

Chapter 12

Predictive Analytics for Healthcare

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ABSTRACT

The healthcare scheme in India has a lot of differences between rural and urban areas in terms of quality along with changes in private and public healthcare systems. The healthcare system is massive in India and full of inconsistencies and complexities like the other countries. Predictive analytics will help to improve the healthcare systems by providing valuable insight in healthcare. A huge amount of different data sets is generated because of the digitization of healthcare. This digitization allows us to use predictive analytics for better patient outcomes. Predictive analytics is utilized in decision-making activities and prediction making about the future events which are unknown. In this chapter, a brief overview of the Indian healthcare systems is given, along with data representations, challenges, issues, and risks associated with applying predictive analytics in healthcare and case studies with respect to regression and classification models.

INTRODUCTION

India's government has come up with lot of schemes and policies after the independence for health care. Huge differences in terms of quality of medical facilities in India, we see with respect to urban and rural areas. Shortage of medical doctors is seen in rural areas. Technical facilities and administration is offered by the central government, education related to health and services for healthcare is provided by state government. More number of people opt for treatment from private sectors, because of lack of facilities in public health care system. The research in health care domain helps the health care system in predominate way. There are more researchers involved in health care related research studies. Research in health care domain leads to evolution in mankind. The new policies and schemes are introduced by governments, for supporting poor people health care because of the research in health care domain (Rao, Radhika, & Abdul, 2014).

Predictive analytics in health care domain helps to predict the various diseases infliction among people in advance. Accordingly, government can form the schemes and policies for the betterment of public of their nations. The research related to representation, collection and maintenance of healthcare data improved the quality of medical treatments and recovery for patients. Predictive analytics improved the accessibility of resources, optimization of cost utility and manpower and improvising the patient treatments. Predictive analytics contributes to health care sectors man power, methodologies and technology (Andrew Bartley).

In this chapter, how predictive analytics is contributing to the field of health care domain is discussed.

BACK GROUND

Health care has practiced evidence-based and ethical clinical standards in research. Big data analytics over medical field data, will improve the services, quality, treatments and early detection of diseases. Big data analytics helps in improving the survival rates of patients, diagnosing test reports and diseases. Decision tree kind of machine learning algorithms helps in classifying patients' records based on their basic parameters collected for diagnosing chronic. Big data analytics gives scope for more amounts of predictions for staffs in medical domain for treating the patients as well as in improving the self-care of patients' diseases (Boukenze, Mousannif, & Haqiq, 2016).

Big data given a significant scope for improvising the applications for healthcare systems by providing electronic health records. It is used widely now to deal with huge data for analysis. The healthcare decisions can be improved by using data

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