

Five-year profiling of *Plasmodium knowlesi* malaria and its associated factors in Kelantan

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ABSTRACT

Introduction: South-East Asia has the 2nd highest estimated malaria burden globally. The most common form of malaria in Malaysia is zoonotic malaria, caused by *Plasmodium knowlesi*. The high burden of *Plasmodium knowlesi* malaria affects Malaysia's progress towards attaining elimination certification by WHO. Kelantan recorded the highest number of *Plasmodium knowlesi* cases in the Peninsula and 3rd in Malaysia after Sabah and Sarawak. This study aimed to describe the sociodemographic characteristics and to determine the factors associated with *Plasmodium knowlesi* infection in Kelantan from 2018-2022. **Materials and Methods:** A cross-sectional study was conducted from January to March 2023. All confirmed malaria cases from e-Notification data (Malaysian Communicable Disease Online System) in 5 years duration (2018 till 2022) were selected as samples. Variables with more than 30% missing data were excluded. Data was analysed using SPSS Version 26. Categorical variables displayed in frequency (%) and numerical data in mean (SD) or median (IQR) if data were skewed. Multiple logistic regression analysis was conducted to determine the factors associated with *Plasmodium knowlesi* infection. Endemic areas in this study are cases that occurred in districts Kuala Krai, Gua Musang, Jeli and Tanah Merah. **Results:** A total of 640 malaria cases are included in this study. Among all malaria cases, the prevalence of *Plasmodium knowlesi* infection in Kelantan was 88.1% (95% CI: 85.4%, 90.5%), whereas non-*Plasmodium knowlesi*, 11.9% (95% CI: 9.5%, 14.6%). The mean age of *Plasmodium knowlesi* infection is 37 years (SD = 14.65). Most of them were male (84.8%), 49.7% were Malay, 66.1% were Malaysian citizens, and 76.1% were related to agricultural work. Most malaria cases (98.3%) occurred in the endemic area. *P. knowlesi* infections are associated significantly with Malaysian citizens (AOR 8.63, 95% CI: 4.28, 18.8), working groups, (AOR 6.54, 95% CI: 2.97-14.9), and passive case detection (AOR 8.22, 95% CI: 4.57-15.0). **Conclusion:** In conclusion, malaria caused by *Plasmodium knowlesi* is a significant concern in Kelantan, particularly in endemic areas. Passive case detection, which involves individuals seeking medical care when they experience symptoms, plays a crucial role in identifying and treating cases of *Plasmodium knowlesi*. Prompt and accurate diagnosis, followed by appropriate treatment, is essential for managing and controlling *Plasmodium knowlesi* infections. Therefore, effective inter-agency collaboration is vital in the fight against malaria.