

MODELLING THE ASSOCIATION BETWEEN VITAMIN-D DEFICIENCY AND INCIDENCE OF COVID-19 INFECTION ADJUSTING FOR THE CONFOUNDERS AND UNOBSERVED HETEROGENEITY

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SUMMARY

This study quantifies the relation between vitamin D and the incidence of coronavirus disease 2019 (COVID-19) infection after controlling for the common observable concomitant variables and unobserved confounding variables. The age-gender specific vitamin D level, obesity rates, COVID-19 infection and related data were retrieved from published sources. Mixed-effects negative binomial regression model was used to quantify the adjusted association of vitamin D on COVID-19 infection rate. People with normal serum vitamin D level possessed 48% lower risk of being infected from COVID-19 (incidence rate ratio (IRR) = 0.517; 95% confidence interval (CI): 0.297, 0.899) as compared to those having deficiency. The elderly males (aged over 60 years) possessed 28% higher risk of being infected by COVID-19 (IRR=1.28; 95% CI: 0.963, 1.703). A significantly lower COVID-19 infection rate was observed among people with normal level of vitamin D (> 50 nmol/L) compared to those with vitamin D deficiency after adjusting for the observable confounding variables and for the country level heterogeneity. In conclusion, the findings of this research suggest an inverse relationship between vitamin D and COVID-19 infection, and hence raising serum vitamin D to normal level can reduce COVID-19 infection significantly.