Demographic profile and pap smear cytology in female sexual workers at primary health care Bestari Medan-Petisah

D R Anggraini¹*, I Feriyawati¹, A S Wahyuni², T Widyawati³, M I Sari⁴ and S Syarifah³

¹Department of Anatomy, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia
²Department of Public Health/ Community Medicine, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia
³Department of Pharmacology and Therapeutic, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia
⁴Department of Biochemistry, Faculty of Medicine, Universitas Sumatera Utara, Medan, 20155, Indonesia

*dwirita@usu.ac.id

Abstract. Sexual workers are one of risk the cervical cancer has a long latent period. Cervical cancer is the main cancer in Southeast Asia and the second most common cancer in Indonesia. In addition, Indonesia is the second common country cause of death in women after Vietnam. The aim of this study was to evaluate demographic profile and cervical cytology in Female Sexual Workers (FWSs) at Primary Health Care Bestari, Medan-Petisah, North Sumatera. This study has recruited 70 FWSs who has worked for at least 2 years and are not pregnant. Participants fill out the questionnaires include age of participants, age at first sexual intercourse, and life styles (smoking of cigarette and consumption of alcohol). Pap smear test from cervical smear of 70 FWSs were conducted using Papanicolaou staining. The result showed most of the FWSs of sexually-active women less than 30 years old reported 54.28% and 45.72% more than 30 years old. The first sexual intercourse showed 18-20 years old as much as 54.29%, life styles of smoking and consumption alcohol was 51.4% and 10% respectively. Pap smear cytology showed 52.9% was inflammatory smear, 15.7% was Atypical Squamous Cells of Undetermined Significance (ASCUS), 11.4% was Low-grade Squamous Intra epithelial Lesions (LSIL). Most of FWSs described inflammatory smear, although a small portion had been found of ASCUS and LSIL. The chronic inflammation can develop to be carcinogenesis.

1. Introduction
Incidence of cervical cancer in women is the 10th most common cancer in worldwide and the second in developing regions.[1] Based on surveillance, incidence of cervical cancer was 15.7 per 100,000 in Southeast Asia is similar for Malaysia and Indonesia, the second common cause of death in Indonesia, followed with Thailand and Malaysia.[2] Female sex workers (FSWs) are at high risk for sexually transmitted disease (STD). Infection of Human Papillomavirus (HPV) especially high-risk types are a necessary cause of cervical cancer associated with sexually transmitted disease.[3] FSWs represent a group at the highest risk for HPV infection, and the increased risk has been attributed to a high number of sexual contacts, unsafe sex behaviour, smoking, and low socio-economic status.[4, 5]
However, the cervical cancer is a treatable disease if diagnosed in the early stages. The Papanicolaou (Pap) smear is one of several methods for cervical cancer screening and many researches have indicated the importance of Pap test as one of the important and simple methods for screening of cervical cancer.[6] It is vitally important to decrease and prevent cancer deaths diagnosed cervical cancer in a localized or pre-metastasis phase. Routine cervical screening by Pap smear resulted in decreasing incidence of cervical cancer of the developing countries.[6,7]

The screening of reproductive system especially cervical cancer are rudimentary or not routine programs in many countries. In Indonesia the frequency women ever had a Pap test is still low less than 5%. [8,9,10] Therefore, many studies have shown that the level of knowledge about cervical cancer from over the world varies and counseling is needed for correction attitude and education level in cervical cancer prevention.[11] Therefore, this study was conducted to determine Pap smear cytology in FWSs at Primary Health Care Bestari, Medan-Petisah, North Sumatera.

2. Methods
The samples were obtained from 70 FSWs cervical swabs at the primary health care Bestari, Medan-Petisah, North Sumatera from July until December 2017. This study has been approved by Medical Ethics Committee Universitas Sumatera Utara with number 326/FKUSU/2017.

2.1. Characteristic sample
This study has recruited 70 FWSs who has worked for at least 2 years and are not pregnant. The data of characteristic samples were collected by using quisiner consist of respondent’s socio-demographics characteristic: age, the first sexual intercourse and life style (smoking and alcohol consumption)

2.2. Pap smear examination
Cytological Pap smear stained with Papanicolaou. The slides were analyzed by two pathologists and reported based on Bethesda system such as normal or inflammatory smear, low and high grade squamous intraepithelial lesion (LSIL and HSIL), atypical squamous cell of undetermined significance (ASCUS), atypical glandular cell of undetermined significance (AGUS) and squamous cell carcinoma (SCC). Records of the cytological results were evaluated with digital photomicrographic microscopic.[10]

