Socio-demographic Profiles of Cervical Cancer Patients at Cipto Mangunkusumo Hospital - 2009-2019 and Its Association with Cancer Stages at Diagnosis

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ABSTRACT

Objective: To determine the socio-demographic profile of cervical cancer patients at Cipto Mangunkusumo Hospital in 2009-2019 based on educational level, parity, age, residence, and employment status and their relationship to cervical cancer stage at diagnosis. **Methods:** Comparative analytical study was conducted retrospectively based on medical records in Cipto Mangunkusumo Hospital. The selection was based on data completeness: cervical cancer stages, socio-demographic profiles consisting of education level, parity, age, Java or non-Java Island resident, and occupation. Multivariate analysis calculated the association between socio-demographic factors and cervical cancer stages. Data were analyzed using SPSS v.22.0 and Microsoft Excel. **Results:** This study included 4,584 patients with complete data. Only 19.3% patients were in the early stage, 63.3% had less than three parities, 82.8% of patients had formal primary school education or less, 80.9% patients were aged 18-65 years, 88.3% patients resided in Java Island, and 80.5% didn't have the occupation. There was a significant association (p <0.05) between cervical cancer stage and educational level (aOR= 0.86; 95% CI= 0.78-0.94) and age (aOR= 1.46; 95% CI= 1.18-1.40). There is no significant association (p >0.05) between cervical cancer stage and parity, residence, and employment status. **Conclusion:** Low education and old age (> 65-year-old) were associated with the advanced stage of cervical cancer at diagnosis.

Keywords: Age, cervical cancer, cervical cancer stage, education level.

ABSTRAK

Tujuan: Mengetahui profil sosiodemografi pasien kanker serviks di Rumah Sakit Cipto Mangunkusumo tahun 2009-2019 berdasarkan tingkat pendidikan, jumlah paritas, usia, status kependudukan, pekerjaan, serta hubungannya terhadap stadium kanker serviks saat diagnosis. **Metode:** Penelitian analitik komparatif retrospektif berdasarkan data rekam medis Rumah Sakit Cipto Mangunkusumo. Pemilihan sesuai kelengkapan data: stadium kanker serviks, profil status sosiodemografi yang terdiri atas tingkat pendidikan, paritas, usia, penduduk pulau Jawa atau non-Jawa, dan status pekerjaan. Hubungan antar variabel dianalisis multivariat untuk mencari hubungan berbagai faktor sosiodemografi terhadap stadium kanker serviks. Analisis data menggunakan program SPSS versi 22.0 dan Microsoft Excel. **Hasil :** Terdapat 4.584 pasien kanker serviks yang memenuhi kriteria inklusi. Sebanyak 19,3% pasien dengan stadium awal. Selanjutnya 82,8% pasien memiliki pendidikan formal sekolah dasar atau kurang, 63,3% pasien memiliki jumlah paritas kurang dari tiga, 80,9% pasien berusia antara 18-65 tahun, 88,3% pasien berdomisili di pulau Jawa, dan 80,5% tidak bekerja. Didapatkan asosiasi bermakna (p<0,05) antara stadium kanker serviks dan tingkat pendidikan (aOR = 0,86; 95% CI= 0,78-0,94) dan usia (aOR= 1,46; 95% CI= 1,18-1,40). Tidak ditemukan asosiasi bermakna (p>0,05) antara stadium kanker serviks dengan paritas, domisili kependudukan, dan status pekerjaan. **Simpulan:** Tingkat pendidikan rendah dan usia lanjut (>65 tahun) berasosiasi dengan stadium lanjut kanker serviks saat diagnosis. **Fitriyadi Kusuma, Kemal Akbar Suryoadji, Michael Adrian, Tofan Widya Utami, Hariyono Winarto, Tricia Dewi Anggraeni, Kartiwa Hadi Nuryanto, Muhammad Haekal. Profil Sosio-demografik Pasien Kanker Serviks di RS Cipto Mangunkusumo 2009-2019 dan Asosiasinya dengan Stadium Kanker**

Kata kunci: Kanker serviks, stadium kanker serviks, tingkat pendidikan, usia.

