

ABSTRAK

Latar Belakang: Secara global dilaporkan pada tahun 2022 bahwa kasus baru dan proyeksi kanker serviks di seluruh dunia mengalami peningkatan. Data tersebut juga menemukan bahwa jumlah kejadian semakin meningkat di Indonesia dan khususnya di Yogyakarta. Kondisi tersebut disebabkan oleh banyak faktor seperti perkembangan ekonomi, pelayanan kesehatan, dan faktor sosial.

Tujuan: Penelitian ini bertujuan untuk mengetahui distribusi dan perubahan dari waktu ke waktu (tren temporal) insidensi kanker serviks di DIY dan setiap kabupaten/ kota di DIY tahun 2009-2019. Hasil penelitian ini dapat digunakan sebagai masukan dalam menentukan kebijakan penanggulangan kanker serviks.

Metode: Penelitian ini merupakan penelitian observasional deskriptif dan analitik dengan desain *cross-sectional* dan metode analisis temporal-spasial. Sumber data adalah Registrasi Kanker RSUP Sardjito Yogyakarta periode 1 Januari 2009 - 31 Desember 2019. Penelitian dilakukan dengan izin etik dari Komisi Etik Penelitian Kedokteran dan Kesehatan FKMK UGM dan izin penelitian dari bagian penelitian RSUP Dr Sardjito. Parameter univariat berupa domisili, usia, stadium klinis, *grade*, dan terapi awal dianalisis secara deskriptif. Analisis spasial dengan metode *Moran's Global Index* dan *LISA (local indicator of spatial association)* menggunakan *R statistical software* versi 4.2.2. Pemetaan sebaran kasus menggunakan *ArcGIS* dan *Microsoft Power BI*, sedangkan analisis temporal menggunakan *Jointpoint Regression Program* versi 4.9.1.0 dan *Microsoft Excel 2021*.

Hasil: Kejadian serviks di DIY pada tahun 2009-2019 tercatat 1.110 kasus. Kasus tertinggi terjadi pada kelompok usia 46-55 tahun (39,5%), di Kabupaten Sleman (34,1%), dengan stadium 2 (32,3%), *poorly-differentiated* (41,1%), dan diberikan kemoterapi (24,6%). Analisis autokorelasi spasial global terhadap distribusi subyek di DIY tahun 2009-2019 menunjukkan *Moran's I Index* $p = 0,00$ ($p\text{-value} < 0,05$), dengan autokorelasi positif atau membentuk pola kluster dan secara statistik perbedaan klusterisasi bermakna. Pada analisis *Local Indicator of Spatial Autocorrelation (LISA) Index* $p = 0,00$ ($p < 0,05$). Terdapat 15 kecamatan dengan kluster tinggi-tinggi dan 4 kecamatan dengan kluster rendah-rendah.

Kesimpulan: Kejadian kanker serviks memiliki distribusi spasial yang heterogen, dengan kelompok insidensi menunjukkan variasi distribusi yang tidak merata di setiap kabupaten. Kasus terbanyak terjadi di Kabupaten Sleman, Bantul, dan Kota Yogyakarta. Terjadi pengelompokan spasial di area kecamatan tertentu. Angka kejadian kanker serviks meningkat secara signifikan selama tiga tahun terakhir sejak 2017. Terjadi peningkatan di semua kelompok usia di semua kabupaten/ kota.

Kata Kunci: Kanker serviks, analisis spasial, analisis temporal, registrasi kanker berbasis populasi

ABSTRACT

Background: Globally reported in 2022 that new cases and projections of cervical cancer worldwide have increased. The data also found that the number of incidents is increasing in Indonesia and especially in Yogyakarta. This condition is caused by many factors such as economic development, health services, and social factors.

Objective: This study aims to determine the distribution and changes over time (temporal trends) of cervical cancer incidence in DIY and each district/city in DIY in 2009-2019. The results of this study can be used as input in determining cervical cancer control policies.

Method: This study is a descriptive and analytical observational study with a cross-sectional design and temporal-spatial analysis methods. The data source is the Cancer Registration of Sardjito Hospital Yogyakarta for the period 1 January 2009 - 31 December 2019. The study was conducted with ethical permission from the Medical and Health Research Ethics Commission, FKMK UGM and research permission from the research department of Dr. Sardjito Hospital. Univariate parameters in the form of domicile, age, clinical stage, grade, and initial therapy were analyzed descriptively. Spatial analysis using the Moran's Global Index and LISA (local indicator of spatial association) methods using R statistical software version 4.2.2. Mapping of case distribution using ArcGIS and Microsoft Power BI, while temporal analysis using Jointpoint Regression Program version 4.9.1.0 and Microsoft Excel 2021.

Results: Cervical cases in DIY in 2009-2019 were recorded at 1,110 cases. The highest cases occurred in the 46–55-year age group (39.5%), in Sleman Regency (34.1%), with stage 2 (32.3%), poorly-differentiated (41.1%), and given chemotherapy (24.6%). Global spatial autocorrelation analysis of the distribution of subjects in DIY in 2009-2019 showed Moran's I Index $p = 0.00$ ($p\text{-value} < 0.05$), with positive autocorrelation or forming a cluster pattern and statistically significant clustering differences. In the analysis of the Local Indicator of Spatial Autocorrelation (LISA) Index $p = 0.00$ ($p < 0.05$). There are 15 sub-districts with high-high clusters and 4 sub-districts with low-low clusters.

Conclusion: The incidence of cervical cancer has a heterogeneous spatial distribution, with incidence groups showing uneven distribution variations in each district. The most cases occurred in Sleman, Bantul, and Yogyakarta City. There is spatial clustering in certain sub-district areas with easier access to referral health. The incidence of cervical cancer has increased significantly over the past three years since 2017. There has been an increase in all age groups in all districts/cities.

Keywords: Cervical cancer, spatial analysis, temporal analysis, population-based cancer registration