3. Results and discussions

3.1. Profile of Socio-Demographics
The number of the respondents is as follows in Table 1 below.

| Table 1. Socio-demographics characteristics of FWSs |
|-----------------------------------------------|
| No | Socio-demographics profile | Number of samples (n=70) | Percent (100%) |
|-----|-----------------------------|-------------------------|----------------|
| 1. | Age                        |                         |                |
|    | < 30 years                  | 38                      | 54.28          |
|    | > 30 years                  | 32                      | 45.72          |
| 2. | Age of the first sexual intercourse | |                |
|    | < 17 years                  | 27                      | 38.57          |
|    | 18-20 years                 | 38                      | 54.29          |
|    | > 20 years                  | 5                       | 7.14           |
| 3. | Smoking                     |                         |                |
|    | Yes                         | 36                      | 51.4           |
|    | No                          | 34                      | 48.6           |
| 4. | Consumption of alcohol      |                         |                |
|    | Yes                         | 7                       | 10             |
|    | No                          | 63                      | 90             |
In this study, most of the FWSs of sexually-active women showed less than 30 years old reported 38 cases (54.28%), and 32 cases (45.72%) more than 30 years old (Table 1). Ersan et al showed that a total of 152 FSWs in Turkey (63.6%) were over 30 years old, less than 30 years old were 36.4%.[12]

The first sexual intercourse showed 18-20 years old as much as 54.29%, followed with 38.57% (<17 years old) and 7.14% (>20 years old). Based on Riskesdas 2015, the first sexual intercourse less than 18 years is high risk for cervical cancer.[13] The previous study showed that early sexual activity after menarche (<6 years) led to greater susceptibility to squamous cell carcinoma (SCC) type.[14] The immaturity of cervical cells in puberty, undergoes many changes that more sensitive to HPV infection.[15] It is indicate that first sexual intercourse in mature or older age (≥ 6 years or more years after menarche) will be safer and provide protection from HPV infection and vulnerability to cervical cancer. This is concordance with Boer et al. showed that older women (≥20 years) in the first sexual relationship (OR = 0.48; 95% CI: 0.28-0.85) experienced a reduced risk of cervical cancer.

The lifestyle respondents smoking had 51.4% and consumption of alcohol had 10%. The women exposed active and passive tobacco smoke lead to disaffected in cervical carcinogenesis.[17] Natphopsuk et al. reported that smoking duration ≥ 20 years, number of cigarettes ≥20 packs-years and exposure time of the subject to passive smoking ≥5 hrs/day were significantly risk factors to cervical cancer.[14] Moreover several substances commonly found in cigarette smoke such as cotinine, benzo(α) pyrene and nicotine may stimulate nitrosamines leading to DNA damage and dysfunction of the cervical epithelium.18

**Table 2.** Case distribution of Pap smear in female sexual workers

| Bethesda System     | Number of respondents (n=70) | Percent (100%) |
|---------------------|-----------------------------|----------------|
| Normal smear        | 14                          | 20             |
| Inflammatory smear  | 37                          | 52.9           |
| ASCUS               | 11                          | 15.7           |
| LSIL                | 8                           | 11.4           |

The most of cervical smears were abnormal for 80% of total cases (56/70). The inflammatory smear was very high in FSWs (52.9%). Out of 70 cases, 14 normal smears (20%), 11 ASCUS (15.7%) and 8 cases of LSIL (11.4%) (Table 2). The study of Mondal et al, indicated that HSIL was very high in FWSs (38.3%), inflammatory smear 20%, LSIL 15%, ASCUS and SCC 3% respectively and AGUS 1.7%.6

**Table 3.** Age-case distribution

| Age (years) | Bethesda System |
|-------------|-----------------|
|             | Normal smear    | Inflammatory smear | ASCUS | LSIL |
| <30         | 3 (4%)          | 24 (34.3%)         | 8 (11.4%) | 3(4.3%) |
| >30         | 11 (15.7%)      | 13 (18.6%)         | 3(4.3%)  | 5 (7.1%) |
| Total       | 14 (20%)        | 37 (52.9%)         | 11(15.7%) | 8 (11.4%) |

In this study showed incidence of inflammatory smear was very high in FSWs (52.9%) being aware because chronic inflammation at a risk lead to of carcinogen. This is line with Mondal et al, showed that inflammatory smear were high, 24 out of 36 (66.67%) were associated with epithelial lesions.[6] In multiparity population, the same incidence that inflammatory smear was found most of cases (80%).[10] That is indicating the importance of proper genital hygiene maintenance in prevention of cervical epithelial lesions.

Incidence LSIL was greatly increased in the above 30 years age group (7.1%), indicating the gradually increasing incidence of malignancy with age. Age is an important factor because the chances of a woman developing dysplasia increases with increasing age. The group of below 30 years the presence of ASCUS and LSIL, 11.4% and 4.3% respectively, were candidates for follow up. The benefits of screening programs can reduce the costs required. Cervical cancer has a long phase with premalignant lesions that can be identified and treated that precede invasive disease. This makes it an ideal disease for screening [2,19].
3. Conclusion
Reproductive behaviors include age of the first sexual intercourse and smoking are common risk factors of cervical cancer among FWS at primary health care Bestari, Medan Petisah. Awareness of importance for healthy lifestyle would to reduced at risk include: appropriate timing for the first sexual intercourse and avoidance of passive and active smoke.