INTRODUCTION

Cervical cancer ranked number 4th as the most common cancer in women globally.[1] In Indonesia, cervical cancer ranks as the second most common cancer in women; data from Riskesdas (2018) estimates that the incidence of cervical cancer in Indonesia is 179 per 100,000 women, with 32,469 new cases 18,279 death in 2018. Indonesia contributes to a 5.8% global incidence of cervical cancer.[2]

Cervical cancer staging and grading will allow doctors to determine its size, spread, and the best treatment options available. The stage is based on physical findings, imaging scans, and biopsies. A lower grade indicates slower-growing cancer, and a higher grade indicates a faster-growing one. The staging system developed by the International Federation of Obstetrics and Gynecology (Federation Internationale de Gynecologie et d'Obstetrique, FIGO) divided cervical cancer into early and advanced stages; IA-IIA stages as early-stage and IIB-IVB stages as advanced stage.[3]

The association between cervical cancer

stage and socio-demographic profile based on education level, number of parities, age group, population, and employment status has not been thoroughly studied, including in Indonesia. A study was conducted on the relationship between patients' education level and cervical cancer stage in Cipto Mangunkusumo Hospital Jakarta from 2009 to 2019.

METHOD

This research used medical records data from Cipto Mangunkusumo Hospital's cancer registration center during 2009-2019. We defined cervical cancer IA1-IIA stages as early-stage, IIB-IVB stages as advanced stage (based on the classification in *Federation Internationale de Gynecologie et d'Obstetrique).*[3] Formal education levels were divided into primary school (elementary school) or less and higher than primary school, parity was divided into 0-3 and >3, age was divided into 18-65, and >65 years, the residence was divided into Java island and non-Java island. Occupation status was divided into working and not working. Using bivariate and multivariate approaches, data were analyzed used SPSS for Windows v.20 and Microsoft Excel. This research passed the ethical review by the Research Ethics Committee of the Faculty of Medicine, University of Indonesia - RSUPN dr. Cipto Mangunkusumo no.KET-920/UN2.F1/ETIK/PPM.00.02/2020.

RESULT

Based on the medical record, all cervical cancer cases in Cipto Mangunkusumo Hospital during the 2009-2019 period was 4863 patients. Due to the completeness of data, the patients included in this study were 4584 patients.

Cervical Cancer Stages Distribution

The distribution of cervical cancer stages in Cipto Mangunkusumo Hospital was described in **table 1**; 82.8% of subjects had formal primary school education or less, 63.3% of subjects had parity numbers of 0-3, 80.9% of subjects were aged 18-65 years, 88.3% subject resides in Java, and 80.5% subjects do not have occupation.

The association between education level and advanced stage of cervical cancer was statistically significant (p <0.05) with aOR 0.86 for higher education. This finding can be interpreted as education level being a protective factor that can prevent advanced stages of cervical cancer. The association between cervical cancer stage and age also has a statistically significant difference (p<0.05) with aOR 1.46 in more than 65-year-old patients. This finding can be interpreted as age being a risk factor for advanced stages of cervical cancer. There was no significant association between cervical cancer stage and parity, domicile, or employment status **(Table 2).**

DISCUSSION

This study found that 80.6% of patients were diagnosed with advanced cervical cancer. Previously, Nuranna, *et al,* (2019) found that in 2012-2014, 54.3% of patients were at stage III cervical cancer.[4] These findings may be caused by a delay in diagnosis.[5] Gyenwali, *et al,* (2013) revealed that delay in diagnosis could be caused by a lack of education on cervical cancer symptoms and might need for increased general screening and prevention for cervical cancer.[6] Petignat, *et al,* (2007) explained that cervical cancer in the precancerous stage or very early stage was usually asymptomatic and could only be detected through a cervical smear during screening.[7] Symptoms may include spontaneous bleeding, pain if the lymph nodes are involved, foul-smelling vaginal discharge, and back pain. These early symptoms are often considered typical and are not discussed, including with health workers.[8]

