Analysis the effects of hypertension and age, BMI on Type 2 Diabetes Mellitus

1. Intro

Nowadays, diabetes is posing a threat to a lot of people. This report aims to design a process to figure out the influence of processing factors like hypertension, age, BMI, gender on (type 2) diabetes and to illustrate the visualization of diabetes (type 2) data with some related factors. The specific reasons for the impact of these factors have not yet to be examined. Specifically, it is related to problems about whether hypertension associated with age, BMI and gender matters diabetes or not and how big the impact (He, J. et al 2000 p.546). Given that hypertension is a common and long-term medical condition and it is also a major risk for any disease. In this case, we assume that hypertension has a significant effect on diabetes (type 2). There are other issues that we can study in-depth, such as how to classify the people who may have high risks in diabetes.

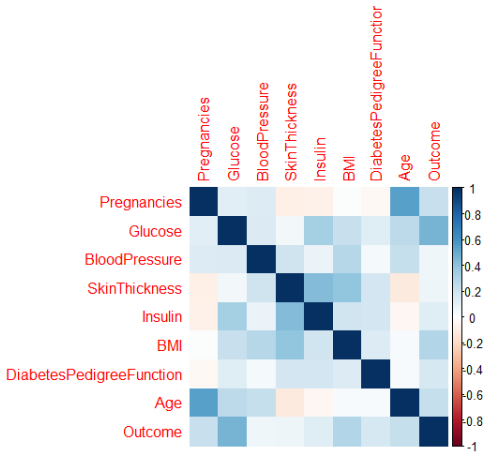
2. Literature review

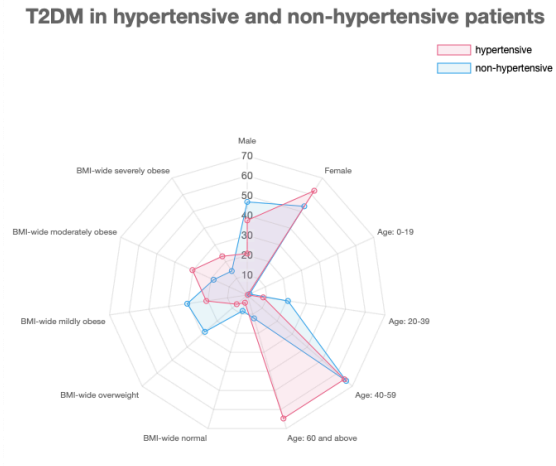
There is a potential risk that hypertension may lead to great damages to the body. The results also suggested that BMI(body mass index) was an essential parameter in hypertension(Nur, N. et al 2008 p.88). Thus, we should take BMI into account for the development of hypertension. For this reason, we consider hypertension as the main factor that plays a vital role in the onset of diabetes. It is also evident that gender difference was thought a very important pathogenic factor in diabetes (Gale, E.A. and Gillespie, K.M. 2001 p.12). Especially, men have higher risks in type 2 diabetes mellitus than women. Some researchers believe that the risk of diabetes in younger age groups is lower than in older groups (Krakoff 2003 p.80). This is strong proof that the onset age can make a difference to T2DM. To sum up, this project can analyze the impact of hypertension with the age- and gender-Mediated modifications to T2DM. On this basis, we can further predict the T2DM efficiently which can help to improve people's health conditions (Sridhar 2018).

3. Design

First of all, we need to acquire data on T2DM from a website (https://figshare.com) and divide it into two classifications in this report. One is people with hypertension and diabetes. Another is that people without hypertension but with diabetes. Then we can calculate some statistics like correlation, ANOVA test and so on to quantify the impact of hypertension associated with age and BMI of people. As for the correlation, we can implement the scatterplot matrices whose cell contains

an entire scatterplot chart and shows all possible pairwise combinations of attributes. Also, the Heat map is a good choice to display the values in a data matrix. Next, a radar chart can be applied in the same conditions(like age, gender, range of BMI) to compare these two types of people.





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https://figshare.com