

Age-gender specific spatio-temporal trends of small area mortality in South Africa, 1997–2010

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Mortality maps contribute to a better understanding of the geographical distribution of burden of diseases and the identification of possible risk factors that explain the variations. These have enabled epidemiological investigations and environmental hypotheses. Mortality profiles can be better interpreted when they are interrogated from chronological and dynamic atlases based on spatio-temporal modelling perspectives. This paper describes the local municipality distributions of age-gender (0-4, 5-14, 15-34, 35-64 and 65+, male and female) specific mortalities and their changing patterns from 1997 to 2010 in South Africa. Shared component spatiotemporal hierarchical Bayesian models were used to estimate common and specific mortality rates and rate ratios for municipalities; the later comparing the rates to the whole country. The results show differentials in age-gender mortality risk profiles between municipalities and time periods. These are discussed in the context of changing spatial and temporal patterns in cause-specific mortality in the country. In conclusion, dynamic geographical and time distributions of mortality contribute to a better understanding of the evolution in the recent time of the burden of diseases in the country.

Key Words: All-cause mortality statistics, multiple disease mapping, shared component spatial models, South Africa