Abstract:

Title: Analyzing the Impact of Behavioral Lifestyle Choices, Socioeconomic Status, and Access to Healthcare on Perceived Health: A 2021 SMART BRFSS City and County Data Analysis

Author: Obinna Dinneya

Date of Submission: September 25th, 2023

Institution: Toronto Metropolitan University

This project explores the profound influence of behavioural lifestyle choices, socioeconomic status, and access to healthcare on individuals' perceived health. These factors are pivotal determinants that significantly impact overall health and well-being. This research aims to quantify the degree to which each factor affects an individual's perception of their health, providing invaluable insights into personalized healthcare interventions and informed public health policies.

The project aims to answer the following research questions:

How do dietary habits and nutrition shape an individual's health outcome?

What is the role of socioeconomic status and access to healthcare in predicting health outcomes?

Can lifestyle factors, including smoking and alcohol consumption, predict health risks and outcomes?

How predictable are chronic diseases, such as diabetes and hypertension, through a combined analysis of lifestyle factors and genetic predisposition?

What is the significant contribution of mental health factors, such as stress, anxiety, and depression, to health outcomes, and what pathways influence overall well-being?

This research project will utilize the 2021 SMART: BRFSS City and County Data and Documentation from the Centers for Disease Control and Prevention (CDC) website to answer these research questions (Centers for Disease Control and Prevention, 2021).

The structured dataset comprises 152 variables, encompassing a mix of numerical and object datatypes. Some variables are answers to a questionnaire, while others are output variables calculated from input data. The methodology crucially involves reducing the dataset's complexity by emphasizing the importance and relevance of variables to the research inquiries. This deliberate reduction enables a more precise and actionable analysis, ensuring scrutiny of variables that closely align with the primary objectives of this project.

The proposed methodology involves leveraging themes like predictive analysis techniques focusing on classification; the models will include Decision trees, Random Forests, K-nearest neighbours, and neural networks. Python and Tableau will be used to develop this research project. Specifically, we employ Python libraries, including TensorFlow, Seaborn, numpy, Matplotlib, Scikit-learn, Pandas, and Data Profiling.

This research project explores the multifaceted interplay between behavioural and socioeconomic factors and perceived health. The anticipated findings aspire to guide public health strategies, healthcare practices, and individual lifestyle modifications, ultimately advancing the well-being of diverse populations.

References:

Centers for Disease Control and Prevention. (2021). 2021 SMART: BRFSS City and County Data and Documentation. Retrieved from <https://www.cdc.gov/brfss/smart/smart_2021.html>