Generalized linear spatial modeling of HIV in Kenya

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Abstract

Using geoRglm, Generalized Linear spatial models are used to study HIV prevalence in Kenya using data from the 2003 Demographic and Health survey. The relationship between HIV prevalence computed at 400 clusters and behavioral, socio-demographic and biological determinants was determined and significant covariates identified. We included a stationary Gaussian process S with a powered exponential spatial correlation function to account for the spatial variation in the model and used Kriging to estimate the missing data. The study finds large regional variations in the prevalence of HIV in Kenya and identifies key socio-cultural practices, among them male circumcision and societal acceptance of concurrent/multiple partnership, as principle determinants of the HIV transmission in Kenya.

Key Words: Generalized linear spatial model; Kriging; spatial clustering; Kenya

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