious diseases*;16:116. doi:10.1186/s12879-016-1446-x
- Valiya, L.G., Seema, N., Baxi, S.N., 2015. Comparison of conventional cervical cytology in women with healthy and unhealthy looking cervix. *Int J Cur Res Rev*;7(15)
- World Health Organization (WHO), 2006. Comprehensive cervical cancer control: A guide to essential practice (Geneva)
- Yasmeen, J., Qurieshi, M.A., Manzoor, N.A., Asiya, W., Ahmad, S.Z., 2010. Community-based screening of cervical cancer in a low prevalence area of India: A Cross-sectional Study. *Asian Pacific J Cancer Prev*; 10:231-234

