Forecasting the Trend of Traffic Accident Mortality in West Iran

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Abstract

Background: Traffic accidents are the main cause of deaths in developing countries. Fatalities due to traffic accidents are assessed through a three-year time series forecast.

Objectives: The aim of this study is to use trend assessment to predict traffic accident fatalities for January 2013 to December 2015 in Kermanshah province, Iran.

Materials and Methods: This is a historical longitudinal study using time series analysis to identify the best fit model. The criteria of MSE (mean square of error) were used to determine the model with the best goodness of fit. The model that had the smaller MSE value was introduced as a suitable model. The selected model was used to forecast the number of deaths related to traffic accidents in the next three years.

Results: A decreasing trend was observed in accident mortality. The highest and lowest deaths were seen annually in the spring and autumn months, respectively. The SARIMA (0, 0, 0)\(_{(1, 1, 1)}\) 12 model was identified as the best-fit model for data. Prediction values of traffic accident fatalities showed a decreasing trend in deaths in the coming years.

Conclusions: Applying this information can be useful to policy makers and managers for planning and implementing special interventions to prevent and limit future accidental deaths.

Keywords: Traffic Accidents, Mortality, Forecasting