Chapter XIII

Spatial Modeling of Risk Factors for Gender-Specific Child Mortality in a Rural Area of Bangladesh

Mohammad Ali
International Vaccine Institute, Korea

Christine Ashley
University of Minnesota, USA

M. Zahirul Haq and Peter Kim Streatfield
International Centre for Diarrheal Disease Research, Bangladesh

This chapter describes the use of geographic information systems to predict spatial risk of child survival problems in a rural area of Bangladesh. Demographic, health service and socioeconomic surveillance data linked with a geographic information system from the rural area were used to predict the risk of gender-specific child mortality. Temporal data from the area show that child mortality rates have declined, and that gender differences in mortality have been eliminated. However, results of the higher mortality area analysis show that this decline has not been consistent in all areas. A wide geographical variation of mortality exists within the area as well. In general, places that had no intensive child health intervention, no outside embankment and were distant from a treatment center predicted a higher risk for child
mortality. An area with Hindu predominance predicted risk for only female child mortality. The results of the analysis suggest that, with socioeconomic and cultural interventions, spatial variations in child mortality can be minimized.

INTRODUCTION

The global reduction of child mortality has been a priority of international and national organizations for the last few decades. The Health for All by the year 2000 goal set at Alma Ata called for the equitable distribution of health services to all children, transcending geographical boundaries. Despite widespread global efforts to improve child survival, the latest UNICEF report on the State of the World’s Children 2000 (UNICEF, 2000) indicates that child mortality rates continue to remain higher in Lesser Developed Countries (LDCs), and in some areas, girls continue to die at a greater rate than boys.

Demographic surveillance data from Matlab, a rural area of Bangladesh, indicate that the mortality rates of the children (aged 1-4 years) in the area have declined greatly in the last two decades (Figure 1). The rates have also declined in other rural areas across the country (BBS, 1987, 1998), though a lesser extent than in Matlab. In Matlab, the mortality rates declined by 56% for boys and 69% for girls from 1985 to 1995, as compared to a decline of 16% for boys and 24% for girls in other rural areas nationwide. The gender mortality differential that was notoriously high in Matlab in the 1980s virtually disappeared by the mid-1990s. The

Figure 1: Temporal pattern of gender specific mortality in Matlab
Overview, Classification and Selection of Map Projections for Geospatial Applications
Eric Delmelle and Raymond Dezzani (2009). Handbook of Research on Geoinformatics (pp. 89-98).
www.igi-global.com/chapter/overview-classification-selection-map-projections/20391?camid=4v1a