This research found that 82.8% of patients had an educational level of primary school or lower, and a significant difference in cervical cancer stage at diagnosis; advanced cervical cancer stage was diagnosed more among patients with lower educational level. Hamoonga, *et al,* (2017) stated that high education was negatively correlated with abnormal findings on the cervix.[9] Tanturovski, *et al,* (2013) also indicated the diagnosis of advanced-stage cervical cancer was found to be higher in patients with low education (p<0.001).[10] A study by Liu, *et al,* (2017) on the correlations of knowledge, attitudes, and behavior with cervical cancer screening demonstrated that women with higher formal education had an increased behavioral tendency to screen for cervical cancer with aOR 4.82 compared to women with lower educational level.[11]

A highly educated person has the potential to have a better socioeconomic level. They can

Table 1. Distribution of cervical cancer stages in Cipto Mangunkusumo Hospital Jakarta 2009-2019 (n = 4,584)

Cervical Cancer Stages		N
Early Stages	Stage 1	541
	Stage 2a	344
Advanced Stages	Stage 2b	931
	Stage 3	2,396
	Stage 4	372
	Total	4.584

Table 2. Association between cervical cancer stage and socio-demographic profiles in Cipto Mangunkusumo Hospital Jakarta 2009-2019 (n = 4584)

	Cervical Cancer Stages			P Value	aOR (95% CI)
	Early Stage	Advance Stage	Total		
Socio-demographic Profiles					
Formal Education Level				<0.05*	0.86 (0.78-0.94)
>Primary School	190	596	786		
≤Primary School	695	3.103	3.798		
Parity				0.058	1.16 (0.99-1.37)
0-3	600	2.303	2.903		
>3	285	1.396	1.681		
Age				<0.05*	1.46 (1.18-1.40)
>65	124	748	872		
18-65	761	2.951	3.712		
Domicile				0.28	1.13 (0.89-1.43)
Java	788	3.261	4.049		
Outside Java	97	438	535		
Work Status				0.07	1.17 (0.98-1.41)
Working	191	701	892		
Not Working	694	2.998	3.692		

*statistically significant

be better fulfilling their personal and family needs. This condition will increase a person's potential to give more attention to their health, including screening and a healthy lifestyle.[12,13]

Hidayat, *et al*, (2013) found that more than three parities significantly increased the incidence of cervical cancer (p <0.05, OR = 16.033; 95% CI 4.773 – 53.855).[14] Our study used the same two groups, 0-3 and > 3 parities; however, there was no significant difference in cervical cancer stage at diagnosis between the groups (p = 0.058).

The age group of subjects was divided into adults (18-65-year-old) and elderly (<65 years- old). There was a significant difference in cervical cancer stage at diagnosis between age groups; the elderly was almost 1.5 times more likely to have advanced cervical cancer

than adults. Previous research by Yost, *et al*, (2018) examined cervical cancer patients over 65 years and found that 63% of patients were at an advanced stage (stage IIb-IVb), but the relationship had not been studied.[15] Brun, *et al*, (2003) have reported that most elderly patients presented with advanced stage symptoms.[16] Moreover, Ioka, *et al*, (2005) also demonstrated that elderly cervical cancer patients were often found in advanced stages due to poor screening in young female patients to detect cervical cancer at an early stage.[17]

The constraints of communication between Javanese and outside Javanese residents to obtain information have no significant influence on the cervical cancer stage at diagnosis. The work status also did not substantially influence cervical cancer staging; multivariate analysis showed no significant difference between types of occupation and

the incidence of cervical cancer (p>0.05). Previous research by Chandrawati (2016) found a substantial difference between types of occupation and the incidence of cervical cancer, stating that women with manual jobs could be practically less hygienic and increased the risk of cervical cancer.[18]

CONCLUSION

In Cipto Mangunkusumo Hospital, 80.6% of cervical cancer patients were diagnosed in advanced stage (stage IIb-IVb). Statistically, there was a significant association (p<0.05) of stages of cervical cancer at diagnosis and educational level (aOR= 0.86, 95% CI = 0.78-0.94), as well as advanced age (aOR= 1.46, 95% CI = 1.18-1.40). There was no significant association between cervical cancer stage and parity, residence, and employment status.

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