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## Seasonal and spatial variability of prevalence of dengue and its transmitting vectors in the Matale district

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Dengue fever is a mosquito-borne viral disease with increasing importance due to its rapid spread, inadequate control, and lack of vaccines. In recent decades, dengue has spread within the Matale district. In Matale district, a highly localized pattern of transmission can be seen, and urban centers such as Matale Municipal Council and neighboring sub-districts such as Ukuwela, Rattota report high caseloads. Assessing the relationship between the dengue vectors, the seasonal variation, and the dengue transmissivity can help identify early warning indicators for dengue risk. Here, we investigate the relationship between vector indices and dengue cases. We obtained entomological surveys from the regional malaria office in Matale for 2015–2020. The daily/ weekly and monthly dengue case data for 2004–2020 were obtained from the Regional Director of Health Services. From the larval survey reports, a time series of monthly averages of the Breteau index (BI), container Index (CI) and premises index (PI) were developed per each MOH for the mosquito species *Aedes aegypti* (A. Ae) and *A. albopictus* (A.Ab) for 2015–2020. We computed the monthly average of the entomological indices by health sub-district (MOH). Cross-correlation analysis was carried out with the weekly dengue case data and entomological data with various lags. *A. aegypti* prevalence is lower than that of A.Ab. The seasonality of the averages of vector indices for the two species showed that A.Ab. mosquito a bimodal seasonality peaks in April to June and October to December. Cross-correlation between the dengue vector species shows that the dengue cases correlated statistically significantly with A.Ae. obtained 1–13 weeks prior. The dengue cases did not have a statistically significant correlation with A.Ab. in most of the MOH areas in Matale district except in urbanized MOH (Ukuwela, Rattota, Naula).

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