How did the population's critical pandemic indicators change with COVID-19 vaccinations in Malaysia?

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ABSTRACT

Introduction: This study aims to evaluate space-time correlations between COVID-19 vaccination rates with critical pandemic indicators in Malaysia. **Methods:** Region-wise ecological analysis was conducted between 1 January 2021 and 30 June 2022 within three major phases of pandemic control measures across the country. State-wise population-level data from official government open source was extracted and aggregated to the regional level to visualize distributional choropleths of COVID-19 vaccination rates with ICU admissions and case-fatality rates. Region-wise correlations (r) and their associated percentage of shared variance (r2) factors were synthesized to observe the strength of associations. A total of 4,456,066 cases that contributed to 292,897 ICU admissions and 35,378 deaths were computed to yield aggregated phase-based pandemic indices by regions in Malaysia. Vaccination rates were calculated based on the number of people who completed the primary dose (27,275,616 people) and booster shots (16,230,989 people). **Results:** ICU admissions and case fatality rates showed statistically significant reductions with increased vaccination rates over time in the country. **Conclusion:** These findings suggest vaccination is a crucial element for population-level pandemic suppression.