

ANALYSIS OF MALAYSIAN MORTALITY RATES BY SPECIFIC ETHNICS, AGE GROUPS AND GENDER BEFORE AND DURING COVID-19 PANDEMIC

*(Analisis Kadar Kematian Mengikut Spesifik Etnik, Kumpulan Umur dan Jantina Sebelum dan Semasa
Pandemik COVID-19)*

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ABSTRACT

Malaysia has been one of the Western Pacific region's nations that has been adversely affected by the COVID-19 pandemic with over 32,000 deaths linked to COVID-19 over three major epidemic waves, and a cumulative case count of over six hundred million worldwide. The study aims to investigate the trend of mortality rates for the three major ethnic groups in Malaysia, which are Bumiputera, Chinese, and Indians for the age groups of adults, middle age, and elderly for both genders. Since data on mortality rates in Malaysia is only accessible for age groups such as 1–4, 5–9, 10–14, 15–19, and so on, a distributional or interpolation approach was required to expand it to the individual ages. Thus, the Lagrangian interpolation is used to estimate the values of mortality for each individual age. The study also intends to identify which ethnic, age groups and gender that were most affected during the pandemic. Overall, it was found that the trend is decreasing for all age groups and gender for years before the pandemic. The ethnic group that most affected during the pandemic was Chinese females aged 24 to 39 with a 13.89 percent increment in 2021. However, there are some deviations from the pattern observed during the COVID-19 pandemic. Also, mortality rates for females are consistently lower than males across all age groups. Surprisingly, for the elderly, mortality rates are consistently lower, even during the pandemic for both males and females. This happened due to the ageing population process whereby the proportion of the elderly increased significantly as Malaysia is expecting to be an ageing population country by year 2030.

Keywords: ageing population; Lagrangian interpolation; mortality rates; mortality trend

ABSTRAK

Malaysia telah menjadi salah satu negara di rantau Pasifik Barat yang terjejas teruk disebabkan oleh pandemik COVID-19 dengan lebih 32,000 kematian berkaitan COVID-19 dalam tiga gelombang wabak utama dan jumlah kes terkumpul melebihi enam ratus juta di seluruh dunia. Tujuan kajian ini adalah mengkaji trend kadar kematian bagi tiga kumpulan etnik utama di Malaysia, iaitu Bumiputera, Cina, dan India bagi kumpulan umur dewasa, pertengahan umur dan warga emas bagi kedua-dua jantina. Memandangkan data kadar kematian di Malaysia hanya boleh diakses untuk kumpulan umur 1-4, 5-9, 10-14, 15-19, dan seterusnya, beberapa pendekatan pengagihan atau interpolasi diperlukan untuk mengembangkannya kepada peringkat umur individu. Oleh itu, interpolasi Lagrangian digunakan untuk menganggar nilai kadar kematian bagi setiap umur individu. Di samping itu, kajian ini juga ingin mengenal pasti etnik, kumpulan umur dan jantina yang paling terjejas semasa pandemik. Secara keseluruhannya, ia mendapati trend menurun untuk semua kumpulan umur dan jantina untuk tahun-tahun sebelum wabak. Etnik yang paling terjejas semasa wabak adalah wanita Cina dalam lingkungan umur 24 hingga 39 tahun dengan kenaikan sebanyak 13.89 peratus pada 2021. Walau bagaimanapun, terdapat beberapa perubahan daripada corak trend semasa pandemik COVID-19. Di samping itu, kadar kematian bagi perempuan lebih rendah secara konsisten daripada lelaki untuk semua kumpulan umur. Selain itu, bagi warga tua, kadar kematian lebih rendah secara konsisten walaupun semasa wabak untuk lelaki dan perempuan. Ini berikutan proses penuaan penduduk di mana nisbah

warga tua telah meningkat dengan ketara kerana Malaysia dijangka menjadi negara yang semakin menua pada tahun 2030.

Kata kunci: populasi menua; interpolasi Lagrangian; kadar kematian; trend kematian

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