Epidemiology

PO - (8430) - A GEOSPATIAL APPROACH TO PREDICTING DIARRHEA PREVALENCE IN NIGERIA.

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Background: Nigeria ranks second globally only behind India in under-five mortality prevalence. In Nigeria, 108.8 children die per 1,000 live births before their 5th birthday. It is of note that diarrhea (15.3% prevalence) is the second leading cause of under-five mortality in Nigeria after pneumonia. General poor hygiene and nutritional status are contributory factors to diarrhea.

Methods: Data was collected for severe acute malnutrition (SAM) using the weight for height z-value (WHZ) and/or oedema criteria. In addition, data on diarrhea prevalence, oral rehydration salt therapy (ORST), improved source of drinking water and improved sanitation were collected. These were obtained for 36 states and federal capital territory (FCT) from the National Bureau of Statistics headquarters in FCT, Abuja for 2015. Correlation analysis was first carried out to determine relationships followed by geographically weighted regression analysis (GWR). GWR was used to predict under-five mortality pattern and accuracy mapped.

Results: Observed correlation coefficient to diarrhea prevalence were 0.59, -0.49, -0.35 and -0.63 for SAM, ORST, improved drinking water access and improved sanitation respectively. $R^2$ varied across states though positive from 0.29 in Akwa Ibom to 0.95 in Kebbi states. Standard deviation of residuals in the regression model ranged from -3.89 to 3.33 in Borno and Gombe states respectively. While Sokoto and Bauchi had 0.006 and 0.024 respectively thus having the best accuracy in predictions across all states in the country. Both correlation and GWR were at $p<0.05$

Conclusion: The results obtained supports past literature confirming the inverse relationship between ORST prevalence, improved drinking water access and improved sanitation to diarrhea prevalence. It also supports the already confirm positive relationship between poor nutrition of children and susceptibility to diarrhea. The study however expanded the frontiers of knowledge by incorporating geocomputation to predict diarrhea prevalence.