Acknowledgment
The authors gratefully acknowledge to the Universitas Sumatera Utara for supporting this study.

Conflicts of Interests
This study no conflicts of interest.

References
[1] Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM 2010 Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008 Int. J. Cancer 127(12)2893-917
[2] Ferlay J, Bray F, Pisani P, Parkin D M 2014 Cancer Incidence, Mortality and Prevalence Worldwide IARC Cancer Base No.5 version 2.0 IARC Press Lyon
[3] Gree M, Davies P, Arbyn M, Anttila A, Grubisić G, Kardum-Skelin I, et al 2008 Report on the 2007 International Workshop on Human Papillomaviruses and Consensus Recommendations for Cervical Cancer Prevention Cent Eur J. Public Health 16(1)38-40
[4] del Amo J, González C, Belda J, Fernández E, Martínez R, Gómez I, et al 2009 Prevalence and risk factors of high-risk human papillomavirus in female sex workers in Spain: differences by geographical origin. J Womens Health (Larchmt) 18(12)2057-64
[5] Brown B, Carcamo C, Blas MM, Valderrama M, Halsey N 2010 Peruvian FSWs: understanding HPV and barriers to vaccination Vaccine 28(49)7743-7
[6] Mondal S K, Basak B, Roy D N, Mandal P K, and Sinha S 2014 Evaluation of Vaginal Cytology in Female Sex-Workers: A Study in a Tertiary Hospital of Eastern India J. Cytol.31(1)7–10
[7] Demirtas B and Acikgoz I 2013 Promoting attendance at cervical cancer screening: Understanding the relationship with Turkishwomens’ health beliefs Asian Pasific Journal of Cancer Prevention 14 333-40
[8] Cibas E S 2009 Cytology: diagnostic principles and clinical correlates vol 3 ed E S Cibas and B S Ducatman (Saunder Elsevier) pp 327-40
[9] Linadi K E 2013 Husband’s support to encourage pap smear participation of fertile couples in Pucang Gading Residence Semarang Jurnal Kesehatan Reproduksi 4(2) 61–71
[10] Anggraini DR, Feriyawati L, Fitrie AA and Ginting RNA 2018 Pap smear cytology and identification of Human Papillomavirus (HPV) type 16 and 18 in multiparity women at Aviati Clinic Padang Bulan Medan IOP Conf. Series: Earth and Environmental Science 125 (2018) 012196
[11] Oon S W, Shuib R, Ali S H, Nik Hussain N H, Shaaban J and Yusoff H M 2010 Knowledge and attitude among women and men in decision making on Pap smear screening in Kelantan, Malaysia Int. J. Soc. Behavioral Educational Economic Business Industrial
[12] Ersan G, Köse S, Güney H, Özkan M 2012 Knowledge and awareness of female sex workers towards human papillomavirus infection in Turkey Cent. Eur. J. Public Health 20(3) 219–22
[13] Riset Kesehatan Dasar (RISKESDAS) Badan Litbang Kemenkes R I 2015 Buletin Jendela Data& Informasi Kesehatan Semester I
[14] Natphopsuk S, Setthheetham-Ishida W, Sinawat S, Pientong C, Yuenyao P, Ishida T 2012 Risk Factors for Cervical Cancer in Northeastern Thailand: Sexual and Smoking Behavior Asian Pacific Journal of Cancer Prevention 13(11) 5489-95
[15] Louie KS, de Sanjose S, Diaz M, et al 2009 Early age at the first sexual intercourse and early pregnancy are risk factors for cervical cancer in developing countries Bri. J. Cancer 100
[16] de Boer M A, Vet J N, Aziz M F, Cornain S, Purwoto G, van den Akker B E, et al 2006 Human papillomavirus type 18 and other risk factors for cervical cancer in Jakarta, Indonesia Int. J. Gynecol. Cancer 16(5) 1809-14

[17] Louie K S 2011 Sexual and reproductive health risk factors and risk cervical cancer in developing countries https://researchonline.lshtm.ac.uk/1386837/1/550395.pdf

[18] Kjellberg L, Hallmans G, Ahren A M, et al 2000 Smoking, diet, pregnancy and oral contraceptive use as risk factors for cervical intra-epithelial neoplasia in relation to human papillomavirus infection Bri J cancer 82 1332-8

[19] Kerkar RA, Kulkarni VV 2006 Screening for cervical cancer: An overview J. Obstet. Gynecol. India 56 115–22