ABSTRACT

Subclinical vitamin A (VA) deficiency (VAD) continues to be a global problem widely affecting children within 1,000 days of life. Western Kenya experiences high infant mortality partly attributable to VAD. A community based cross-sectional survey among children 6-23 months was undertaken in Western Kenya. Socio-demographic and dietary intake information were collected. Analysis of retinol-binding protein (RBP) and C-reactive protein (CRP) was undertaken to estimate VA and sub-clinical inflammation. Values were adjusted for influence of inflammation and population prevalence of VAD estimated. Anthropometric data measured stunting, wasting and underweight, taking into account age and sex. ArcGIS and GeoDa 1.6 were used for spatial analysis. VAD clustering levels were assessed using Local Indicators of Spatial Association. Regression analysis was conducted to model the most significant spatial predictors for VAD. Qualitative data was collected to exam awareness and perceptions on VAD. The inflammation-adjusted mean (±SE) prevalence of VAD was high (20.1±1.1%) in this population. Intake of VA capsule was a predictor of VAD with children who have not taken VA during the past 1 year prior to the survey having a 30% increased risk of VAD (OR (CI): 1.3 (1.1-1.7); p=0.025. Age of child was a predictor with older children having a 30 % increased risk of VAD (OR (CI): 1.3 (1.1-1.9); p=0.035); caretaker's knowledge on VA and nutrition was a predictor of VAD with children whose caretakers had poor knowledge having a 40 % increased risk of VAD (OR (CI): 1.4 (1.0-1.9); p=0.027. The child's location was a predictor of VAD in all the sub-counties, where Bunyala showed the strongest predictor for a child developing VAD (Adjusted odds ratio=3.5, CI =1.7-6.9, p=0.000), followed by Bungoma North (Adjusted odds ratio=2.2, CI=1.2-3.9, p=0.011), Kimilili (Adjusted odds ratio=1.9, CI=1.0-3.7, p=0.045). This shows that among the four sub-counties, a child residing in Bunyala had the highest risk of developing VAD and least risk in Bungoma East. Analysis of Moran's Index in Bungoma and Busia revealed heavy clustering. Length of crop growing period, distance to health facilities, markets and towns emerged as significant spatial predictors of VAD. Majority of the people in the community had low awareness of VAD. Nutrition specific interventions need to focus on areas with high VAD clustering while nutrition sensitive interventions need to focus on low VAD clustering areas. There is need for health education to raise community's awareness on VAD in such settings in order to augment prevention, control and elimination efforts.