

SPATIAL ANALYSIS AND MODELING CHILD MORTALITY AND NUTRITION IN SRI LANKA

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In spite of the fact that the Millennium Development Goals (MDG) have implemented many programs to improve child health, available data on child nutritional status and mortality at the district level in Sri Lanka shows that some districts are far beyond the national average. It is important to understand district level variation of child mortality and nutrition for policy makers and planners who are involved with child health programs. Therefore, the main objective of this study is to develop a vulnerability model to show the spatial differences of child mortality and child nutrition and analyze the correlation between child mortality and nutrition.

At the beginning, all the data in the text format which is gathered from publication on the Department of Census and Statistics and Ministry of Health is transferred to SPSS statistical software and that data is converted to a percentage to bring them to same format. As there is high correlation between the variables which represent mortality and nutrition factor analysis is done to achieve data reduction which reduces the number of variables and gains the simplicity. Four factors (two factors each) represent the child mortality and children nutrition instead of 15 variables.

After verifying the geographical reference of the SPSS data file and district shape file of the GIS then both files are joined. After joining the choropleth maps are developed and then it converted from vector to raster using the Polygon to Raster tool in Arc Toolbox. Each input variable is reclassified using a range of values from 1 to 10 to normalize the values and to provide a common measurement scale. After all the input variables are converted, they are added to Model Builder in raster calculator. The vulnerability score for each district is set such that it fell into one of four classes, with class one being the least vulnerability and class four being the most vulnerable.

According to the developed vulnerability model of child mortality, Nuwara Eliya, Pollonnaruwa and Batticalo districts are the most vulnerable districts and Monneragala and Killinochi are the least vulnerable districts. The vulnerability model of child nutrition shows that the Nuwara Eliya, Rattnapura, Baddula, Ampara and Mulathive districts are the most vulnerable while Puttalan, Collombo, and Kalutara districts are the least vulnerable district.

The vicariate correlation between child nutrition and mortality is weak ($r = -.326, -.123, .194, .358, p > 0.05$). Based on this statistical analysis it can be concluded that there is no correlation between children mortality and nutrition deficiencies of children in Sri Lanka. Therefore it is important to find out the reason behind the child mortality other than nutrition.