Statistical Study of Type 2 Diabetes in Kolhapur: Associated Risk Factors, Prevalence and Complications

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ABSTRACT

Diabetes is one of the most prevalent diseases in the world today with high mortality and morbidity rate, thus one of the biggest health problems in the world. Diagnosis of diseases is a vital role in medical field. The use of data mining on medical data brings important, valuable and effective achievement, which can enhance the medical knowledge to make necessary decision. The paper is organized as follows; it first gives a study done on diabetes and its types. Second it explains the Data Mining techniques and Statistical method used to predict Diabetes. Then the paper ends by concluding with summary of investigated methods.

Keywords: Prevalence, BMI, mellitus, hypothesis, Chi-square-test

INTRODUCTION

Diabetes mellitus (DM) is one of the world's major diseases. It is a disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood. India is now days known as diabetic capital of the world with more than 50 million people suffering from type 2 diabetes. According to World Health Organization (WHO) fact sheet on diabetes, an estimated 3.4 million deaths are caused due to high blood sugar Increasing obesity among people is said to be one of the main factors causing diabetes. But it has been reported that most of the Indians have increased insulin resistance and increased susceptibility to diabetes despite lower BMI. The prevalence of diabetes has been reported to be low in rural areas, but studies suggest that it is rapidly increasing even in rural area. Un−monitored prevalence of diabetes results in increased risk of vascular complications like cardiovascular, neural and visual disorders which are related to the duration of the disease. But unfortunately, more than half of the people with diabetes remain undiagnosed.

Objectives

➢ To study the association between diabetes & family history of diabetes
➢ To study the association between diabetes & body mass index (BMI)
➢ To study association between diabetes & respondents' type of work
➢ To study association between diabetes & gender
➢ To study association between diabetes & exercise
➢ To study the equality of proportion of diabetic male & female
➢ To study the equality of proportion of patients with & without family history
➢ To study the equality of proportion of respondents (cases) performing daily physical exercise

METHODOLOGY

Primary data is collected through a structured questionnaire. The univariate, bivariate and multivariate analysis has been applied on the data. In univariate analysis the single variable has been uniquely examined by means of graph and percentages. In bivariate analysis, the relationships among variables were explored and in multivariate analysis, tried to identify risk factors of the diabetes along with their corresponding probabilities according to the survey conducted.