

## عنوان مقاله:

Application of Grey System Theory to Forecasting the Children Death Indexes in Iran

## محل انتشار:

اولین همایش ملی ریاضی و آمار (سال: 1395)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Objectives: Mortality rates and deaths from HIV/AIDS report annually and information for forecasting is not complete. Therefore, we have to choose a suitable method to fit the situation. According to the characteristics of this data, small size and imperfect, for analysis, we selected grey model first order one variable, GM(1,1). Materials and Methods: Data is collected and downloaded from World Health Organization (WHO) reports in Iran at <http://apps.who.int/gho/data/node.country.country-IRN>. In data set, observed values between 2000 and 2013 used to fitting models and observed values in 2014 and 2015 used to evaluate the accuracy of model's predictions. To assess the efficiency of the model fitted and precise of predicted values, we used indexes of Forecast Absolute Error (FAE %), small error probability (P) and the proportion of variance (C). Results: Simulated results show that the accuracy of the model GM(1,1) to predict and forecast both data sets, but with a little suspicious for AIDS data, are largely appropriate and reliable. Forecasting values at (2015, 2020, 2030) 2, 5 and 10 years later for neonatal mortality rate and number of deaths from HIV/AIDS are (9.25, 7.97, 6.22) and (62.58, 77.58, 110.98) respectively. Conclusions: In future studies and estimations, we suggest application of Grey Forecasting Models in other health information.

## کلمات کلیدی:

Neonatal mortality rate, HIV, forecasting Grey Model GM(1,1), forecasting

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